

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Preliminary report of molybdenum occurrences in Arizona

by

Jan C. Wilt 1/, Stanley B. Keith 2/, Jocelyn A. Peterson 3/
Donald F. Huber 3/ and Ted G. Theodore 3/

U.S. Geological Survey
Open-File Report 84-9
1984

Prepared in part under U.S. Geological Survey Contract
14-08-0001-17737 to the

Arizona Bureau of Geology and Mineral Technology

a division of

The University of Arizona

This report is preliminary and has not been reviewed for
conformity with U.S. Geological Survey editorial
standards and stratigraphic nomenclature

1/ Present address: J.C. Wilt & Co., Tucson, AZ. 85746

2/ Present address: MAGMACHEM Assoc., Phoenix, AZ. 85044

3/ Menlo Park, CA., 94025

RECORD #	STATE CODE	COUNTY	DEPOSIT NAME	TOWNSHIP + RANGE	LATITUDE + LONGITUDE	COMMODITIES PRESENT									
M004225	04			28N	18W	22	35-47-45N	114-12-20W	AU	PB	AS	MO	W	A	
M003904	04														
M030496	04		? PROSPECT	15N	02E	27			MO						
M800112			AMOLE DISTRICT												
M899986			BANNER DISTRICT												
M030377	04		BLUE HELL GROUP	19N	215W	101	35-03- W	113-49- W	W	MO	BI	PB	CU	AG	
D000847	04		BORIANA MINE	18N	115W	118	34-56-15N	113-54-53W							
M800127			CATALINA DISTRICT												
M800110			CATALINA DISTRICT												
M899993			CHILD-SALOWINKLE MIN												
M030334	04		CINNABAR MINE	02N		09	33-32-15N	114-19-18W							
M000930	04		COPRITE MINE	17S	16E	28	31-55-31N	110-42-30W	CU	AG	MO	ZN	PB		
M030372	04		DOYLE VANADUIM MINE						V	MO	AU	AG	PB	Z	
M000917	04		EAST HELVETIA DEPOSIT	18S	115E	125	31-49-59N	110-45-33W	CU	MO					
M030363	04		EMPIRE MINE	24N	18W	35	35-25-25N	114-10-31W	AU	AG	MO	V			
M030542			ESPERANZA MINE GROUP	18S	12E	50	31-52-20N	111-08-08W	PB	ZN	CU	AG	AU	M	
M899997			ESPERANZA AND SIERRA												
M899994			GLOVE MINE GROUP												
M030527	04		GUPHER MINE	18S	17E	18	31-52-26N	110-36-36W	PB	ZN	CU	AG	AU	M	
M030427	04		HUSKON #11	28N	210E	133	35-45-13N	111-17-17W	U	CU	MO				
M030358	04		LAXTON PROPERTY	20N	15W	26	35-05-30N	113-51-10W	CU	MO	PB	ZN	W		
M003426	04		LEVIATHAN MINE				NE		MO	CU					
M030324	04		MABLE MINE GROUP	04S	18W	31	33-02-10N	114-09-45W	PB	AG	F	BA	V	MO	
M030422	04		MAYBEE GROUP						MO	PB	AG	AU			
M899987			MIAMI												
M800114			MIAMI-INSPIRATION DI												
M899991			MISSION MINE												
M030350	04		MOMMOTH MINE	12S	08E	04	32-24-52N	111-31-44W	CU	AG	PB	ZN	MO	A	
M899995			MORENCI OPEN PIT MIN												
M899999			NEW CORNELIA (AJU) M												
M800128			ORACLE DISTRICT												
M800111			ORACLE DISTRICT												
M030434	04		OVERLAND MINE	04S	15E	28	33-02-58N	110-48-42W	PB	MN	CU	MO	V		
M800125			PIMA DISTRICT												
M800124			PIMA DISTRICT												
M899988			PIMA OPEN PIT MINE												
M800120	04		PRINCE OF ARIZONA MI	05N	01W	16	33-46-37N	112-21-53W	PB	ZN	V	MO	AG	A	
M003825	04		PROSPECT NEAR OLD MI				34-49-25N	113-46-20W	CU	MO	AU	AG	PB		
M800129			RAY MINE												
M800109			REDDINGTON DIST.												
M800126			REDINGTON DIST.												
M030371	04		SALLY ANN MINE						AU	AG	CU	PB	MO		
M899989			SANTO NINO MINE												
M899992			SAN MANUEL-KALAMAZOO												
M899990			ST. ANTHONY MINE												
M030576	04		ST. GEORGE MINE	15S	22E	36	32-05-44N	110-03-19W	CU	ZN	W	MO			
M899996			TWIN BUTTE MINE												
M030495	04		VENEZIA	12N	02W	12	34-23-40N	112-25-02W	MO						
M800113			WARREN DIST.												
M030355	04		WHEELER WASH AREA	20N	215W	113	35-06-33N	113-48-39W	AG	AU	MO	CU	HG	P	
M030423	04	APACHE	MONUMENT #2 MINE	41N	23E	29	36-55-58N	109-53-06W	U	V					
M030566	04	COCHISE	ABRIL MINE	17S	23E	34	31-54-30N	109-59-29W	ZN	CU	PB	AG	AU	M	
M016133	04	COCHISE	BISBEE AREA	22S	23E	26	27-30-00N	109-55-00W							
M030558	04	COCHISE	CALIFORNIA DISTRICT	15S	29E	3	31-59-08N	109-17-20W	PB	ZN	CU	CU	AG	A	
M030588	04	COCHISE	CAMPBELL MINE	23S	24E	15	31-25-28N	109-53-23W							
M030570	04	COCHISE	COCHISE DISTRICT	15S	122E	2	32-06- W	110-04- W	CU	ZN	W	PB	AG	A	
M030582	04	COCHISE	DEFIANCE MINE	19S	25E	32	31-44-37N	109-49-19W	PB	AG	CU	AU	ZN	M	
M030571	04	COCHISE	DONNA ANNA WORKINGS	15S	22E	26	32-05-41N	110-04-57W	W	CU	PB	AG	MN	M	
M030562	04	COCHISE	DOS CAREZAS DIST.	13S	126E	2	32-10-30N	109-37-00W	CU	AU	PB	ZN	AG		
M030563	04	COCHISE	ELNIA MINE	14S	27E	09	32-14-52N	109-35-40W	CU						
M030584	04	COCHISE	EMERALD AND SILVER P	20S	22E	23	31-41-10N	110-04-15W	PB	ZN	AG	AU	CU	M	

M030585	04	COCHISE	EMPIRE MINE	2VS	22E	11	31-42-23N	110-03-11W	AG	PB	CU	F	ZN	M
M030583	04	COCHISE	GOLD CAMP MINES AREA	2VS	24E	15	31-41-31N	109-53-16W	CU	PB	AU	AG	MO	
M030560	04	COCHISE	HILLTOP EXTENSION	16S	30E	28	32-59-59N	109-16-30W	PB	AG	CU	ZN	AU	M
M030559	04	COCHISE	HILLTOP MINE	17S	130E	05	31-59-08N	109-17-20W	PB	ZN	CU	MO	AG	A
M030572	04	COCHISE	JOHNSON CAMP	15S	22E	23	32-06-34N	110-03-50W	CU	AG	BE	MO	ZN	
M030573	04	COCHISE	KEYSTONE MINE	15S	22E	36	32-05-33N	110-03-34W	CU	ZN	MO	W	AU	A
M030561	04	COCHISE	KING AINSWORTH	17S	31E	04	31-58-36N	109-11-04W	ZN	PB	CU	AG	AU	M
M030574	04	COCHISE	MAMMOTH MINE	15S	22E	23	32-06-35N	110-04-37W	CU	ZN	AG	PB	MO	B
M030567	04	COCHISE	MIDDEMARCH MINE	18S	23E	12	31-52-41N	109-56-54W	ZN	CU	AG	AU	PB	M
M000123	04	COCHISE	MIDDLE PASS DISTRICT	17S	123E	2	31-52-00N	109-57-10W	ZN	PB	CU	AG	AU	
M030575	04	COCHISE	MOORE MINE	15S	22E	23	32-06-40N	110-04-29W	CU	ZN	AG	AU	W	M
M030581	04	COCHISE	MYSTERY MINE	19S	25E	29	31-44-39N	109-49-06W	PB	ZN	AG	CU	MO	
M030568	04	COCHISE	PEARCE DISTRICT	17S	125E	235	31-54-02N	109-48-52W	AU	AG	F	CU	U	
M030569	04	COCHISE	PEARCE MINE	18S	25E	05	31-54-02N	109-48-52W	AG	AU	MO			
D000757	04	COCHISE	REPUBLIC MINE	15S	22E	36	32-05-24N	110-03-35W	CU	ZN	AG	PB	AU	B
M030580	04	COCHISE	SILVER BELL MINE	19S	25E	32	31-44-34N	109-49-17W	PB	AG	AU	CU	ZN	M
M030564	04	COCHISE	SILVERRELL	14S	29E	29			W	CU	MO	ZN	MN	
M030577	04	COCHISE	STANDARD PROSPECT	16S	23E	06	31-03-58N	110-02-26E	ZN	CU	W	BE	MO	
M001252	04	COCHISE	SWISSFLM DISTRICT	20S	27E	12			PB	ZN	AG	CU	AU	
M030579	04	COCHISE	TOM SCOTT MINE	19S	25E	32	31-44-24N	109-49-15W	PB	ZN	CU	AG	AU	
M000989	04	COCHISE	TOMSTONE DIST.	20S	221E	2	31-42-30N	110-04- W	AG	PB	MN	CU	ZN	A
M030586	04	COCHISE	TRIBUTS MINE	20S	22E	11	31-42-09N	100-04-10W	PB	AG	AU	CU	MO	
M030578	04	COCHISE	TUNGSTEN KING	16S	22E	01	32-04-34N	110-08-57W	W	CU	PB	MO	BE	
US04113	04	COCHISE	TURQUOISE DISTRICT	19S	224E	2	31-44- V	109-49- W	AG	PB	CU	AU	ZN	M
M030587	04	COCHISE	WARREN DIST.	22S	223E	2	27-30- V	109-55- W	CD, BI, SE, TE, AS, S					
M03565	04	COCHISE ?	ESCAPULE PROPERTY	18S	23E	24	31-51-02N	109-56-30W	PB	ZN	AG	CU	AU	M
M030425	04	COCONINO		28N	210E	0	35-45- V	111-04- W	U	CU	MO	V	CO	M
M030428	04	COCONINO	ALICE TOLINO MINE	29N	09E	24	35-51-20N	111-21-18W	U	MO				
M030426	04	COCONINO	HUSKON #13 MINE	28N	10E	29	35-45-57N	111-20-32W	U	CU	V	MO		
W016027	04	COCONINO	JASPER GROUP	39N	06E	27	36-44-53N	111-44-37W	U	CU	MO			
W016025	04	COCONINO	ORPHAN LODE MINE	31N	02E	14	36-04-17N	112-09-00W	U	SB	CO	CU	AU	FE
M030424	04	COCONINO	SUN VALLEY MINF	39N	06E	32	36-44-11N	111-46-58W	U	CU	MO		RH	CD
M030429	04	COCONINO	VERMILION NO. 1 MINE	38N	05E	20	36-41-10N	111-52-40W	U	CU	MO			
M030446	04	GILA	ALBERT LEA PROPERTY	01N	15	1/22	33-24-33N	110-45-47W	PB	ZN	V	AU	AG	CU
M030444	04	GILA	APACHE MINE	01N	15E	02	33-27-45N	110-48-25W	V	PB		MO	ZN	C
W016098	04	GILA	BANNER DISTRICT				33-04-00N	110-45-00W	AU	AG	CU	PB	MO	Z
M001974	04	GILA	BRUNA MINE PROPERTY	01S	14E	06			CU	MO				
M030438	04	GILA	C & B VANADIUM MINE	03S	15E	32	33-07-58N	110-49-57W	PB	V	MO	AG	CU	Z
M030448	04	GILA	CACTUS DEPOSIT	01N	13E	36	33-23-03N	110-58-54W	CU	MO	AU	AG	PB	Z
M030432	04	GILA	CHILITO	04S	15E	22	33-03-57N	110-47-40W	CU	AG		AU	MO	
US04083	04	GILA	CHRISTMAS MINE	04S	16E	29	33-03-48N	110-44-46W	CU	ZN	PB	MO	AG	A
M030449	04	GILA	CUPPER CITIES MINE	01N	015E	107	33-26-30N	110-52-30W	CU	MO	AU	AG	PB	Z
M030510	04	GILA	CROWN POINT	01N	13E	25	33-23-30N	110-59-22W	PB	MO	V			
M030554	04	GILA	DAY PEAKS AREA VEINS	01N	14E	14	33-25-26N	110-53-30W	W	MO	PB	AU		
M030445	04	GILA	DOUGHBOY MINE	01N	15E	11	33-26-02N	110-47-18W	CU	ZN		MO	V	A
M030451	04	GILA	EL OSO GROUP	05N	010E	030	33-45-12N	111-22-37W	W	MO				
M030441	04	GILA	HUPE DEPOSIT	06N	14E	30	33-50-08N	110-57-01W	U	MO	CU	PB	ZN	F
M030437	04	GILA	IRON SPIKE VEIN	04S	15E				V	MO	CU			
M030431	04	GILA	LONDON-ARIZONA MINE	04S	15E	27	33-03-37N	110-47-30W	CU	PB	ZN	MO	AU	A
M030439	04	GILA	MADEIRA PROSPECT	01S	014	1/18	33-20-08N	110-52-18W	CU	MO				
M030436	04	GILA	MCHUR PROSPECT	04S	15E	21	33-03-56N	110-48-42W	V	MO	FE			
M003085	04	GILA	MIAMI	01N	015E	119	32-24-16N	110-52-20W	CU	MO	AU	AG		
M030447	04	GILA	MIAMI-INSPIRATION DI	01N	014E	1	33-24- V	110-53-59W	CU	MO	AG	AU	PB	Z
M030435	04	GILA	PREMIER GROUP	04S	15E	13	33-04-51N	110-46-17W	PB	MO	V		AU	C
M030433	04	GILA	REGAN CAMP PROSPECTS	04S	15E	28	33-03-05N	110-48-17W	PB	CU	V		MO	A
M030511	04	GILA	ROSCOE GROUP						CU	MO				
M000764	04	GILA	SAMSEL MINE	02S	14E	11	33-16-43N	110-53-25W	W	AU	AG	PB	CU	M
M030450	04	GILA	SLEEPING BEAUTY MOUN	01N	14E				PB	MO	W			
M030442	04	GILA	SUCKERITE DEPOSIT	06N	13E	24	33-50-44N	110-58-28W	U	CU	MO			
M002858	04	GILA	TUNGSTEN NO. 1	001N	014E	14			W	PB	MO			
US04076	04	GILA	WORKMAN CREEK AREA	06N	14E	30	33-51-00N	110-57-30W	U	CU	PB	ZN	MO	

M030440	04	GILA	WORKMAN DEPOSIT	06N	14E	19	33-50-45N	110-57-12W	U	CU	MO						
M030430	04	GILA	79 MINE	04S	15E	21	33-03-54N	110-48-51W	CU	PB	ZN	AG	MO	S			
W002677	04	GILA CO.	PINTO VALLEY MINE	01N	14E		33-24-40N	110-57-30W	CU	MO	AU	AG	PB	Z			
M030459	04	GRAHAM		05S	019E	2	32-52-58N	110-00-20W	PB	AG	AU	MO	CU				
M030456	04	GRAHAM	BROOKER T. WASHINGTON	05S	02E	30	32-58-35N	110-20-15W	PB	CU	MO						
M030460	04	GRAHAM	DOUGLASS MINE	06S	20E	33	32-52-22N	110-18-50W	PB	AG	MO						
M030453	04	GRAHAM	FAIRVIEW PROSPECT	05S	19E	25	32-58-02N	110-21-45W	CU	PB	MO	AU	AG				
M030461	04	GRAHAM	GRAND REEF MINE	06S	20E	29	32-53-00N	110-58-58W	PB	AG	CU	AU	ZN	M			
M030458	04	GRAHAM	IONIA CLAIM	05S	20E	30	32-58-40N	110-19-40W	MN	PB	CU	MO					
W016113	04	GRAHAM	LOVE STAR-SAFFORD	05S	026E	2	32-50 TO 5109-36 TO 4CU		CU	MO	AG	AU	PB	Z			
M030455	04	GRAHAM	LUS PARRIS	05S	26E	28	32-58- N109-41- WCU		CU	MO							
M030454	04	GRAHAM	SAN JUAN MINE	06S	026E	202	32-56-50N	109-39-00W	CU	MO	AG	AU					
M030463	04	GRAHAM	SANCHEZ DEPOSIT	06S	27E	25	32-53-00N	109-32-40W	CU	MO							
M002194	04	GRAHAM	SILVER COIN MINE	07S	20E	11	32-50-16N	110-01-42W	PB	MO	AG						
M030462	04	GRAHAM	SINN FEIN MINE	05S	20E	19	32-58-20N	110-20-30W	PB	ZN	AG		AU	M			
US040095	04	GRAHAM CO.	SAFFORD DEPOSIT	06S	27E	05	32-56-15N	109-36-05W	CU	MO	AU	AG	PB	Z			
W002641	04	GREENLEE	MORENCI OPEN PIT MIN	04S	29E	08	33-05-30N	109-22-00W	CU	ZN	MO	PB	AU	A			
M800116	04	MARICOPA	FLYING SAUCER GROUP	06N	06W	12	33-52-40N	112-50-25W	W	MO							
M800238	04	MARICOPA	FLYING SAUCER GROUP	06N	06W	12	33-52-40N	112-50-25W	W	MO							
D000773	04	MARICOPA	GOLD CLIFF MINE	06N	04E	11	33-53-00N	111-54-45W	MO	AU	CU	MO	NR	T			
M800237	04	MARICOPA	LITTLE SAN DOMINGO M	07N	03W	15	33-56-66N	112-33-43W	W	MO	CU	AU					
M800118	04	MARICOPA	LITTLE SAN DOMINGO M	07N	03W	15	33-56-66N	112-33-43W	W	MO	CU	AU					
M800117	04	MARICOPA	MARICOPA MINE	06N	04E	08	33-52-47N	111-57-42W	AU	PB	MO	V	AG				
M800240	04	MARICOPA	MARICOPA MINE	06N	04E	08	33-52-47N	111-57-42W	AU	PB	MO	V	AG				
M800243	04	MARICOPA	PRINCE OF ARIZONA MI	05N	01W	16	33-46-37N	112-21-53W	PB	AN	V	MO	AG	A			
M001909	04	MARICOPA	ROWLEY MINE	04S	08W	25	33-02-55N	113-02-00W	CU	PB	MO	AU	AG				
M800121	04	MARICOPA	TAMARACK GROUP	07N	03W	015	33-57- N	112-34- W	W	AU							
M003319	04	MARICOPA	VULTURE MINE	06NW	05W	025		112-50- W	AU	PB	MO	CU	ZN				
M800241	04	MARICOPA	A LUCKY STRIKE CLAIM	07N	03W		33-57- N	112-35-30W	U	PB	CU	ZN	MO				
M800122	04	MARICOPA	A LUCKY STRIKE CLAIM	07N	03W		33-57- N	112-35-30W	U	PB	CU	ZN	MO				
M030500	04	MARICOPA	A WHITE PICACHO DIST.	06N	002W	0			FLD	LI	BI	BE	NB				
M800239	04	MARICOPA	C BLACK HAWK MINE	05N	06W	01	33-48-03N	112-50-42W	PB	MO	AU						
M800119	04	MARICOPA	C BLACK HAWK MINE	05N	06W	01	33-48-03N	112-50-42W	PB	MO	AU						
M002803	04	MARICOPA	C CAVE CREEK DIST.	06N	04E	08	33-52-35N	111-57- W	CU	MO	AU	AG	PB	W			
M800242	04	MARICOPA	TAMARACK GROUP	07N	003W	015	33-57- N	112-34- W	W	AU							
M030379	04	MOHAVE		22N	217W	1	35-17'-25'	114-51'-13'-AG	AU	PB	CU	V					
M030354	04	MOHAVE		20N	15W	13	35-06-33N	113-48-39W	AG	CU	MO	HG	PB	A			
M030349	04	MOHAVE		18N	15W	18	34-56-15N	113-54-53W	W	CU	AU	AG	MO	CA			
M030348	04	MOHAVE		20N	114W		35	114	W	CU	AU	AG	MO	CA			
M030362	04	MOHAVE		24 N	18 W	32	35-24-44N	114-11-56W	AG	PB	AU	CU					
M030364	04	MOHAVE		23N	217W	118	35-22-15N	114-09-10W	AU	AG	PB	CU	MO	Z			
M030366	04	MOHAVE		19N	120W	203	35-0133N	114-22-55W	AU	AG							
M030374	04	MOHAVE	AMERICAN MOLYBDENUM	17N	14W	29	34-49-37N	113-47-18W	CU	MO							
M030368	04	MOHAVE	AZTEC SHAFT	16N	20W	23	35-00-59N	114-22-09W	AU	AG	PB	MO					
M030367	04	MOHAVE	RIG JIM MINE	19N	20W	23	35-01-10N	114-22-19W	AU	AG	MO	PB	CU				
M030350	04	MOHAVE	HULL CANYON GROUP	18N	15W	07	34-56-57N	113-54-21W	W	MO	CU	BE	F				
M030356	04	MOHAVE	CENTURY MINE	20N	15W	12	35-07-48N	113-49-32W	CU	MO	ZN						
M030383	04	MOHAVE	CLIMAX MINE	30N	17W	33	35-56-36N	114-06-38W	AU	AG	MO						
M030376	04	MOHAVE	COPPER CANYON MINES	17N	14W	19	34-50-20N	113-47-40W	CU	MO	PB	ZN					
M030375	04	MOHAVE	DELUGE WASH AREA	17N	14W	17	34-49- N	113-47- W	CU	MO							
M030347	04	MOHAVE	DEVILS CANYON	15N	14W	14	34-38-18N	113-41-10W	CU	MO							
M030369	04	MOHAVE	DOWNEY & GALLEN	27N	21W		35-43-23N	114-33-10W	CU	MO							
M030366	04	MOHAVE	GOLDEN COMSTOCK MINE	17N	14W	29	34-49-27N	113-46-36W	PB	AG	AU	CU	ZN	M			
M030382	04	MOHAVE	GROSS COPPER PROSPEC	23N	18W	25	35-27-30N	114-09-25W	CU	AU	AG	MO					
M004207	04	MOHAVE	GROSS MOLYBDENITE PR	23N	18W	25			MO								
W016039	04	MOHAVE	ITHACA PEAK OREBODY	23S	17W		35-21-50N	114-08-30W	CU	MO	AU	AG	PB				
M030378	04	MOHAVE	KAABA MINE	20N	14W	26	35-05-31N	113-43-23W	AG	AU	CU	PB	V	M			
M030370	04	MOHAVE	MIDWEST MINE	15N	13W	08	34-38-03N	113-38-56W	PB	MO	AG						
US04019	04	MOHAVE	MINERAL PARK PROPERT	23N	217W	119	35-21-50N	114-08-30W	CU	MO	ZN	PB	AG				
M030380	04	MOHAVE	NEW TENNESSEE MINE	23N	18W	3	E35-24-47N	114-10-54W	PB	ZN	CU	AU	AG	M			
D000780	04	MOHAVE	O.K. CLAIM	28N	18W	28	35-47-30N	114-12-40W	W	PB	AU	MO	AG	CU			

M030352	04	MOHAVE	PASADENA	17N	14W	30	34-49-40N	113-47-50W									
M030384	04	MOHAVE	PIONEER VEIN	19N	20W	21	35-01-07N	114-24-25W	AU	AG	PB	MO					
M030361	04	MOHAVE	PROSPECT	20N	15W	26	35-05-30N	113-49-50W	CU	MO							
M030360	04	MOHAVE	PROSPECTS	20N		23	35-06-06N	113-49-48W	CU	MO							
M030359	04	MOHAVE	PROSPECTS	20N	15W	13	35-06-35N	113-49-10W	CU	MO							
M030385	04	MOHAVE	RAWHIDE MINE	11N	113W	118	34-17-56N	113-39-35W	PB	AG	MO	CU					
M030381	04	MOHAVE	SAMOA MINE	23N	218W	101	35-24-28N	114-08-43W	PB	ZN	AU	AG	MO	C			
D000781	04	MOHAVE	TELLURIDE CHIEF MINE	20N	15W	13	35-06-33N	113-48-39W	W	AU	AG	CU	MO				
M030365	04	MOHAVE	TURQUOISE MOUNTAIN	23N	18W	25	35-21-10N	114-09-00W	MO								
M030351	04	MOHAVE	WALDRON & VENTURE MI	17N	14N	29	34-49-32N	113-47-05W									
M030373	04	MOHAVE	WIKIEUP PROSPECT	15N	13W	22	34-37-43N	113-36-58W	CU	MO	AU						
M030353	04	MOHAVE	YELLOW BASIN	17N	14W	20	34-50- V	113-47-10W									
M030357	04	MOHAVE	GOLD METAL MINE	20N	15W	24	35-06-13N	113-49-35W	CU	AU	AG	MO					
M030464	04	NAVAJO	MITCHELL MESA	41N	420E	213	36-58- V	110-07- V	U	V	MO	CU					
M030465	04	NAVAJO	MONUMENT #1	19E	41 N	24	36-57-00N	110-13-53W	U	V	CU						
M050526	04	PIMA	AGUINALDO MINE GROUP	17S	10E	26	31-55-06N	111-17-08W	PB	AG	MN	CU	AU	M			
M030556	04	PIMA	AJU DISTRICT	12S	106W	U	32-21- V	112-52- V	CU	AG	AU	MO	ZN	S			
D000784	04	PIMA	AJU GUNSIGHT MINE	15S	04W	11	32-06-10N	112-39-30W	AU	AG	CU	MO	W				
M030512	04	PIMA	AMOLE DISTRICT	12S	111E	1	32-10- V	111-05- V	CU	PB	ZN	AG	AU	M			
M000097	04	PIMA	ARIZONA POLYEDRUM M	20S	07E	02	31-43-24N	111-35-50W	CU	MO	AU	AG	PB				
M030514	04	PIMA	BABOQUITVARI DISTRICT	17S	107E	1	31-43-22N	111-35-50W	AU	AG	CU	PB	ZN	M			
M030537	04	PIMA	BIG JOHNNY - LITTLE	17S	10E	23	31-55-46N	111-17-28W	PB	AG	MN	CU	AU	M			
D000787	04	PIMA	BLACK BESS MINE GROU	15S	04W	01	32-03-36N	112-38-38W	AU	AG	CU	W	MO				
M030536	04	PIMA	BLACK PRINCE MINE	14S	101E	024	32-12-30N	112-13-21W	PB	CU	AG	MO?	AU				
M030522	04	PIMA	BUNANZA MINE	16S	08E	26	32-00-30N	111-30-30W	CU	MO	ZN	AG					
D000790	04	PIMA	BROAD TAP MINE	18S	15E	24	31-51-05N	110-45-24W	CU	AG	AU	W	MO				
M000263	04	PIMA	C. & H. MINE GROUP	17S	16E	21	31-56-11N	110-42-50W	CU	AG	AU	MO	W				
M030518	04	PIMA	CABARI DISTRICT	14S	104E	1PAR	32-03- V	111-57- V	AU	AG	PB	CU	ZN				
M030521	04	PIMA	CATALINA DISTRICT	12S	114E	133	32-20-00N	110-55-00W	CU	AG	AU	MO					
D000793	04	PIMA	COPPER QUEEN MINE	16S	13E	06	31-53- V	111-00- V	CU	AG	PB	ZN	AU	M			
US04104	04	PIMA	COPPER WORLD MINE	78S	15E	13	31-51-37N	110-46-01W	CU	AG	AU	W	MO				
M030540	04	PIMA	COWBOY MINE	16S	12E	07	31-52-20N	111-09-21W	CU	AG	MO	PB	ZN				
M000119	04	PIMA	COYOTE DISTRICT	16S	107E	032	32-02- V	111-30-30W	CU	AG	AU	MN	ZN	M			
D000799	04	PIMA	DAISY MINE	16S	112E	136	31-59-10N	111-04-42W	CU	AG	ZN	PB	AU				
M030549	04	PIMA	EL TIRO MINE	11S	108E	033	32-25-04N	111-32-16W	CU	AG	PB	AU					
M000467	04	PIMA	EMPIRE DISTRICT	17S	117E	102	31-54- V	110-35- V	PB	ZN	CU	AG	AU	M			
M002672	04	PIMA	ESPERANZA AND SIERRA	18S	12E	16	31-52-07N	111-07-29W									
M241484	04	PIMA	ESPERANZA OPEN PIT M	18S	12E	08	31-52-07N	111-07-29W	CU	MO	AG	AU	PB	A			
D000802	04	PIMA	GIANT MINE	20S	07E	30	31-40- V	111-35- V	W	CU	AG	MO					
M030523	04	PIMA	GUNSIGHT DISTRICT	14S	104W	016	32-12- V	112-42- V	W	AG	AU	BP	ZN	CU			
M030528	04	PIMA	HELVELTA - ROSEMONT	17S	15E	1	35-51-27N	110-47-17W	CU	PB	ZN	AG	AU	M			
M030517	04	PIMA	HIGH CARD MINE	17S	05E	04	31-58-40N	111-50-30W	AU	AG	CU	PB	ZN				
M030525	04	PIMA	HILTON TUNGSTEN CLAI	18S	17E	4	31-52-40N	110-35-20W	W	MO							
M030545	04	PIMA	INDIANA - ARIZONA MI	12S	08E	25	32-21-20N	111-28-44W	PB	AN	CU	AG	AU	M			
M030533	04	PIMA	ISLE ROYALE MINE	18S	15E	24	31-51-28N	110-46-02W	CU	AG	AU	MO	W				
M030553	04	PIMA	JACKSON MINE	19S	14E	24	31-45-37N	110-51-30W	CU	AG	AU	MO?					
D000808	04	PIMA	KING - EXILE MINE GR	18S	15E	24	31-51-20N	110-45-29W	CU	AG	ZN	PB	AU	M			
M030543	04	PIMA	KORN KOB MINE	12S	17E	14	32-23-12N	110-34-38W	CU	FE	ZN	MO	AG	A			
M000573	04	PIMA	LEADER MINE	18S	15E	24	31-51-34N	110-46-08W	CU	AG	MO	W	AN	A			
M030516	04	PIMA	LITTLE MARY MINE	16S	04E	23	32-01-00N	111-54-45W	AU	AG	CU	MO	PB	R			
M030519	04	PIMA	LUST HORSE GROUP	18S	07E	24	31-50-57N	111-34-56W	CU	AG	AU	CU	PB	M			
D000105	04	PIMA	LUCKY STRIKE NO. 1				32-28- V	110-35- V	PB	MO	V	CU	ZN	A			
M030551	04	PIMA	MAGONIGAL MINE	11S	07E	34	32-25-41N	110-37-33W	CU	AG	PB	MO	MN				
M030552	04	PIMA	MCLEARY PROSPECTS	19S	14E	35	31-43-37N	110-52-47W	CU	MO							
M030555	04	PIMA	MILDREN MINE GROUP	16S	04E	16	32-02-19N	111-55-42W	PB	AG	AU	CU	ZN				
M002676	04	PIMA	MISSION MINE	16S	112E	136	31-59- V	111-04- V	W	CU	AG	ZN	MO	PB	A		
M800115	04	PIMA	NEW CORNELIA (AJU) M	12S	06 W	2E	32-21- V	112-52- V	W	CU	AG	AU	MO	ZN			
M000931	04	PIMA	NEW YORK MINE	17S	16E	29	31-55-58N	110-43-26W	PB	CU	AG	ZN	MO	S			
M030547	04	PIMA	NORTH SILVER BELL DE	11S	08E	33	32-26-00N	111-32-14W	CU	MO	PB	ZN					
D000106	04	PIMA	OLD YUMA MINE	13S	12E	09	32-18-23N	111-07-16W	PB	CU	ZN	MO	AG	A			
M030534	04	PIMA	OMEGA TUNNEL	18S	15E	24	31-51-22N	110-46-10W	CU	AG	PB	ZN	AU	M			

M030532	04	PIMA	ORACLE DISTRICT	11S	15E	1	32-28-00N	110-45-00N	CU	AG	PB	ZN	AU	
M030548	04	PIMA	OXIDE MINE	12S	08E	10	32-23-51N	111-30-38W	CU	AG	AU			
US04100	04	PIMA	PALO VERDE MINE	16S	12E	36	31-59-	111-04-	CU	AG	ZN	BP	AU	M
M030531	04	PIMA	PAPAGO DISTRICT	17S	10E				AG	PB	CU	ZN	MN	M
M030513	04	PIMA	PAPAGO QUEEN	15S	12E	12	32-08-25N	111-04-35W	CU	AG	AU	MO		
M030529	04	PIMA	PAULINE MINE	17S	16E	27	31-55-29N	110-41-49W	PB	AG	CU	ZN	AU	M
M030535	04	PIMA	PIMA DISTRICT	16S	11E	1	31-53-10N	111-04-39W	CU	PB	ZN	AG	AU	M
M030520	04	PIMA	PUNTOTOC MINE	13S	14E	03	32-19-56N	110-54-02W	CU	AG	AU			
M030524	04	PIMA	PRINCE MINE	18S	17E	18	31-52-09N	110-38-39W	PB	AG	ZN	CU	AU	M
M030544	04	PIMA	REDINGTON DIST.	11S	11E	1			CU	AG	W	U		
M000630	04	PIMA	RRIDLEY MINE	18S	15E	21	31-51-08N	110-48-34W	CU	PB	ZN	AG	AU	M
M030538	04	PIMA	SAN XAVIER	16S	12E	23			CU	MO	AG			
M030539	04	PIMA	SENATOR MORGAN MINE	18S	12E	01	31-53-11N	111-04-45W	CU	AG	ZN	PB	W	A
M030541	04	PIMA	SIERRITA OPEN PIT M	18S	12E	07	31-52-12N	111-08-50W	CU	MO	AG	ZN	PB	A
M000109	04	PIMA	SILVER HELL DISTRICT	11S	10E	009	32-25-	111-32-	W	CU	AU	PB	ZN	MO
W002645	04	PIMA	SILVER HELL PROPERTY	12S	08E	04	32-25-	111-32-	W	CU	AG	MO	AU	PB
M030530	04	PIMA	SIRATTON MINE	17S	16E		32-28-00N	110-44-36W	CU	AG	AU	MO		
M030515	04	PIMA	SUNSET MINE	16S	04E	22	32-01-30N	111-55-30N						
D000107	04	PIMA	TOTAL WRECK MINE	18S	17E	3	31-53-45N	110-35-31W	PB	AG	CU	MO	AU	M
W002686	04	PIMA	TWIN BUTTE MINE	18S	13E	05	31-55-	111-02-	W	CU	AG	MO	ZN	PB
M030526	04	PIMA	VERDE QUEEN MINE	18S	17E	17	31-52-20N	110-37-58W	PB	AG	ZN	CU	AU	M
M030546	04	PIMA	WATERMAN DIST.	12S	08E	0	32-25-48N	111-31-47W	CU	PB	ZN	AG	AU	M
W016121	04	PIMA	WEST HELVETIA DEPOSI	18S	11E	123	31-51-38N	110-47-17W	CU	AG	AU	ZN	PB	M
M000407	04	PIMA AND S	SUN LUNE CLAIM	19S	214E	135	31-43-30N	110-52-50W	MO	CU				
M000098	04	PIMA CO.	GOLD BULLION MINE	19S	207E	035	31-43-22N	111-35-50W	AU	AG	CU	PB	ZN	M
M000309	04	PIMA CO.	NEW YEARS EVE MINE (18S	12E	09	31-52-16N	11-07-21W	CU	AG	MO			
W002474	04	PIMA CO.	PIMA OPEN PIT MINE	16S	112E	136	31-59-	111-05-	W	CU	AG	MO	ZN	PB
M030469	04	PINAL		08S	18E	02	32-45-47N	110-28-17W	PB	CU	AG	ZN	MO	F
M030467	04	PINAL	AMERICAN EAGLE BASIN	08S	18E		32-44-45N	110-28-35W	CU	MO				
M030489	04	PINAL	BEAR CAT CLAIMS	10S	16E	8			W	MO	V			
M030483	04	PINAL	BLACK PRINCE MINE						V	MO	PB			
M030472	04	PINAL	CALUMET MINE	03S	13E	12	33-11-07N	110-58-53W	CU	MO				
M030485	04	PINAL	CLARK PROSPECT	01S	13E	12	33-21-21N	110-59-25W	W	MO	CU			
W016136	04	PINAL	COPPER CREEK AREA	08S	18E	10	32-45-	110-29-	W	CU	MO	AG	AU	
M030480	04	PINAL	COPPER HILL MINE	05S	14E	36	32-56-55N	110-51-47W	CU	MO				
M000723	04	PINAL	COPPER PRINCE MINE	08S	18E	10	32-45-12N	110-29-08W	CU	MO	W			
M030474	04	PINAL	ELDER GULCH PROSPECT	03S	14E	29	33-08-25N	110-56-40W	PB	AN	AG	CU		
M030476	04	PINAL	FLORENCE LEAD-SILVER	05S	13E	12	33-00-26N	110-57-27W	PB	AG	CU	MO	CR	Z
7030493	04	PINAL	FRANCISCO GRANDE	06S	005E	019	32-53-00N	111-52-30W	CU	MO				
M000721	04	PINAL	GLORY HOLE MINE	00BS	018E	03	32-45-35N	110-29-26W	CU	MO				
M030490	04	PINAL	GOLD CIRCLE GROUP	07S	14E	13	32-49-40N	110-51-30W	W	AU				
M030473	04	PINAL	GRAYHORSE VANADIUM P	04S	14E	03	33-06-45N	110-54-15W	V	MO	PB	ZN		
M030481	04	PINAL	LAKESHORE MINE	10S	04E	25	32-31-25N	111-54-09W	CU	MO				
M030486	04	PINAL	LITTLE HILL MINE	10S	15E	05	32-35-12N	110-49-53W	AG--	PB--				
M002831	04	PINAL	MAMMOTH GROUP	01N	08E	01	33-27-30N	111-29-15W	AU	MO	MN			
D000829	04	PINAL	MAMMOTH-SI. ANTHONY M	08S	16E	26	32-42-23N	110-41-04W	CU	MO		ZN	V	
M030487	04	PINAL	MAUDINA MINE	10S	16E	20	32-33-07N	110-43-37W	W	AU	PB	MO	CU	
US04079	04	PINAL	MINERAL BUTTE PROSPE	04S	07E	01	33-06-50N	111-34-45W	CU	MO	AU			
M030470	04	PINAL	MINERAL CREEK DISTRI	03S	13E		33-10-	111-	W	CU	MO	PB	ZN	AG
M000385	04	PINAL	NINETY-ONE MINE	03S	14E	27	33-08-18N	110-54-28W	CU	PB	MO	V		
M030466	04	PINAL	OLD RELIABLE MINE	08S	18E	10	32-45-08N	110-29-23W	CU	MO				
M030492	04	PINAL	ORIZABA MINE	09S	04E	25	32-37-11N	111-54-42W	CU	MO	PB	AG	AU	
M000011	04	PINAL	PUMONA	010S	002E	02	32-35-20N	112-07-44W	PB	AG	MO	ZN	V	A
M030478	04	PINAL	POSTON BUTTE	04S	09E	28	33-02-48N	111-25-45W	CU	MO				
M030482	04	PINAL	RAINBOW GROUP	01S	13E	12			W	CU	MO			
M000334	04	PINAL	RARE METALS MINE	04S	13E	08	33-05-30N	111-02-01W	CU	MO				
M030471	04	PINAL	RAY MINE	03S	13E	09	33-10-28N	110-59-40W	CU	MO	PB	ZN	AG	A
M030488	04	PINAL	SACATON/CASA GRANDE	05S	05E	26	32-57-30N	111-49-	W	CU	MO	AU	AG	
M030477	04	PINAL	SADDLE MOUNTAIN GROU	04S	016E	135	33-02-04N	110-41-08W	AU	PB	AG	AN		
M000670	04	PINAL	SAN MANUEL-KALAMAZOO	08S	16E	35	32-41-45N	110-41-20W	CU	MO	AG	AU		
M030484	04	PINAL	SWEDE MINE	01S	13E	12	33-21-40N	110-59-30W	W	MO	CU			

M030469	04	PINAL	TABLE MOUNTAIN MINE	075	18E	15	32-49-03N	110-29-08W	CU	AU	AG	PB	MO	V
M000448	04	PINAL	TURKING POINT MINE	0095	004E	36	32-35-60N	111-53-45W	AG	PB	CU	AU	MO	
M030479	04	PINAL	UPSHAW TUNGSTEN MINE	075	14E	11	32-50-30N	110-52-00W	W	AU	MO			
M030491	04	PINAL	VERUL HILLS MINE	105	03E	04	32-35-15N	112-03-22W	CU	MO	ZN	PB	AG	
M030475	04	PINAL AND	TRUY RANCH PROSPECT	035	14E	23	33-08-53N	110-53-03W	CU	MO				
M000483	04	PINAL CO.	CHILDUS-ALDWINKLE MIN	085	18E	11	32-45-10N	110-28-54W	CU	MO	PB	ZN	AG	A
M030452	04	PINAL CO.	POWERS GULCH AREA						MO					
M030391	04	SANTA CRUZ		0225	015E	35	31-26-45N	110-48-05W	CU		PB	AG	AU	ZN
M030386	04	SANTA CRUZ		0225	015E		31-28-00N	000-42-23W	ZN	PB	AG		AU	CU
M030407	04	SANTA CRUZ		0215	014E		31-44- N	110-55- W	PB	AG	ZN		CU	AU
M030419	04	SANTA CRUZ ?		0235	012E				AG	PB	AU	CU	ZN	
M030417	04	SANTA CRUZ ?		0205	015E		31-370 31	110-4510 50PB	AG	CU		ZN	AU	B
M030414	04	SANTA CRUZ ?		0205	014F	01	31-42-21N	110-51-32W	CU	PB	ZN	AG	AU	M
M030411	04	SANTA CRUZ	ALTO VEIN SWARM	0215	014E	12	31-36-41N	110-51-40W	AG	PB	ZN	CU	MO	A
M001447	04	SANTA CRUZ	BENTON MINE	0245	016E	15	31-20-26N	110-41-40W	CU	MO	AU			
M030399	04	SANTA CRUZ	ROUNZA MINE	0245	016E	NW	31-22-23N	110-41-11W	ZN	CU	PB	AG	AU	M
M001429	04	SANTA CRUZ	HUENA VISITA MINE	0235	015E	36	31-22-51N	110-46-05W	CU	AG	AU	PB	MO	
M030416	04	SANTA CRUZ	GARRIE NATION MINE	0205	014E	14	31-41-53N	110-52-32W	CU	PB	ZN	MO		
M030415	04	SANTA CRUZ	DANIELS MINE	0205	014E	NW	31-43-32N	110-52-13W	MO					
US04110	04	SANTA CRUZ	DATAGONIA DIST (DUGU	0235	015E		31-25- N	110-45- W	ZN	PB	CU	AG	AU	M
M030392	04	SANTA CRUZ	DOMINO MINE GROUP	0225	015E		31-28-23N	110-47-14W	AG	PB	CU	AU	ZN	M
M030396	04	SANTA CRUZ	DOQUESNE-WASHINGTON	0235	016E	34	31-22-12N	110-41-21W	ZN	PB	CU	AG	AU	
M030401	04	SANTA CRUZ	EDNA MINE GROUP	0245	015E	NE	31-21-43N	110-45-47W	W	MO	CU			
M030457	04	SANTA CRUZ	EDWARDS GROUP						MO					
M030413	04	SANTA CRUZ	ELEPHANT HEAD GROUP	0205	014E	04	31-42-36N	110-55-26W	CU	PB	MO	AG	ZN	A
M030400	04	SANTA CRUZ	FOUR METALS MINE	0235	016E	29	31-23-54N	110-44-14W	CU	AG	AU	PB	AN	
M030408	04	SANTA CRUZ	GLOVE MINE GROUP	0205	014E	30	31-39-35N	110-56-47W	PB	ZN	AG	CU	AU	M
M001445	04	SANTA CRUZ	GOLDEN ROSE MINE	0245	016E	36	31-23-21N	110-46-34W	CU	MO	PB			
M030414	04	SANTA CRUZ	GRINGO MINE	0215	015E	36	31-34-18N	110-46-11W	AU	AG	PB	CU	ZN	M
M030402	04	SANTA CRUZ	GROSS COPPER PROSPEC	0235	016E	36	31-23-08N	110-46-17W	CU	MO				
M030387	04	SANTA CRUZ	HARDSHELL MINE	0235	016E	C	031-27-34N	110-42-59W	PB	AG	MN	CU	AGN	
M030389	04	SANTA CRUZ	HERMOSA MINE	0235	016E	04	31-27-22N	110-42-33W	AG	MN	PB	CU	AU	M
M030397	04	SANTA CRUZ	HOLLAND MINE	0245	016E	03	31-22-14N	110-41-44W	ZN	PB	CU	AG	AU	
M030409	04	SANTA CRUZ	IVANHOF MINE	115	015E	34	31-33-42N	110-48-03W	AG	CU	PB	AU	MO	
M030421	04	SANTA CRUZ	J. C. HOLMES CLAIMS											
M030393	04	SANTA CRUZ	JARILLAS MINE GROUP	0235	015E	SE	31-26-21N	110-48-32W	AG	PB	AU	CU	MO	
M001446	04	SANTA CRUZ	LINE BOY MINE	0245	016E	22	31-20-07N	110-41-27W	CU	AG	FE	MO	AU	
M030404	04	SANTA CRUZ	MOWRY MINE	0235	016F	15	31-25-42N	110-42-12W	PB	AG	ZN	CU	AU	M
M030406	04	SANTA CRUZ	O'CONNOR PROSPECT	0245	016E	03	31-22- N	110-41-45W	CU	MO	PB			
M030557	04	SANTA CRUZ	OLD BALDY COPPER MIN	195	1 E	19	31-42-58N	110-51-35W	CU	MO	AG	AU	FE	P
M030403	04	SANTA CRUZ	PROVIDENCIACANYON PR	0235		01531	-23-17N	110-45-52W	CU	MO				
M030388	04	SANTA CRUZ	RED MOUNTAIN	0225	016E	21	31-30-13N	110-43-07W	CU	MO	PB	AN		
M030405	04	SANTA CRUZ	RED RACER						MO	FE				
M000982	04	SANTA CRUZ	SANTO NINO MINE	0245	016E	09	31-21-39N	110-43-05W	CU	MO	AG	AU	PH	
M030394	04	SANTA CRUZ	SIMPLON MINE	023N	16E	34	31-23-09N	110-41-55W	ZN	CU	PB	AG	MO	
M030420	04	SANTA CRUZ	SUNSET MINE GROUP	0245	012E	03	31-22-27N	111-05-48W	AG	PB	AU	CU	ZN	
M030390	04	SANTA CRUZ	THUNDER MINE	0235	016E	07	31-26-41N	110-44-55W	CU	AG	AU	MO		
M030410	04	SANTA CRUZ	TIAJUANA	0205	014E	26	31-40-07N	110-52-23W	ZN	PB	CU	AG	AU	M
M030394	04	SANTA CRUZ	TRES DE MAYO MINE GR	0235	015E	03	31-26-45N	110-48-05W	AG	PB	AU	CU	ZN	M
M030395	04	SANTA CRUZ	VENTURA MINE GROUP	0235	015E	01	31-27-27N	110-45-53W	CU	AG	PB	ZN	AU	M
M030412	04	SANTA CRUZ	7 CLAIMS, 140 ACRES						CU	AG	AU	PB	MO	
M030507	04	YAV. CO.	BEVERING GULCH				34-34- N	113-12-30W						
M030505	04	YAVAPAI	ARIZONA PORTLAND MIN	13N	03W	20	34-29-27N	112-35-40W	CU	MO	AU	AG		
M003467	04	YAVAPAI	BAGDAD COPPER CORP	014N	009W	04	34-35-01N	113-12-23W	CU					
M002767	04	YAVAPAI	BLACK HAWK PROSPECT	014N	003E	16	34-35-51N	112-01-48W	MO	AU				
M003351	04	YAVAPAI	BLACK PEARL MINE	015N	007W	07	34-41-15N	113-02-05W	W	BE	BI	MO	CAF	A
M030494	04	YAVAPAI	BLUE HIRD VEIN MINE	11N	01W	35	34-14-50N	112-19-40W	MO	AU	AG	CU	PB	Z
M003569	04	YAVAPAI	BOSTON-ARIZONA	13N	03W	07	34-31-23N	112-36-43W	PB	ZN	CU	AU	AG	
M030497	04	YAVAPAI	BURNT CANYON PROSPEC	15N	02E	28	34-39-10N	112-07-20W	MO	CU				
M003416	04	YAVAPAI	CLIMAX CLAIM	008N	003W	35			MO	CU	AU	AG	PB	B
M001107	04	YAVAPAI	COMMERCIAL						CU					

M003421	04	YAVAPAI	COPPER BASIN DISTRICT	13N	03W	20	34-29-00N	112-35-00W	MO	W	CU	AU	AG	P
M016056	04	YAVAPAI	COPPER BASIN	13N	03W	16	34-29-00N	112-35-00W	CU	MO				
M003750	04	YAVAPAI	COPPER HILL	013N	003W	20	34-29-26N	112-35-15W	CU	MO				
M004333	04	YAVAPAI	CORNUCOPIA	11N	01W	33	34-15-30N	112-22-15W	AU	CU	AG	MO		
M003473	04	YAVAPAI	EUREKA DIST.	014N	009W	17	34-35-00N	113-13-00W	AU	AG	CU	PB	ZN	R
M030501	04	YAVAPAI	FIESTA GROUP	12N	04W				PB	MO	AG	AU		
M030503	04	YAVAPAI	GENUNG SPRING MINE						PB	MO				
M030502	04	YAVAPAI	GREAT SOUTHERN MINE	08N	03W	32	33-59-56N	112-35-58W	PB	AG	MO			
M002357	04	YAVAPAI	KELLY	10N	01E	02			MO	AU	AG	PB	BI	
M003493	04	YAVAPAI	KENTUCK PROSPECT	012N	001W	19	34-21-59N	112-24-30W	AU	AG	MO			
M003742	04	YAVAPAI	LUMA PRIETA	13N	03W	21	34-29-24N	112-34-60W	CU	MO				
M003464	04	YAVAPAI	MOUNTAIN SPRING MINE	014N	009W				MO	ZN	PB	CU		
M030508	04	YAVAPAI	NEAR UNITED STATES M	08N	01E	27	34-54-		PB	MO	V			
M030499	04	YAVAPAI	OUTPOST MINE	08N	003W	034	33-58-56N	112-33-30W	FLD	BI	SN	V	MO	
M030499	04	YAVAPAI	PICACHO VIEW MINE	07N	03W	10	33-57-44N	112-33-50W	PB	ZN	AU	R.E.	NB-T	
M030504	04	YAVAPAI	PINE FLAT	12N	01W	22	34-21-50N	112-20-00W	CU	MO	AU	AG		
M030506	04	YAVAPAI	SCHROBER MINE	13N	03W	21	34-29-30N	112-34-30W	CU	MO	AU	AG		
M001101	04	YAVAPAI	SQUAW PEAK MINE						CU	MO				
M001108	04	YAVAPAI	STARLIGHT	023S	016E	36			MO	CU	AU	W		
M001168	04	YAVAPAI	TUNGSTENA MINE						W					
M003374	04	YAVAPAI	TWIN LEDGE PROSPECT						MO	CU	AG	AU		
M003571	04	YAVAPAI	U.S. NAVY MINE	13N	03W	18			MO					
M003376	04	YAVAPAI	WILLIAMS	013N	002W	22			CU	AU	MO			
M030509	04	YAVAPAI	CO PRESCOTT AREA	13N	02W		34-30-	112-30-	W	MO				
US04059	04	YUMA		03S	022W		33-05-00N	114-335-00W	PB	ZN	AG	AU	CU	B
M030311	04	YUMA		07S	19W	2	32-45-	114-12-	W	AU	AG	U	V	MO
M030322	04	YUMA		09S	117W	1	32-35-	114-09-	W	CU	AU	AG	FE	V
M030316	04	YUMA		05N	013W	1	33-47-	113-35-	W	AU	CU	AG	W	BA FE
M030314	04	YUMA		07S	19W	2	32-45-	114-12-	W	AU	AG	CU	U	V MO
M030335	04	YUMA		03N	019W	2	33-38-	114-19-	N	AU	AG	PB	CU	ZN A
M030337	04	YUMA		08S	21W				AU	AG	CU	MB1	MO	
M030332	04	YUMA		02S			33-15-	113-2-	AU	PB	FE	F	CU	
M030330	04	YUMA		02N	019W	2	33-35-	114-20-	W	AU	AG	CU	PB	ZN H
M030345	04	YUMA		08S	015W	101	32-34-40N	113-37-35W	AG	PB	BA	AU	CU	MO
M030344	04	YUMA		04S	017W	2	33-	114-10-	W	PB	AG	F	BA	MN IN
M030336	04	YUMA	ADAMS MINE GROUP	04S	18E	31	33-01-55N	114-09-22W	PB	MO	V	AG	F	CU
M030306	04	YUMA	RETTY LEE MINE	11S	17W	02N	32-30-29N	113-59-41W	CU	FE	AG	MO	V	U
M030342	04	YUMA	BLACK ROCK MINE	04S	23W	11	33-05-28N	114-35-37W	PB	ZN	AG	MN	F	
M030339	04	YUMA	BUCKEYF VEIN GROUP	04S	19W	25	33-02-30N	114-10-30W	PB	AG	F	BA	V	MO
M030319	04	YUMA	CASTLE DOME MINE GRO	04S	019W	124	33-02-28N	114-10-30W	PB	AG	F	BA	V	MO
M030320	04	YUMA	CHLORINE, MANDARIN &	04S	22W	06	33-06-30N	114-01-30W	PB	ZN	MO	CU	F	B
M030333	04	YUMA	CLEVELAND-CHICAGO GR	04S	18W	30	33-02-45N	114-04-50W	PB	AG	F	BA	V	MO
M030329	04	YUMA	COLORADO GROUP OR LI	05S	19W	12	33-00-15N	114-10-07W	PB	AG	F	BA	V	MO
M030317	04	YUMA	DESERT MINE	05N	14W	21	33-45-57N	113-43-23W	AU	CU	AG	PB	MO	F
M030315	04	YUMA	FLORA TEMPLE CLAIM	04S	19W	36	33-02-25N	114-10-25W	PB	AG	ZN	MO	V	F
M030304	04	YUMA	GERONIMO	03S	23W	34	33-70-00N	114-36-45W	ZN	PB	MO	V	MN	AG
M030327	04	YUMA	HAACK MINE GROUP	04S	019W	125	33-02-55N	114-10-13W	PB	AG	F	BA	V	M
M030313	04	YUMA	HAMBURG CLAIM	04S	23E	01	33-06-30N	114-34-20W	PB	AG	MO	V	BA	ZN
M030326	04	YUMA	HULL MINE GROUP	04S	19W	24	33-03-37N	114-10-40W	PB	MO	V	AG	F	BA
M030341	04	YUMA	LITTLE JUME MINE	04S	19W	36	33-02-00N	114-10-20W	PB	AG	F	BA	V	MO
M030305	04	YUMA	MCMAHAN PROSPECT	10S	18W	15	32-33-10N	114-06-20W	CU	FE	PB	MO		
M030340	04	YUMA	MCPHAUL COPPER PROSP	08S	21W	14	32-44-24N	114-22-32W	CU	PB	MO	AU		
M030343	04	YUMA	MINE	10S	13W	08	32-34-40N	113-37-35W	AG	PB	BA	AU	CU	M
M030302	04	YUMA	MINE	11S	12W	23	32-27-23N	114-28-01W	PB	MO	AG			
M030312	04	YUMA	PAPAGO MINE	04S	23W	11	33-05-30N	114-35-57W	PB	ZN	AG	MN	MO	V
M030307	04	YUMA	POORMAN MINE	10S	18W	02	33-35-27N	114-05-45W	AU	AG	MO			
M030309	04	YUMA	PRINCESS MINE	04S	23E	01	33-06-22N	114-35-02W	PB	AG	MO	V	BA	ZN
M030323	04	YUMA	RED CLOUD MINE	04S	23W	02	33-06-02N	114-35-57W	PB	ZN	MN	V	MO	C
M030319	04	YUMA	RED KNOB MINE	08S	19W	10	32-44-30N	114-12-	W	U	V	MO	CU	
M030325	04	YUMA	SENORA MINE GROUP	04S	019W	136	33-01-50N	114-10-25W	PB	AG	F	BA	V	MO
M030309	04	YUMA	SILVER GLANCE CLAIMS	04S	23W	11	33-05-45N	114-35-40W	PB	MO	AG	MN	FE	

[illegible]

RECORD 00001

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4004225
RECORD TYPE..... R2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... PRINCIPAL MINES IN THE GOLD BASIN DISTRICT INCLUDE THE ELDORADO, EXCELSIOR, GOLDEN
RULE, JIM BLAINE, NEVER-GET-LEFT, D.K., & CYCLOPIC

MINING DISTRICT/AREA/SUBDIST. GOLD BASIN DISTRICT/E. WHITE HILLS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 GARNET MTN, ARIZ.

LATITUDE LONGITUDE
35-47-45N 114-12-20W

UTM NORthing UTM EASTING UTM ZONE NO
3965000. 751000. 41J

TWP..... 28N
RANGE.... 18W
SECTION.. 22 21 28 29 30
MERIDIAN. GILA & SALT R.

ALTITUDE.. 2900-5000 FT 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 40 MILES N FROM RAILROAD AT HACKBERRY

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB AS MO W AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG
MINOR PRODUCTS.. PB CU

MAIN COMMOD..... AU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... NO

MAIN ORE MINERALS:
GOLD PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE WOLFRAMITE, LIMONITE, GALENA MALACHITE, CERUSSITE, VANADINITE HEMATITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS, PLACER
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 18 IN
STRIKE OF OREBODY.... NE
DIP OF OREBODY..... 60E

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
DISCOVERED IN EARLY 1870'S (HEWETT ETC., 1936, P. 14)

PRODUCTION
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	15.109	TONS	1904-1932	0.413 OZ/T AU, 0.335 OZ/T AG, 0.000089% CU, 0.00058% PB, VALUED AT \$133,014.
16	AU ACC	6.24491	OZ	1904-1932	0.413 OZ/T AU
17	AG ACC	5.059	OZ	1904-1932	0.335 OZ/T
18	CU ACC	.027	LB	1904-1932	0.000089% CU
19	PB ACC	1.765	LB	1904-1932	0.00058% PB

SOURCE OF INFORMATION (PRODUCTION).. HEWETT, ET AL, 1936, P. 14

PRODUCTION COMMENTS.... BELIEVED TO HAVE PRODUCED BETWEEN \$50,000 & \$100,000 PRIOR TO 1904. IT YIELDED A FAIRLY REGULAR SMALL PRODUCTION UP TO 1920 BUT WAS MOSTLY INACTIVE UNTIL 1932.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... CRYSTALLINE ROCKS-GRANITE, GNEISS & SCHIST GNEISSIC GRANODIORITE (OLIVE TO REDDISH GRAY, WEAKLY TO STRONGLY FOLIATED, MEDIUM GRAINED, EQUIGRANULAR BIOTITE GRANODIORITE. OCCURS AS CONCORDANT BODIES WITHIN THE PARAGNEISS). PARAGNEISS (UNDIFFERENTIATED ASSEMBLAGE OF AMPHIBOLITE-FACIES METASEDIMENTARY

ROCKS, DOMINANTLY QUARTZ-PLAGIOCLASE GNEISS INTERLAYERED WITH CORDIERITE GNEISS, BIOTITE-GARNET-SILLIMANITE SCHIST, & AMPHIBOLITE. THIN LENSES OF MARBLE, CALC-SILICATE GNEISS, BANDED IRON FORMATION, & METACHEST CAN LOCALLY BE RECOGNIZED.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE (MED.-TO-COARSE-GRAINED, SERIATE TO PORPHYRITIC LIUCOCRATIC QUARTZ MONZONITE, INCLUDES MINOR APLITE & PEGMATITE.

AGE OF MINERALIZATION..... CRET.

PERTINENT MINERALOGY..... QUARTZ GANGUE, IN PLACES WITH SIDERITE

IMPORTANT ORE CONTROL/LOCUS.. VEINS DIP SE OR NW MAINLY AT 40 OR 70; GOLD ASSOCIATED WITH COPPER STAIN

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
PROPYLITIC

GENERAL REFERENCES

1) GOLD BASIN:

1)BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPERN-FILE MAP 75-93.

2)BLACET, P.M., 1972, LATE CRETACEOUS PLUTONISM AND METALIZATION SOUTH OF LAKE MEAD: U.S. GEOL. SURVEY PROF. PAPER 800-A, P. A44.

3)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 116-127.

4)HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P., P. 15.

6)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODGE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 76-78.

7)WILSON, E.D., 1933, ARIZONA GOLD PLACERS AND GOLD PLACERING: ARIZ. BUR. MINES BULL. 135, 148 P., P. 82-83.

8)HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76, P. 62

9)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 59-70.

10)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 104-105.

11)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 20

12)HEIKES, V.C., 1905, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1905: U.S. GEOL. SURVEY MIN. RES. U.S., 1905, P. 134-162, P. 150-160.

13)HEIKES, V.C., 1906, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177, P. 163.

14)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1 P. 286-313, P. 303

15)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259, P. 249.

16)BLACET, P.M., 1969, GOLD PLACER AND LODGE DEPOSITS, GOLD BASIN AND LOST BASIN: U.S. GEOL. SURVEY, PROF. PAPER 650-A, P. 1-2.

2) GOLD BASIN:

ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

3)DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

4)HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR

LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76.

5)KING, R.B., 1959, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

6)MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.

7)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.

8)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.

9)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME TRANS., V. 56, P. 195-236.

10)THOMPSON, A.P., 1925, MINING POSSIBILITIES OF THE WHITE HILLS DISTRICT: ARIZ. MIN. JOUR., V. 9, NO. 12, P. 7-8, 45-47.

11)WILLIS, C.F., 1921, FAMOUS WHITE HILLS MINES SOON TO BE UNDER WAY: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 57-59.

12)WILSON, E.D., AND MOORE, R.T., 19375,000.

13)ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

3) WHITE HILLS:

ANDERSON, R.E., 1971, THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.

4)ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDOORADO MTS, CLARK CO., NEVADA, AND COMPARISONS WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.

5)ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394

6)ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.

7)ARMSTRONG, R.L., DKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267, P. 478-490.

8)ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GECHIMCOSMOCHIM. ACTA, V. 34, P. 203-232.

9)BLACET, P.H., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP 75-93.

10)BLAIR, W.N., 1978, GULF OF CALIFORNIA IN LAKE MEAD AREA OF ARIZONA AND NEVADA DURING LATE MIOCENE TIME: AMERICAN ASSOC. PETROLEUM GEOLOGISTS BULL., V. 62, NO. 7, P. 1159-1170.

11)BOHANNON, R.G., AND ANDERSON, R.E., 1978, TERTIARY TECTONIC HISTORY OF THE EASTERN BASIN AND RANGE PROVINCE IN THE VICINITY OF LAKE MEAD IN SOUTHERN NEVADA AND WESTERN ARIZONA: (ABS.) GEOL. SOC. AMERICA, ABSTRACTS WITH PROGRAMS, V. 10, 3, P. 96-97.

12)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.

13)GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1899-H.

14)LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP

15)LONGWELL, C.R., 1920, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION OF THE GRAND WASH CLIFFS IN ARIZONA: YALE UNIV., PH.D. THESIS

4) WHITE HILLS:

LONGWELL, C.R., 1928, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION THROUGH THE VIRGIN RANGE TO THE GRAND WASH CLIFFS, ARIZONA: USGS BULL. 798, 152 P., MAPS

5)LONGWELL, C.R., 1921, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION TO THE GRAND WASH CLIFFS IN WESTERN ARIZONA: AM. JOUR. SCI., 5TH SER., V. 1, P. 39-62.

6)LUCCHITTA, IVO, 1966, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA: UNPUBLISHED PH.D. THESIS, PENNSYLVANIA STATE UNIVERSITY

7)LUCCHITTA, IVO, 1967, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA (ABS.): DISSERT. ABS., V. 28, NO. 6, P. 2483-B-2484-B

8)QUALHEIM, B.J., 1978, HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA REPORT FOR KINGMAN NTMS QUADRANGLE, ARIZONA, CALIFORNIA, AND NEVADA: LAWRENCE LIVERMORE LAB., UNIV. CALIF., LIVERMORE, GJBX-122-78, 43 P. AND MICROFICHE

9)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00002

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003904
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 WABAYUMA PEAK, ARIZ.

POSITION FROM NEAREST PROMINENT LOCALITY: FOUND NO SUCH OCCURRENCE IN ARIZ. BUR. MINES FILE PAGES USED TO MAKE
4.B.M. MINERAL MAP, 1961. NO MINE OR PROSPECTS ON TOPOGRAPHIC MAP

GENERAL REFERENCES

1) ARIZ. BUR. GEOL. & MINERAL TECHNOLOGY FILE PAGES

RECORD 00003

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030496
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... ? PROSPECT

MINING DISTRICT/AREA/SUBDIST. BLACK HILLS DIST.

COUNTRY CODE..... US

STATE CODE..... 04

TWP..... 15N

RANGE.... 02E

SECTION.. 27

MERIDIAN. GILA AND SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

GENERAL REFERENCES

- 1) ABM FILE PAGES
- 2) USGS PP 308

RECORD 00004

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800112
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... AMOLE DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030512

GENERAL REFERENCES

- 1) 83)FRONDEL, C., 1935, CATALOG OF MINERAL PSEUDOMORPHS IN THE AMERICAN MUSEUM: BULL. AMER. MUS. NAT. HIST., LXVII
84)GUILD, F.N., 1910, THE MINERALOGY OF ARIZONA: THE CHEMICAL PUBLISHING CO., EASTON, PA., 103 P.
2) 85)GUILD, F.N., 1905, PETROGRAPHY OF THE TUCSON MOUNTAINS AMER. JOUR., SCI., 4TH SER., V. 20, P. 313.
86)MINES HANDBOOK, 1918, OLD YUMA MINE: MINES HANDBOOK, V. 13, P. 554.
87)U.S. BUR. MINES, 1916, USNM BULL. 111.

RECORD 00005

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899986

NAME AND LOCATION

DEPOSIT NAME..... BANNER DISTRICT

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

GENERAL COMMENTS

REFERENCES FORM RECORD NUMBER W016098

GENERAL REFERENCES

- 3) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY, BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967; AIME, V. 11, P. 1191-1210.
- 4) PETERSON, N.P., AND SWANSON, R.W., 1956, GEOLOGY OF THE CHRISTMAS COPPER MINE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-H, P. 351-371.
- 5) TAITNER, S.L., 1948, CHRISTMAS COPPER DEPOSIT, GILA COUNTY, ARIZONA: U.S. BUR. MINES REPT. INV. NO. 4293, 58 P.
- 6) WILLEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY BULL. 1161-E, 64 P., P. 50-56.
- 7) WILLIAMS, S.A., 1976, JUNITE A NEW HYDRATED CALCIUM ZINC SILICATE FROM CHRISTMAS, ARIZONA: AM. MINERAL., V. 61 NO. 11-12 P. 1255-1258.
- 8) WILLIAMS, S.A. AND DUGGAN, M., 1977, RUZITE, A NEW SILICATE MINERAL FROM CHRISTMAS, ARIZONA: MINERAL. MAG., V. 41, NO. 320, P. 429-432.
- 9) PETERSON, N.P. AND SWANSON, R.W., 1944, THE CHRISTMAS COPPER MINE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPT., 40 P.
- 10) KANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 11) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P.
- 12) KNOERR, A., AND M. EIGO (1963) ARIZONA'S NEWEST COPPER PRODUCER -- THE CHRISTMAS MINE. ENGR. MINING JOUR. 164: 55.
- 13) KOSKI, P.A., AND COOK, D.S., 1976, ALTERATION AND MINERALIZATION ASSOCIATED WITH A MULTIPHASE STOCK AT CHRISTMAS, ARIZONA (ABS.): GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 8, NO. 6, P. 962.
- 14) KOSKI, R.A., 1978, GEOLOGY AND PORPHYRY COPPER-TYPES ALTERATION-MINERALIZATION OF IGNEOUS ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNPUB. PH.D. THESIS, STANFORD UNIV., STANFORD, CALIF., 268 P.
- 15) MCCURRY, W.G., 1971, MINERALOGY AND PARAGENESIS OF THE ORES, CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNPUB. M.S. THESIS, ARIZ. STATE UNIV., 47 P.
- 16) PERRY, D.V., 1968, GENESIS OF THE CONTACT ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNIV. ARIZ., PH.D. THESIS, 229 P.
- 17) PERRY, D.V., 1968, GENESIS OF THE CONTACT ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA (ABS.): DISSERT. ARS., V. 28, NO. 12, P. 5083-8.
- 18) PERRY, D.V., 1969, SKARN GENESIS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: ECON. GEOL., V. 64, NO. 3, P. 255-270.
- 19) BOGERT, J.R., 1960, CHRISTMAS MINE DEVELOPMENT PROCEEDS AT FAST PACE: MINING WORLD, V. 22, NO. 8, P. 28-29.
- 20) CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA. IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, D1-D5.
- 21) EASTLICK, J.T., 1958, NEW DEVELOPMENTS AT THE CHRISTMAS MINE, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 1, P. 1-6.
- 22) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA

- 23)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 24)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES.,
- 25)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 26)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 27)ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 28)NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: AMER. MINERAL., V. 19, P. 209-220.
- 29)WILLIAMS, S.A., AND ANTHONY, J.W., 1970, HEMIHEDRITE, A NEW MINERAL FROM ARIZONA: AMER. MIN., V. 55, P. 1086-1102.
- 30)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 4) 31)KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 32)ELSGING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 33)WILLDEN, RONALD, 1960, SEDIMENTARY IRON-FORMATION IN THE DEVONIAN MARTIN FORMATION, CHRISTMAS QUADRANGLE, ARIZONA, IN SHORT PAPERS IN THE GEOLOGICAL SCIENCES: U.S. GEOL. SURVEY PROF. PAPER 400-B, P. 821-823.
- 34)WILLDEN, RONALD, 1961, COMPOSITION OF THE IRON-FORMATION OF DEVONIAN AGE IN THE CHRISTMAS QUADRANGLE, ARIZONA, IN SHORT PAPERS IN THE GEOLOGIC AND HYDROLOGIC SCIENCES: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. D304-D306.
- 35)WILSON, E.D., AND OTHERS, 1959, GEOLOGIC MAP OF GILA COUNTY, ARIZONA: ARIZONA UNIV., ARIZONA BUR. MINES, SCALE 1:375,000.
- 36)BANKS, N.G., AND KRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP, GQ-1391
- 37)KEITH, STANLEY B., 1972, MINERALOGY AND PARAGENESIS OF THE 79 MINELEAD ZINCC COPPER DEPOSIT: MINERAL. RECORD, V. 3, NO. 6, P. 247-264.
- 38)WILSON, W.E., FOLIO, THE 79 MINE: MINERAL. RECORD, V. 3, NO. 6, P. 265-272.
- 39)KIERSCH, G.A., 1951, GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AREA, ARIZONA, IN ARIZONA ZINC AND LEAD DEPOSITS PT. II: ARIZ. BUR. MINES, BULL. 158, P. 66-83.
- 40)KIERSCH, G.A., (1949) STRUCTURAL CONTROL AND MINERALIZATION AT THE SEVENTY-NINE MINE, GILA COUNTY, ARIZONA. ECON. GEOL. 44: 24-39.
- 41)KIERSCH, G.A. (1947) THE GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AREA. GILA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 124 P.
- 42)WILSON, F.D., 1951, CURTIN OR HUMPHREY MINE, IN ARIZONA ZINC AND LEAD DEPOSITS, PT. II: ARIZ. BUR. MINES BULL. 158, P. 82-83.
- 43)KIERSCH, G.A. 1951, REAGAN CAMP PROSPECTS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 81-82.
- 44)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES.

RECORD 00006

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030377
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILY, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... BLUE BELL GROUP
SYNONYM NAME..... NELLO GROUP OF BLEVINS & MADDOX IN 1940'S; TUNGSTEN QUEEN BY RAY & JENSEN RESSLER IN
1940'S; RELOCATED BY KAY, HARRISON, & LEWIS IN 1951. NEAR JACKMAN WASH. INCLUDES TRIPOD CLAIM. THE BLUE BELL
CLAIM OF THE STOCKTON HILL SUBDISTRICT OF THE WALLAPAI DISTRICT IS DIFFERENT.

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST/E. SIDE HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK, ARIZ

LATITUDE LONGITUDE
35-03- W 113-49- W

TWP..... 19N 20N
RANGE.... 15W 15W
SECTION.. 01 02 12 36
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: JACKMAN WASH; NOT ON TOPO MAP

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MD BI PB CU AG AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. W AU AG CU PB

MAIN COMMOD..... W
MINOR COMMOD..... MD BI

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... MD

OCCURRENCE..... BI

MAIN ORE MINERALS:

MINOR ORE MINERALS:

PYRITE, MOLYBDENITE, BISMUTHENITE HUEBNERITE, WOLFRAMITE, SCHEELITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 600 FT

MAX WIDTH..... 1 FT

STRIKE OF OREBODY.... N30W

DIP OF OREBODY..... 75 SW

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OF UNKNOWN DEPTH, 2 ADITS AT LEAST 100 FT. LONG, & MANY SHALLOW SHAFTS, OPEN-OUTS, TRENCHES, & PROSPECT PITS

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORF.,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	WO3 ACC	.005	UNITS	1955	
2	ORE ACC	1.355	TONS	?	7.3% WO3 & 5,587 UNITS WO3, (DALE, 1961, P. 93)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... GNEISSIC GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... GRANITE

PERTINENT MINERALOGY..... QUARTZ VEINS, IRON OXIDE STAIN, SOME MANGANESE STAINING

IMPORTANT ORE CONTROL/LOCUS.. VEINS IN FISSURES STRIKING N25-30W & DIPPING 70-75 SW WITH A MINOR SYSTEM STRIKING NORTH WITH NEARLY VERTICAL DIP

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

IRON STAIN & COARSE, FLAKY SERICITE

GENERAL REFERENCES

- 1) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P. P. 91-93
- 2) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 7) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 8) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 9) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 10) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 11) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 12) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 13) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 14) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 15) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.H., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 16) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORTANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 17) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 18) KESSLER, E.J., 1976, RUBIDIUM-STROMTUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 19) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 20) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
- 21) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 22) LEMMON, D.M., AND TWEED, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 23) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 24) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 25) MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 26) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS
- 27) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 28) MINING WORLD, V. 3, NO. 4, 1941.
- 29) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 30) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 31) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 32) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 33) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 34) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.

- 35) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 36) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON J.H. AIME BULL. 124, P. 456-460.
- 37) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 38) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 39) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 40) TOYOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 41) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GENERAL GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 42) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 43) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 44) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOMORPHOLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 45) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 46) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 47) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 48) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 49) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 50) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 51) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 52) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 53) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
- 54) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00008

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 0000847
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C
 DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... BORIANA MINE

MINING DISTRICT/AREA/SUBDIST. BORIANA DIST. (CEDAR VALLEY)/W. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
 1: WABAYUMA PEAK, ARIZ.

LATITUDE LONGITUDE
 34-56-15N 113-54-53W

UTM NORTHING UTM EASTING UTM ZONE NO
 3869730. 233770. +12

TWP..... 18N 18N
 RANGE.... 15W 16W
 SECTION.. 18 08 19 31 12 13

ALTITUDE.. 5100 FT

MAIN ORE MINERALS:

MINOR ORE MINERALS:
 ADD-CUPROTUNGSTITE

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE,REMARKS
15	ORE EST	73.017	TONS		1934-1957	0.24% CU, 0.148 OZ.AG, 0.006 OZ/AU
16	DUMP ACC	135	TONS		1950'S	1.7 LBS/T WO3 (DALE, 1961)
17	WO3 UNITS ACC	10.1	UNITS		1951-1956	DALE, 1961, P. 73
18	WO3 UNITS ACC	108	UNITS		1915-1943	HOBBS, P944, P. 249
19	W UNITS ACC	80	UNITS		1915-1930	WILSON, 1941

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1941

RECORD 00008

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 0000847
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C
 DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... BORIANA MINE

MINING DISTRICT/AREA/SUBDIST. BORIANA DIST. (CEDAR VALLEY)/W. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
 1: WABAYUMA PEAK, ARIZ.

LATITUDE LONGITUDE
 34-56-15N 113-54-53W

UTM NORTHING UTM EASTING UTM ZONE NO
 3869730. 233770. +12

TWP..... 18N 18N
 RANGE.... 15W 16W
 SECTION.. 18 08 19 31 12 13

ALTITUDE.. 5100 FT

MAIN ORE MINERALS:

MINOR ORE MINERALS:
 ADD-CUPROTUNGSTITE

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE, REMARKS
15	ORE EST	73.017	TONS		1934-1957	0.24% CU, 0.148 OZ. AG, 0.006 OZ/AU
16	DUMP ACC	135	TONS		1950'S	1.7 LBS/T WO3 (DALE, 1961)
17	WO3 UNITS ACC	10.1	UNITS		1951-1956	DALE, 1961, P. 73
18	WO3 UNITS ACC	108	UNITS		1915-1943	HOBBS, 1944, P. 249
19	W UNITS ACC	80	UNITS		1915-1930	WILSON, 1941

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1941

PRODUCTION COMMENTS.... DURING 1918 THE MINE WAS THE LARGEST SINGLE PRODUCER OF TUNGSTEN IN ARIZONA. IT ALSO PRODUCED SOME COPPER FLUTATION CONCENTRATES IN 1919.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 MEAS ORE ACC		2.4	TONS	1943	1-1.5% WO3
2 INDIC. ORE EST		44	TONS	1943	1% WO3

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. MOBBS, 1944

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... QUARTZ, FLUORITE VEINLETS, CALCITE; OCCASIONAL APATITE, CHLORITE, BERYL; MICROCLINE

GENERAL REFERENCES

- 1) DALE, V. B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 73-84.
- 2) HEWETT, D.F., CALLAGHAN, E. MOORE, B. N., NOLAN, T.B., RUBEY, W. W., AND SCHALLER, W. T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P., P. 14
- 3) MOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U. S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 4) KERR, P. F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 102-103.
- 5) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 6) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48P.
- 7) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 8) LEMMON, D. M., AND THETO, D. L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 9) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 10) MINING WORLD, V. 3, NO. 4, 1941.
- 11) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 11-14.
- 12) BERGER, H.W. 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 13) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
- 14) GREGORY, N. B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 15) HANSEN, S. C. 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 16) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 17) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 18) HESS, F. L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 19) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 20) KESSLER, E. J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB: M.S. THESIS, UNIV. ARIZ., 73 P.
- 21) LEE, W. T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 22) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 23) MENSCH, W. A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 24) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 25) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GECHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 26) IRONSLO, T.M., 1948, ATTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 27) SCHRADER, F. C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS,

MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.

28) SCHRADER, F. C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J. B. PLATTS, AND J. C. ANDERSON): AIME BULL. 123, P. 379-384.

29) SCHRADER, F. C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.

30) SCHRADER, F. C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.

31) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.

32) SCHRADER, F. C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS MOHAVE COUNTY, ARIZ.: U. S. GEOL. SURVEY BULL. 397, 226 P.

33) SCHRADER, F. C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.

34) TOLL, R. H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

35) TOVOTE, W. L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.

36) VUICH, J. S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.

37) WICKES, L. W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.

RECORD 00011

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4800127
 RECORD TYPE..... X2
 INFORMATION SOURCE... 1.2

NAME AND LOCATION

DEPOSIT NAME..... CATALINA DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030521

GENERAL REFERENCES

- 1) 110) LEMMON, D.M., AND TWEED, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 111) LIMING, RICHARD BRETT, 1974, GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE MARTINEZ RANCH AREA, PIMA COUNTY, ARIZONA MASTER'S ARIZONA. T (THESIS)
- 112) LIVINGSTON, D.E., 1959, GEOCHRONOLOGY OF OLDER PRECAMBRIAN ROCKS IN GILA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 224 P.
- 113) LIVINGSTON, D.E., AND DAMON, P.E., 1968, THE AGES OF STRATIFIED PRECAMBRIAN ROCK SEQUENCES IN CENTRAL ARIZONA AND NORTHERN SONORA: CANADIAN J. EARTH SCI., V. 5, NO. 763, P. 763-772.
- 114) LIVINGSTON, D.E., DAMON, P.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, IN COGENETIC FELDSPAR MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RESEARCH, V. 72, P. 1362-1375.
- 115) LUDDEN, R.W., 1950, GEOLOGY OF THE CAMPO BONITO AREA, ORACLE, ARIZONA: UNIV. ARIZ., MS THESIS, 52 P., MAPS
- 116) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 117) MARVIN, R.F., NAESER, C.W., AND MEHNERT, H.H., 1978, TABULATION OF RADIOMETRIC AGES--INCLUDING UNPUBLISHED K-AR AND FISSION TRACK AGES--FOR ROCKS IN SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 243-257.
- 118) MARVIN, R.F., AND COLE, J.L., 1978, RADIOMETRIC AGES: COMPILATION A, U.S. GEOLOGICAL SURVEY: ISOCRON/WEST, NO. 22, P. 3-14.
- 119) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 120) MATTER, P., 1969, PETROCHEMICAL VARIATIONS ACROSS SOME ARIZONA PEGMATITES AND THEIR ENCLOSING ROCKS (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 173 P.
- 121) MAUGER, R.L., DAMON, P.E., AND LIVINGSTON, D.E., 1968, CENOZOIC ARGON AGES ON METAMORPHIC ROCKS FROM THE BASIN AND RANGE PROVINCE: AMER. J. SCIENCE, V. 266, P. 579-589.
- 122) MAYO, E.B., 1964, FOLDS IN GNEISS BEYOND NORTH CAMPBELL AVENUE, TUCSON, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 7, P. 123-145.
- 123) MCCULLOUGH, E.J., JR., 1963, A STRUCTURAL STUDY OF THE PUSCH RIDGE--ROMERO CANYON AREA, SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 67 P.
- 124) MCKENNA, JOHN J. BUEHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)
- 125) MEDHI, P.K., 1964, A GEOLOGIC STUDY OF THE PONTATUC MINE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 126) MILES, C.H., 1965, METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEGUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 98 P.
- 127) MILES, CHARLES H. METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEGUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 96 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 9, P. 5977 (1966)
- 128) MINERALS YEARBOOK, 1945, U.S. DEPT. INTERIOR, U.S. BUR. MINES: U.S. GOV'T PRINT. OFFICE, WASHINGTON, P. 663.

- 129)MOORE, B.N. 2. GEOLOGIC MAP OF THE HAPPY VALLEY QUADRANGLE, ARIZONA: USGS OPEN-FILE REP. (1935)
- 130)MOORE, B.N., TOLMAN, C.F., JR., BUTLER, B.S., AND HERNDON, R.M., 1949, GEOLOGY OF THE TUCSON QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 20 P.
- 131)MURPHY B.J., 1976, SLOPE FORM AND STABILITY IN THE NORTHWEST PORTION OF THE MOUNT LEMMON QUADRANGLE, PIMA COUNTY: ARIZ. BUR. MIN. TUCSON, ARIZ. USA ARIZ. BUR. MINES, FIELD NOTES (FNMAAE), VOL. 6, NO. 2, 5-7. 10-14 1976, ILLUS., GEOL. SKETCH MAP 5 (SERIAL); ANL (ANALYTIC) 2-22 (ENGINEERING & ENVIRONMENTAL GEOLOGY) PIMA COUNTY: ARIZONA: ENGINEERING GEOLOGY: SLOPE STABILITY.
- 132)NICHOLAS, D.E., 1976, UNDERGROUND MINE PILLAR DESIGN UTILIZING ROCK MASS PROPERTIES, MARBLE PEAK, PIMA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.
- 133)PASHLEY, E.F., JR. 2. A REINTERPRETATION OF THE ANTICLINAL STRUCTURE EXPOSED IN THE NORTHWEST FACE OF PUSCH RIDGE, SANTA CATALINA MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 6, P. 49-54 (1963)
- 134)PASHLEY, E. FRED 2. FOLDS IN THE TANQUE VERDE, RINCON, AND SOUTHERN SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 76, P. 289 (1964)
- 135)PASHLEY, E.F., 1966, STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, NORTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 273 P.
- 136)PASHLEY, E. FRED 1. STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, SOUTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA: UNIV. ARIZ., PHD THESIS, 273 P. (1966); (ABS.): DISSERT. ABS., V. 27, NO. 5, P. 1516-B (1966)
- 137)PASHLEY, E. FRED 3. CENOZOIC EVOLUTION OF THE NORTHERN HALF OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 541 (1969)
- 138)PASHLEY, E. FRED 4. RIGIN OF THE FRONTAL FAULT OF THE SANTA CATALINA AND RINCON MOUNTAINS, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 620 (1969)
- 2) 139)PASHLEY, E. FRED 5. ALLUVIAL FANS AND EROSION SURFACES OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 540 (1969)
- 140)PEIRCE, FREDERICK L. STRUCTURE AND PETROGRAPHY OF PART OF THE SANTA CATALINA MOUNTAINS: UNIV. ARIZ., PHD THESIS, 86 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1., P. 53-54 (1958)
- 141)PETERSON, N.C., 1938, GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: UNIVERSITY OF ARIZONA, ARIZONA BUREAU OF MINES BULL. 1448 63 P.
- 142)PETERSON, N.P., AND CREASEY, S.C., 1943, SOME COPPER DEPOSITS IN THE OLD HAT MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT, 12 P., MAPS.
- 143)PETEKSON, R.C., 1968, A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORE-RANGE, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 105 P.
- 144)PETERSON, RICHARD C. A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORERANGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 105 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 4, P. 1409-B (1968)
- 145)PILKINGTON, H.D., 1962, STRUCTURE AND PETROLOGY OF A PART OF THE EAST FLANK OF THE SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 120 P.
- 146)PILKINGTON, H.D. (AND DUBOIS, ROBERT L.) PETROGRAPHY AND STRUCTURE OF THE SOUTHERN SANTA CATALINA MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 73, P. 57-58 (1963)
- 147)PLUT, FREDERICK W. GEOLOGY OF THE EAGLE PEAK-HELLS GATE AREA, HAPPY VALLEY QUADRANGLE, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 78 P. (1968)
- 148)RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUCHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS
- 149)RANSOME, F.L., 1916, SOME PALEOZOIC SECTIONS OF ARIZONA AND THEIR CORRELATION: U.S. GEOL. SURVEY PROF. PAPER 98-K, P. 144-145.
- 150)REHRIG, W.A., REYNOLDS, S.J., 1977, A NORTHWEST ZONE OF METAMORPHIC CORE COMPLEXES IN ARIZONA (ABSTR): GEOL. SOC. AM., ABSTR. PROGRAMS VOL. 9, NO. 7, P. 1139 1977 (THE GEOLOGICAL SOCIETY OF AMERICA, 90TH ANNUAL MEETING)
- 151)REHRIG, W.A., AND REYNOLDS, S.J., THIS VOLUME, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 152)REYNOLDS, S.J., AND REHRIG, W.A., THIS VOLUME, MID-TERTIARY PLUTONISM AND MYLONITIZATION, SOUTH MOUNTAINS, CENTRAL ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 153)SCARBOROUGH, R.B., AND PEIRCE, H.W., 1978, LATE CENOZOIC BASINS OF ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 253-259.
- 154)SCHLODERER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REDINGTON PASS AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA MS THESIS.
- 155)SHAFIQUILLAH, M., DAMON, P.E., LYNCH, D.J., KUCK, P.H., AND REHRIG, W.A., 1978, MID-TERTIARY MAGMATISM IN SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK, 29TH FIELD CONF., LAND OF COCHISE, P. 231-241, P. 232, 236.

- 156)SHAKEL, D.W., 1972, "OLDER" PRECAMBRIAN GNEISSES IN SOUTHERN ARIZONA: 24TH INT'L, GEOL. CONGRESS, SECT. 1, P. 278-287.
- 157)SHAKEL, D.W., 1972, THE SANTA CATALINA AND RINCON MOUNTAINS; TURTLEBACK STRUCTURES NORTH AND EAST OF TUCSON, ARIZONA (ABS.): GEOL. SOC., AMERICA, CORDILLERAN SECTION, 58TH ANN. MEETING, ABSTR., V. 4, NO. 3, P. 234-235.
- 158)SHAKEL, D.W., 1974, THE GEOLOGY OF LAYERED GNEISSES IN PART OF THE SANTA CATALINA FORERANGE, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 233 P.
- 159)SHAKEL, D.W. (1977) OBSERVATIONS ON THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MOUNTAINS, SOUTHERN ARIZONA: GSA ABSTRACT, 9 (7), P. 1169.
- 160)SHAKEL, D.W., 1978, SUPPLEMENTAL ROAD LOG NUMBER 2: SANTA CATALINA MOUNTAINS VIA CATALINA HIGHWAY: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 105-111.
- 161)SHAKEL, D.W., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1972, GEOCHRONOLOGY OF CRYSTALLINE ROCKS IN THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: A PROGRESS REPORT (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 4, NO. 6, P. 408.
- 162)SHAKEL, D.W., SILVER, L.T., AND DAMON, P.E., 1977, OBSERVATIONS OF THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MTS., SOUTHERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 7, P. 1169-1170.
- 163)SHERWONIT, W.E., 1974, A PETROGRAPHIC STUDY OF THE CATALINA GNEISS IN THE FORERANGE OF THE SANTA CATALINA MOUNTAINS (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 165 P.
- 164)SHRIDE, A.F., 1967, YOUNGER PRECAMBRIAN GEOLOGY IN SOUTHERN ARIZONA: U.S. GEOL. SURVEY PROFESSIONAL PAPER 566, 89 P.
- 165)SILVER, L.T., 1968, PRECAMBRIAN BATHOLITHS OF ARIZONA (ABSTRACT): GEOL. SOC. AMER. SPECIAL PAPER 121, P. 558-559.
- 166)SILVER, L.T., 1978, PRECAMBRIAN FORMATIONS AND PRECAMBRIAN HISTORY IN COCHISE COUNTY, SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 157-164.
- 167)SILVER, L.T., AND DEUTSCH, S., 1963, URANIUM-LEAD ISOTOPIC VARIATIONS IN ZIRCONS: A CASE STUDY: J. GEOLOGY, V. 71, P. 721-758.
- 168)SMITH, WALTER J. CENOZOIC STRATIGRAPHY NEAR REDINGTON, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 96 P. (1966)
- 169)STEWART, S.D. THE OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 952 (1912)
- 170)STREITZ, ROBERT SUBSURFACE STRATIGRAPHY AND HYDROLOGY OF THE FILLITO CREEK-TANQUE VERDE WASH AREA, TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 60 P. (1962)
- 171)SUENNICHIT, G.A., 1977, THE GEOLOGY OF THE CANADA DEL ORD HEADWATERS, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 108 PP.
- 172)THORMAN, C.H., 1977, GRAVITY INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--A DISCUSSION: GEOL. SOC. AMER. BULL., V. 88, P. 1211-1212.
- 173)THORMAN, C.H., AND DREWES, H., 1978, MINERAL RESOURCES OF THE RINCON WILDERNESS STUDY AREA, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 78-596.
- 174)TENNEY, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 4 P.
- 175)VOELGER, KLAUS CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1953)
- 176)WAAG, CHARLES J. 1. STRUCTURAL GEOLOGY OF THE MT. BIGELOW-BEAR WALLOW-MT. LEMMON AREA, SANTA CATALINA MTS., ARIZONA: UNIV. ARIZ., PHD THESIS, 133 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 10, P. 3795-B (1969)
- 177)WAAG, CHARLES J. 2. GRAVITY TECTONICS ACCOMPANYING MANTLED GNEISS DOMES IN THE BASIN AND RANGE PROVINCE OF ARIZONA (ABS.): GEOL. SOC. AM. ABS. WITH PROGRAMS, V. 2, NO. 5, P. 353 (1970)
- 178)WALLACE, R.M., 1954, STRUCTURES OF THE NORTHERN END OF THE SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 45 P.
- 179)WEIDNER, M.J. THE GEOLOGY OF THE BEACON HILL-COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 34 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 46 (1958)
- 180)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 34.
- 181)WILSON, E.D., MOORE, R.T., AND COOPER, J.R., 1969, GEOLOGIC MAP OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOL. SURVEY.
- 182)WILSON, J.R., 1977, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE KORN KOB MINE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 103 P.
- 183)WOOD, M.M., 1963, METAMORPHIC EFFECTS OF THE LEATHERWOOD QUARTZ DIORITE, SANTA CATALINA MOUNTAINS, PIMA

COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 68 P.

RECORD 00012

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800110
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... CATALINA DISTRICT

GENERAL COMMENTS

CONTINUES REFERENCES FROM M030521

GENERAL REFERENCES

- 1) 56) DAVIS, GEORGE H., 1973, MID-TERTIARY GRAVITY-GLIDE FOLDING NEAR TUCSON, ARIZONA ABSTR. GEOL. SOC. AM., ABSTR., (GAAPBC), VOL. 5, NO. 7, P. 592, 1973 S (SERIAL)
- 57) DAVIS, G.H., 1975, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA: GEOL. SOC. AMERICA BULL., V. 86, P. 979-990.
- 58) DAVIS, G.H., 1977A, CHARACTERISTICS OF METAMORPHIC CORE COMPLEXES, SOUTHERN ARIZONA (ABSTRACT): GEOLOGICAL SOCIETY OF AMERICA ABSTRACTS WITH PROGRAMS, V. 9, NO. 7, P. 944.
- 59) DAVIS, G.H., 1977B, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--REPLY: GEOL. SOC. AMER. BULL., V. 89, P. 1212-1216.
- 60) DAVIS, G.H., 1978, THIRD DAY, ROAD LOG FROM TUCSON TO COLOSSAL CAVE AND SAGUARO NATIONAL MONUMENT (LAND OF COCHISE, SOUTHEASTERN ARIZONA), NEW MEXICO GEOL. SOC. 29TH FIELD CONF., P. 77-87.
- 61) DAVIS, G.H., 1979, LARAMIDE FOLDING AND FAULTING IN SOUTHEASTERN ARIZONA: AMER. C. SCIENCE, IN PRESS.
- 62) DAVIS, G.H., IN PRESS, STRUCTURAL CHARACTERISTICS OF METAMORPHIC CORE COMPLEX, SOUTHERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 63) DAVIS, G.H., ANDERSON, P., BUDDEN, R.L., KEITH, S.B., AND KIVEN, C.W., 1973, ORIGIN OF LINEATION IN THE CATALINA-RINCON-TORTOLITA GNEISS COMPLEX, ARIZONA (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 7, NO. 5 P. 602.
- 64) DAVIS, G.H., AND CONEY, P.J., 1979, GEOLOGIC DEVELOPMENT OF THE CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOLOGY, V. 7, NO. 3, P. 120-124.
- 65) DAVIS, G.H., AND FROST, E.G., 1976, INTERNAL STRUCTURE AND MECHANISM OF EMPLACEMENT OF A SMALL GRAVITY-GLIDE SHEET, SAGUARO NATIONAL MONUMENT (EAST) TUCSON, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 287-304.
- 66) SCRUTINY OF FOLDED GRAVITY-GLIDE SHEETS IN SAGUARO NATIONAL MONUMENT. ARIZONA ABSTR. DAVIS, G.H., FROST, E.G., SCHLODERER, J.P. IN ROCKY MOUNTAIN SECTION. 27TH ANNUAL MEETING., GEOL. SOC. AM., ABSTR., (GAAPBC), VOL. 6, NO. 5, P. 439, 1974
- 67) DAVIS, W.M. 18. THE SANTA CATALINA MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 22, P. 289-317 (1931); (ABST.): PAN-AM. GEOL., V. 55, P. 372-373 (1931); GEOL. SOC. AM. BULL., V. 43, P. 235 (1932)
- 68) DARTON, N.H., LAUSEN, C., AND WILSON, E.O., 1924, GEOLOGIC MAP OF THE STATE OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOLOGICAL SURVEY.
- 69) DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 70) DEMPSEY, W.J. (AND HILL, M.E.) AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419 (1963)
- 71) DREWES, H. (1974) GEOLOGIC MAP AND SECTIONS OF THE HAPPY VALLEY QUAD, COCHISE COUNTY, ARIZONA. U.S.G.S. MAP I-832.
- 72) DREWES, H., 1976, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 151-167.
- 73) DREWES, H., 1977, GEOLOGIC MAP AND SECTIONS OF THE RINCON VALLEY QUADRANGLE, PINA COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP I-997.

- 74)DREWES, H., 1978, THE CORDILLERAN OROGENIC BELT BETWEEN NEVADA AND CHIHUAHUA: GEOL. SOC. AMERICA BULL., V. 89, P. 641-657.
- 75)DREWES, H., AND THORMAN, C.H., 1978, NEW EVIDENCE FOR MULTIPHASE DEVELOPMENT OF THE RINCON METAMORPHIC CORE COMPLEX EAST OF TUCSON, ARIZONA: GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 10, NO. 3, P. 103.
- 76)DREWES, H.D., THORMAN, C.H., 1978, MULTIPLE DEFORMATION OF GNEISS DOME NEAR RINCON MOUNTAINS IN SOUTHEASTERN ARIZONA (ABSTR): U.S. GEOL. SURV., PROF. PAP. NO. 1100, P. 73.
- 77)DOCKTER, R.D., BANKS, N.G. MAP SHOWING PHOTO LINEAMENTS IN THE TORTOLITA MOUNTAINS QUADRANGLE, ARIZONA U.S. GEOL. SURV., OPEN-FILE, (USA) (XGRDAG), NO. 77-152, UNPAGINATED P., 1977, TECT. MAP, SCALE: 1:62,500
- 78)DUBOIS, R.L., 1959A, GEOLOGY OF THE SANTA CATALINA MOUNTAINS: ARIZ. GEOL. SOC. GUIDEBOOK II, P. 106-116.
- 79)DUBOIS, R.L., 1959B, PETROGRAPHY AND STRUCTURE OF A PART OF THE GNEISSIC COMPLEX OF THE SANTA CATALINA MOUNTAINS: ARIZONA GEOL. SOC. GUIDEBOOK II, P. 117-127.
- 80)DURNING, W.P., 1975, MINERALIZATION AND ALTERATION AT THE LITTLE HILLS MINE, PINAL COUNTY, ARIZONA (ABSTR): N.M. GEOL. SOC., ANNU. FIELD CONF., GUIDEBOOK (NMGGAS), NO. 26, GUIDEBOOK OF THE LAS CRUCES COUNTRY, P. 337-338.
- 81)DURNING, WILLIAM P., 1972, GEOLOGY AND MINERALIZATION OF LITTLE HILL MINE, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA
- 82)MASTER'S ARIZONA, T (THESIS) 1973 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 1-02 (ECONOMIC GEOLOGY) ARIZONA, ECONOMIC GEOLOGY; COPPER; PINAL COUNTY; SANTA CATALINA MOUNTAINS; LITTLE HILL MINE; UNITED STATES; GENESIS; PETROLOGY; STRUCTURE.
- 83)EBERLY, L.D., AND STANLEY, OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMER. BULL., V. 89, P. 921-940.
- 84)ERICKSON, R.C., 1962, PETROLOGY AND STRUCTURE OF AN EXPOSURE OF THE PINAL SCHIST, SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., M.S. THESIS, 71 P.
- 85)FAIR, CHARLES L. 2. (AND JINKS, J.E.) SANTA CATALINA FOOTHILLS FAULT IN THE PONTOTOC AREA: ARIZ. GEOL. SOC. DIG., V. 4, P. 131-133 (1961)
- 86)FROST, E.G., 1977, MID-TERTIARY, GRAVITY-INDUCED DEFORMATION IN HAPPY VALLEY, PIMA AND COCHISE COUNTIES, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 85 P.
- 87)FROST, E.G.; DAVIS, G. H., 1976, MID-TERTIARY, GRAVITY-INDUCED FOLDING AND TRANSPOSITION IN HAPPY VALLEY, PIMA AND COCHISE COUNTY, ARIZONA. GSA ABSTR., VOL. 8, NO. 6, P. 876-877, 1976.
- 88)GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL. V. 72, P. 639-644.
- 89)HANSON, H.S., 1966, PETROGRAPHY AND STRUCTURE OF THE LEATHERWOOD QUARTZ DIORITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 104 P.
- 90)HANSON, MIRAM STANLEY 2. ORIGIN OF INCLUSIONS IN THE LEATHERWOOD QUARTZ DIORITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEORGIA ACAD. SCI. BULL., V. 25, NO. 2, P. 87 (1967)
- 91)HARSHBARGER, J.W., 1970, GROUNDWATER SYSTEMS IN THE SAN PEDRO VALLEY, MAMMOTH AREA, SECTION 6: IN MINING AND ECOLOGY IN THE ARID ENVIRONMENT -- CONF., TUCSON, ARIZ. 1970 PROC. (PETERS, W.C., ED.): UNIV. ARIZ., COLLEGE OF MINES, TUCSON, ARIZ., SEC. 6-1-6-2.
- 92)HEINDL, L.A. 8. MEMORANDUM ON GEOLOGY AND GROUNDWATER RESOURCES IN THE VICINITY OF ORACLE, PINAL COUNTY, ARIZONA: USGS MINEO. REP., 11 P., ILLUS. (1955)
- 93)HEINDL, L.A., 1963, CENOZOIC GEOLOGY IN THE MAMMOTH AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV. BULL. 1141-F, 41 P.
- 94)HERNON, R.M., 1932, PEGMATITE ROCKS OF THE CATALINA-RINCON MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 65 P.
- 95)HILL, J.M., 1946, REPORT ON THE MAUDINA TUNGSTEN MINE, ORACLE, PINAL COUNTY, ARIZ.: PRIVATE REPORT, 9 P.
- 96)HOELLE, J.L., 1972, STRUCTURAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA A PRELIMINARY REPORT (ABS.): GEOL. SOC. AMERICA, ROCKY MOUNTAIN SECTION 25TH ANN. MEETING, ABSTR., V. 4, NO. 6 P. 382.
- 97)HOELLE, J.L., 1976, STRUCTURAL AND GEOCHEMICAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 79 P.
- 98)JACOBS, L.L., 1977, RODENTS OF THE MEMPHILLIAN AGE REDINGTON LOCAL FAUNA, SAN PEDRO VALLEY, ARIZONA: J. PALEONTOLOGY, VOL. 51, NO. 3, PP. 505-519, 1977.
- 99)TERTIARY MAGMATIC PATTERNS IN SOUTHWESTERN NORTH AMERICA: GEOLOGY, V. 6, P. 515-521.
- 100)KEITH, S.B., REYNOLDS, S.J., DAMON, P.E., SHAFIQUILLAH, M., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1980, EVIDENCE FOR MULTIPLE INTRUSION AND DEFORMATION WITHIN THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: GEOL. SOC. AMERICA MEM., SYMPOSIUM VOLUME, PENROSE CONF. ON METAMORPHIC CORE COMPLEXES, IN PRESS.
- 101)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156

- 102) KERNS, J.R. GEOLOGY OF THE AGUA VERDE HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 69 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)
- 103) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 104) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 105) LAUGHLIN, A.W. PETROLOGY OF THE MOLINO BASIN AREA OF THE SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P. (1960)
- 106) LAYTON, D.W. STRATIGRAPHY AND STRUCTURE OF THE SOUTHWESTERN FOOTHILLS OF THE RINCON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 97 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51 (1958)
- 107) LANEY, R.L., 1975, WEATHERING OF GRANODIORITIC ROCKS AND GEOCHEMISTRY OF WATER IN THE ROSE CANYON LAKE AREA, SANTA CATALINA MOUNTAINS, ARIZONA ABSTR
- 108) U.S. GEOL. SURV. PHOENIX, ARIZ. USA GEOL. SOC. AM., ABSTR. PROGRAMS (GAAPBC), VOL. 7, NO. 7, P. 1160, 1975 S (SERIAL); ANL (ANALYTIC) 77-00297 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 2-02 (GEOCHEMISTRY) ARIZONA: 109) LEGER, ARTHUR R. STRUCTURE AND TECTONIC HISTORY OF THE SOUTHWEST PART OF TANQUE VERDE RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 40 P. (1967)

RECORD 00013

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899993

NAME AND LOCATION

DEPOSIT NAME..... CHILDS-ALDWINKLE MINE

MINING DISTRICT/AREA/SUBDIST. COPPER CREEK DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER M000483

GENERAL REFERENCES

- 1) GUTHRIE, J.D., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GALIURO MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, P. 512-538.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12; 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 461.
- 6) HISKEY, C.F., AND MELLOCHE, V.W., 1940, DETERMINATION OF RHENIUM IN MOLYBDENITE MINERALS: INDUS. AND ENG. CHEMISTRY, ANAL. ED., V. 12, P. 503-506, TABLE 7.
- 7) KAISER, E.P., HERRING, B.F., AND RABBITT, J.C., 1954, MINOR ELEMENTS IN SOME ROCKS, ORES, AND MILL AND SMELTER PRODUCTS: U.S. GEOL. SURVEY TEI-415, P. 1-119, ISSUED BY THE U.S. ATOMIC ENERGY COMM. TECH. INF. SERVICE, OAK RIDGE, TENN., P. 18.
- 8) GALBRAITH, F.W., AND BRENNAN, D.J., 1959, MINERALS OF ARIZONA: 3D ED. (REVISED), TUCSON, ARIZ., ARIZONA UNIV. PRESS, 116 P., P. 21.
- 9) KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.
- 10) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-668.
- 11) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-669.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2, P. 1163-1190, P. 1181.
- 5) ANDERSON, C.A., 1969, COPPER, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 117-156.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 102, 141.
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 9) CATANACH, C.B., MORAN, E.F., PORTER, D.D., RUDERSHAUSEN, C.G., AND SOMMERS, R.W., 1977, COPPER LEACHING FROM AN OREBODY PLASTED IN PLACE: IN SITU, V. 1, NO. 4, P. 283-303.
- 10) CREASEY, S.C., JACKSON, E.O., AND GULBRANDSEN, K.A., 1951, RECONNAISSANCE GEOLOGIC MAP OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY MINERAL INVEST. MAP MF 238.
- 11) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 12) CREASEY, S.C., AND KRIEGER, M.H., 1978, THE GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA:

U.S. GEOLOGICAL SURVEY JOURNAL OF RESEARCH, V. 6, P. 115-131.

- 13) DENTON, T.C., 1947, OLD RELIABLE COPPER MINE, PINAL COUNTY, ARIZONA: U.S. BUR. MINES R.I. 4006.
- 14) FLSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 15) EMMONS, W.H., 1938, DIATREMES AND CERTAIN ORE-BEARING PIPES: A.I.M.E. TECH. PUB. 891, MIN. TECH., V. 2, NO. 3.
- 16) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
- 17) JORALEMON, I.B., 1952, AGE CANNOT WITHER, OR VARIETIES OF GEOLOGICAL EXPERIENCE: ECON. GEOLOGY, V. 47, NO. 3, P. 243-259.
- 18) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 19) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 20) KRIEGER, M.H., 1969, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ 669.
- 21) KRIEGER, M.H., 1969B, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY GEOLOGIC QUADRANGLE MAP GQ-668, SCALE 1:24,000.
- 22) KRIEGER, M.H., 1979, ASH-FLOW TUFFS IN THE GALIURD VOLCANICS, NORTHERN GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1104 (IN PRESS).
- 23) KRIEGER, MEDORA H. 19. ASH-FLOW TUFFS IN THE NORTHERN GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 523 (1969)
- 24) KRIEGER, M.H., JOHNSON, M.G., AND BIGSBY, P., 1979, MINERAL RESOURCES OF THE ARAVAIPA CANYON DESIGNATED WILDERNESS AREA, PINAL AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, 79-291, 183 P.
- 25) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 26) PICKARD, B.O. 2. BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., V. 66, P. 281-282 (1912)
- 27) ULLMER, E., 1978, COPPER CREEK DISTRICT, PINAL COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY; THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 160-163.
- 28) WEED, W.H., 1913, "CHIMNEY" OR "PIPE" DEPOSITS IN THE PORPHYRIES: MINING AND ENG. WORLD, V. 38, P. 375-378.
- 29) ANONYMOUS - 1937 - MOLYBDENUM BOOMS COPPER CREEK DISTRICT; TUCSON (PUBLISHED BY TUCSON, ARIZONA, CHAMBER OF COMMERCE), P. 2, MARCH, 1937.
- 30) BUTLER, B.S. 1939 GEOLOGY OF THE "QUESTA" MOLYBDENITE DEPOSIT, TADS COUNTY, NEW MEXICO (VANDERWILT, J.W.); CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA (KUHN, T.H.); THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA (PETERSON, N. P.): ECON. GEOL., VOL. 34, PP. 347-51. A REVIEW.
- 31) DAVIS, W.H., 1930 - AND BROOKS, BAYLOR THE GALIURD MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SERIES, VOL. 19, P. 100, 89-115.
- 32) DARTON, N.H. 1925 A RESUME OF ARIZONA GEOLOGY: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 119, PP. 272-74.
- 33) GORRING, W.B., FIELD, THOROLD F., AND JORALEMON, IRA B. 1907 1909 PRIVATE REPORTS TO THE CALUMET AND ARIZONA MINING COMPANY ON THE COPPER GIANT, COPPER PRINCE, GLOBE, AND SUPERIOR MINES.
- 34) HIGGINS, EDWIN 1911 COPPER CREEK BASIN, ARIZONA: ENG. MIN. JOUR., VOL. 91, PP. 270-73.
- 35) HILL, J.M. - 1937 A PRIVATE REPORT ON THE CHILDS-ALDWINKLE MINE TO THE ARIZONA MOLYBDENUM CORPORATION.
- 36) JAKOSKY, J.J. AND DALY, JOHN W. 1931 PRIVATE REPORT OF A GEOPHYSICAL EXAMINATION OF THE FOUR METALS BASIN FOR THE COPPER STATE METALS COMPANY.
- 37) LOCKE, AUGUSTUS 1926 THE FORMATION OF CERTAIN ORE BODIES BY MINERALIZATION STOPING: ECON. GEOL., NO. 21, P. 441.
- 38) MARTIN, A.H. 1910 THE COPPER CREEK MINING DISTRICT, ARIZONA: MINING WORLD, VOL. 32, PP. 515-16.
- 39) NORTON, E.A. 1916 A PRIVATE REPORT ON THE PROPERTIES OF THE COPPER STATE MINING COMPANY.
- 40) PICKARD, B.O. 1912 BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., VOL. 66, PP. 181-82.
- 41) RAND, LENOX, AND STURGIS, EDWARD B. (ED) 1931 MINES HANDBOOK, VOL. 18, PART 1. SUCCESSOR TO WEED'S MINES HANDBOOK.
- 42) SIBLEY, R.R., 1909, THE COPPER CREEK MINING DISTRICT, ARIZONA: MINING WORLD, VOL. 30, PP. 477-80.
- 43) WEED, W.H. - 1909 PRIVATE REPORT ON THE OLD RELIABLE MINE.
- 44) WEED, W.H. (EDITOR) 1919-1926 THE MINES HANDBOOK AND COPPER HANDBOOK, VOLS. 12-17.

45)DISCUSSES BRIEFLY THE GENERAL GEOLOGY, AND LISTS THE PROPERTIES, PRODUCTION, RESERVES, ACTIVITIES, EQUIPMENT, AND OFFICERS OF THE COPPER STATE MINING COMPANY.

RECORD 00314

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030334
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... CINNABAR MINE

MINING DISTRICT/AREA/SUBDIST. LA CHOLLA DISTRICT/EASTERN DOME ROCK MTNS

COUNTRY CODE..... US

STATE CODE..... 04

LATITUDE LONGITUDE
33-32-15N 114-19-18W

TWP..... 02N
SECTION.. 09 NE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
COMMENTS(DESCRIPTION OF DEPOSIT):
LOCATION FROM TOPO MAP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... SCHIST (METAMORPHOSED LIVINGSTON HILL FM.) (ROBISON, 1979)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 156.
- 2) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 451, 130 P., P. 82-84.
- 3) LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 122, P. 24-31.
- 4) BANCROFT, H., 1910, NOTES ON THE OCCURRENCE OF CINNABAR IN CENTRAL-WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 151-153.
- 5) CROWL, W.J., 1979, GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZONA.

- 6) MCCASKEY, H.D., 1909, THE PRODUCTION OF QUICKSILVER: MINERAL RESOURCES U.S. FOR 1908, PT1: U.S. GEOL. SURVEY, P. 692.
- 7) TURNER, H.W., 1909, THE MINERAL INDUSTRY DURING 1908: QUICKSILVER, P. 743.
NEARBY AREAS:
- 8) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 9) ROBISON, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS: UNIV. ARIZ.
- 10) BALDERMAN, M.A.; LAVIOLETTE, J.W. NORTHWEST-TRENDING, LEFT-SEPARATION FAULTS IN THE SOUTHERN DOOM ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS (USA) (GAAPBC), VOL. 9, NO. 4, P. 384-385, (1977)
- 11) THE GEOLOGICAL SOCIETY OF AMERICA, CORDILLERAN SECTION, 73RD ANNUAL MEETING, SACRAMENTO, CA, APRIL 5-7, 1977.
- 12) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
- 13) EBERLY, L.D., AND T.H. STANLEY JR., 1976, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 14) HAMILTON, WARREN, 1964, GEOLOGIC MAP OF THE BIG MARIA MOUNTAINS NE QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD MAP GQ-350.
- 15) JONES, E.L., JR., 1916B, GOLD DEPOSITS NEAR QUARTZSITE, ARIZONA: U.S. GEOL. SURVEY BULL. 620, P. 45-57.
- 16) KEYSER, W.G., 1916, DRY PLACER MINING ON A LARGE SCALE (QUARTZSITE, YUMA COUNTY): MIN. ENGR. WORLD, V. 44, P. 999-1000.
- 17) METZGER, D.G., LOELTZ, D.J., AND IRENA, B., 1973, GE.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., MAPS.
- 18) MILLER, FRED KEY GEOLOGIC MAP OF THE QUARTZSITE QUADRANGLE, YUMA COUNTY, ARIZONA: USGS GEOL. QUAD. MAP GQ-841, SCALE 1:62,500, SECTIONS, TEXT (1970)
- 19) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168, P. 25-30.
- 20) HARRER, C.M., 1964, RECONNAISSANCE OF IRON RESOURCES IN ARIZONA: U.S. BUR. MINES I.C. 8236.

RECORD 00015

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000930
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... CUPRITE MINE
SYNONYM NAME..... COPPER COLLAR, MARBLE TAP, SIDE ISSUE, COPPER TOP, COPPER VISION, COPPER CHIEF, SOLO

MINING DISTRICT/AREA/SUBDIST. HELVETIA ROSIMONT

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAINS, ARIZONA

LATITUDE LONGITUDE
31-55-31N 110-42-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3532250. 527500.0 +12

TWP..... 17S
RANGE..... 16E
SECTION.. 28 NW
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4155 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.85 KM NE VARN 5077, 7 MI NE OF HELVETIA

LOCATION COMMENTS: NW1/4 OF SEC 287

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO ZN PB

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AU AG

MAIN COMMOD..... CU AG

MINOR COMMOD.... MO ZN PB

MAIN ORE MINERALS:
CHALCOPYRITE PYRITEMINOR ORE MINERALS:
MOLYBDENITE CHKYSOCOLLA, BORNITE, AZURITE, MALACHITE, CHALCOHITE, NATIVE COPPER SPHALERITE, GALENAANALYTICAL DATA(GENERAL)
6% CU, 4 OZ / T AG AND 554/T AU (1915)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LOCATED IN 1899

BY WHOM..... LOCATED BY LOUIS EZEKIAL OWNED BY HIM AND F.W. FISH OF TUCSON (SCHRADER 1915)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC REPLACEMENT
FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 120 FT
LENGTH OF WORKINGS..... 700 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND TUNNEL WORKINGS (KEITH, 1974); SHAFT UP TO 120 FT DEEP WITH 200 FT OF WORKINGS (BROWNE, 1958)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST 2	TONS	1899-1915	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 125

PRODUCTION COMMENTS.... PRODUCED SPORADICALLY FROM 1899 TO 1915 SOME 2,000 TONS OF ORE AVERAGING ABOUT 6% CU AND 0.6 OZ AG/TON

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 ORE ON DUMP	EST	TON	1915	2.5% CU (SCHRADER)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS
HOST ROCK TYPES..... SEDIMENTS AND MARBLE; APACHE CANYON FM (LS) AND WILLOW CANYON FM

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... INTRUSIVE GRANITIC ROCK; QUARTZ DIORITE STOCK

PERTINENT MINERALOGY..... CONTACT MINERALS - NOLLASTINITE GARNET, EPIDOTE, MAGNETITE, SPECULARITE; LIMONITE STAIN

IMPORTANT ORE CONTROL/LOCUS.. ORE IS LOCALIZED ALONG FAULT AND FRACTURE ZONES IN SILICATED LIMESTONE AT OR NEAR ITS CONTACT WITH UNDERLYING QUARTZITES IN VICINITY OF LARAMIDE QUARTZ DIORITE STOCK.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MINERALIZATION IS LOCALIZED ALONG A N45E TEAR FAULT DIPPING 45 SE, AND A N35W TEAR FAULT DIPPING 35 SW (BROWNE 1958)

SIGNIFICANT ALTERATION:

SILICATED MARBLE

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE OCCURS AS SMALL "KIDNEYS" DISSEMINATED THROUGHOUT THE CHALCOPYRITE ORE. THE MOLYBDENITE STREAKS AND SMALL LENSES ARE NEARLY 1/2 INCH MAXIMUM WIDTH.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 125.
- 2) SCHRADER, F.C., 19158 MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 134-136.
- 3) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 4) BROWNE, J.F. (1958) THE GEOLOGY OF THE CUPRITE MINE AREA, PIMA COUNTY, UNIV. ARIZONA M.S. THESIS, 39 P.
- 5) LEE, C.A. AND BORLAND, G.C., 1935, THE GEOLOGY AND ORE DEPOSITS OF THE CUPRITE MINING DISTRICT: UNIV. ARIZ., MS THESIS
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 7) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 8) U.S. GEOL. SURVEY MINERAL RESOURCES, 1906, P. 168.

RECORD 00016

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030372
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... DOYLE VANADIUM MINE

MINING DISTRICT/AREA/SUBDIST. OWENS DIST

COUNTRY CODE..... US

STATE CODE..... 04

POSITION FROM NEAREST PROMINENT LOCALITY: 1-2 MILES NORTH OF BILL WILLIAMS RIVER

COMMODITY INFORMATION

COMMODITIES PRESENT..... V MO AU AG PB ZN W CU AS

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 45 FT

COMMENTS(DESCRIP. OF WORKINGS):

ONE LEDGE HAD A 40 FOOT DRIFT AND OPEN CUTS. THERE WAS A 45 FOOT INCLINED SHAFT. 5 TUNNELS AND SHAFTS FROM 10 TO 20 FEET DEEP

GENERAL REFERENCES

- 1) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZONA, 63 P., P. 5
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 3) ARTILLERY GENERAL GEOLOGY:
GRANGER, H.C., AND RAUP, K.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
- 4) HEAD, R.E. 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941)
- 5) JONES, E.L., JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.
- 6) KUMKE, C.A. 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: USBM, RI 5292, 87 P., ILLUS. (1957)
- 7) LASKY, S.G., AND B.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-R: 417-448.
- 8) LASKY, S.G., 1. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)

- 9) LASKY, S.C., AND WEBBER, B.N., 1949, MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.
- 10) MOUAT, M.M., MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6, P. 744-752 (1962)
- 11) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 12) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 13) PETERSON, DONALD L. S., BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
- 14) SANFORD, R.S., (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USBM, RI 4275, 45 P. (1948)
- 15) SHACKELFORD, T.J., STRUCTURAL GEOLOGY OF THE RANCHO MOUNTAINS, MOHAVE COUNTY, ARIZONA
- 16) UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL, UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIF., USA, UNPAGNATED P., 1976, (DISS. ABSTR. INT., VOL. 38, NO. 4, P. 1622B-1623B, 1977)
- 17) SHERRER, P.L., CATACLASTIC ROCKS OF THE RANCHO MOUNTAINS, WEST-CENTRAL ARIZONA SAN DIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S, SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGNATED P., 1976
- 18) WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.
- 19) MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS
- 4) ORE DEPOSITS & GEOLOGY OF MOHAVE CO.:
- DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 807B, 104 P.
- 5) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-839
- 6) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 7) TUVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 8) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 9) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 10) HOUSEHOLDER, F., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 11) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 12) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 13) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ.,
- 14) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 15) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 16) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 17) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-959.
- 18) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 19) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 20) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00017

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4000917
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2,1
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... EAST HELVETIA DEPOSIT
SYNONYM NAME..... ROSEMONT

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST/SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA

LATITUDE LONGITUDE
31-49-59N 110-45-33W

UTM NORTHING UTM EASTING UTM ZONE NO
3520725.0 522800.0 +12

TWP..... 18S 18S
RANGE.... 15E 15E
SECTION.. 25
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6560 FT

POSITION FROM NEAREST PROMINENT LOCALITY: EAST SIDE OF RIDGE

LOCATION COMMENTS: SE 1/4 OF SEC 25; NE 1/4 OF SEC 36

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU
MINOR COMMOD.... MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:
CHALCOITE LOCALLY SIGNIFICANT, SOME OXIDE ORE - AZURITE, MALACHITE, CHRYSOCOLLA

ANALYTICAL DATA(GENERAL)
0.016-0.017% MO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
DEPTH TO TOP 300 FT
COMMENTS(DESCRIPTION OF DEPOSIT):
OVERLAIN BY 300 FT OF CRETACEOUS SEDIMENTS ON WEST, END BY 1200 FT ON EAST.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN PERM
HOST ROCK TYPES..... HORQUILLA LS SCHERRER FM, CONCHO LS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. 056 M.Y.)
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY IN AREA IS NOT VERY MINERALIZED.

AGE OF MINERALIZATION..... TERT. (56 M.Y.)

PERTINENT MINERALOGY..... GARNETIZED-CALC-SILICATES (SKARN)

IMPORTANT ORE CONTROL/LOCUS.. TERTIARY QUARTZ LATITE PORPHYRY (NEARBY) INTRUDES FAULT INTERSECTION SULFIDE
MINERALIZATION IS CONCENTRATED IN SKARNIFIED PALEOZOIC LIMESTONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FLAT THRUST FAULT SEPARATE MINERALIZED AND SKARNS OF PALEOZOIC LIMESTONES FROM OVERLYING CRETACEOUS BISBEE GROUP

SIGNIFICANT ALTERATION:
METAMORPHOSED LIMESTONES (SKARN)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SECONDARY ENRICHMENT IS ONLY LOCALLY SIGNIFICANT

GENERAL REFERENCES

- 1) DREWES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000
- 2) PERSONAL COMMUNICATION WITH JIM KELLY, ANAMAX MINING CO.

RECORD 00019

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030363
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... EMPIRE MINE
SYNONYM NAME..... 4 UNPATENTED CLAIMS

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDIST/WALLAPAI DIST/CERBAT MTS.

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-25-25N 114-10-31W

UTM NORTHING UTM EASTING UTM ZONE NO
3923470. 756480. +11

TWP..... 24N
RANGE.... 18W
SECTION.. 35
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 21 MILES S.E. FROM KINGMAN; 2 MI NNE OF CHLORIDE ABOUT 2 MILES NNE OF CHLORIDE IN A NE GULCH OF TENNESSEE WASH.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG MO V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. AG

MAIN COMMOD..... AG

MAIN ORE MINERALS:

PYRITE TENNANTITE PROUSTITE

MINOR ORE MINERALS:
ARSENOPYRITE SPHALERITE GALENA

ANALYTICAL DATA(GENERAL)
2% V & MO, 2-14% AU & AG

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... DISCOVERED IN 1870'S
PRESENT/LAST OWNER..... OWNED IN 1909 BY WILLIAM RAYMOND & LATER WORKED BY E.F. THOMPSON (SCHRADER, 1909, P. 61)

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1 1/2 IN.

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

MINE DISCOVERED IN 1870'S & WORKED HIGH GRADE GOLD, SILVER, & LEAD ORES IN SMALL LOTS & SOLD IN KINGMAN. IN 1941 THERE WAS AN INCLINED 200 FOOT DEEP SHAFT WITH TUNNELS, CROSSCUTS & DRIFTS.

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. DINGS, 1951, P. 147

PRODUCTION COMMENTS.... SCHRADER, 1909, P. 61 - PRODUCTION HAS BEEN ABOUT \$70,000.

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... QUARTZ

GENERAL REFERENCES

- 1) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., 40.
- 2)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 61-62.
- 3)BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39, P. 21.
- 4)ARIZONA MINING JOURNAL, V. 8, 1920.
- 2) CHLORIDE AREA:
THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
- 3)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 52-65
- 4)THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA, GEOL. SOC. AMER. BULL. 64: 391-420.

- 5) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E., P. 123-162.
- 6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7) MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
- 8) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 9) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:
- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRAYTON-SALES VOLUME, V. 2, P. 1163-1190.
- 4) BLANCHARD, K. AND BOSWELL, P.F., 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 5) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 6) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.
- 7) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
- 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
- 9) FIELD, W. 1966 SULFUR ISOTOPE METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN. ECON. GEOL. 61: 1428-1435.
- 10) GARRISON, F.L., 1907 NOTES ON MINERALS, PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 11) HAURY, P.S. 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA, U.S. BUR. MINES REPT. INV. 4101.
- 12) HERNON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 13) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
- 15) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
- 16) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 17) SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 18) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 19) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 20) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 22) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 23) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 24) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S. 1908, PT. 2, PP. 847-852.
- 25) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 4) GENERAL GEOLOGY OF CERBAT MTS:
- ARIZ. MINING JOUR., 1920, V. 8
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 7) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 8) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 9) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.

- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS.
- 12) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 13) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 14) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 15) SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 16) TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 17) THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 18) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 19) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 20) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 21) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 22) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-DIOGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

RECORD 00020

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4899997

NAME AND LOCATION

DEPOSIT NAME..... ESPERANZA AND SIERRITA MINES

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT

EXPLORATION AND DEVELOPMENT

NATURE OF DISCOVERY..... A

YEAR OF FIRST PRODUCTION. 1959

PRESENT/LAST OWNER..... DUVAL

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER W002672

GENERAL REFERENCES

- 1) AIKEN, D.M., AND WEST, R.J., 1978, SOME GEOLOGIC ASPECTS OF THE SIERRITA-ESPERANZA COPPER-MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYR COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 117-128
- 2) LYNCH, D.W. (1966) THE ECONOMIC GEOLOGY OF THE ESPERANZA MINE AND VICINITY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZONA PRESS, TUCSON: 267-279.
- 3) SCHMIDT, H.A., D.M. CLOPPINGER, W.J. ROOPER, AND H. TOOMBS (1959) DISSEMINATED DEPOSITS AT THE ESPERANZA COPPER MINE, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 205.
- 4) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 135.
- 5) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP I-745.
- 6) ANDERSON, C.A., AND KUPFER, D.H., 1944, REPORT OF THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INVENTORY.
- 7) ANDERSON, C.A., AND DUFEY, D.H., 1943, REPORT ON THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP.
- 8) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURV., V. 2, NO. 2, P. 195-211.
- 9) COOPER, J.R., 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D.
- 10) CREASEY, S.C., AND DISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. 01-05.
- 11) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 135, 138.
- 12) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 13) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 171, 156, 205.
- 14) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 86.
- 14) CURTIS, C.H., 1961, THE ESPERANZA CONCENTRATOR: MINING ENG., V. 13, P. 1234.
- 15) DAMON, P.E., AND ASSOCIATES, 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-50: TUCSON, UNIVERSITY OF ARIZONA.

- 16) 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-60: TUCSON, UNIVERSITY OF ARIZONA.
- 17) D'ANDREA, D.V., LARSON, W.C., CHAMBERLAIN P.C., AND OLSON, J.J., 1976, SOME CONSIDERATIONS IN THE DESIGN OF BLASTS FOR IN SITU COPPER LEACHING: SYMP. ROCK MECH., PROC., NO. 17, P. 5E1.1-5E1.4.
- 18) JENIS, M., 1977, THE SIERRITA (ARIZONA) PORPHYRY COPPER; HYDROTHERMAL ALTERATION AND FLUID INCLUSION STUDIES (ABST.): GEOL. SOC. LONDON, JOUR., V. 134, P. 390.
- 19) DREWES, H., 1976, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 699.
- 20) HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI.
- 21) HILLMAN, B.A., KILINO, J.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER DEPOSIT (ABST.): EOS, V. 53, NO. 4, P. 531.
- 22) ILES, C.D., WEST, R.J., AND OAKLEY C.A., 1975, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): MIN. ENG., V. 27, NO. 12, P. 70-71.
- 23) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1976, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): ECON. GEOL., V. 71, NO. 3, P. 700-701.
- 24) ILES, C.D., 1973, MINERALIZATION CONTROL AT THE DUVAL-SIERRITA PROPERTY, PINA COUNTY, ARIZONA: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 25) JANCIC, I., 1971, DEVELOPMENT OF DUVAL CORPORATION'S SIERRITA MINE, PINA COUNTY, ARIZONA (ABST.): AIME PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14-15.
- 26) LYNCH, D.W. (1967) THE GEOLOGY OF THE ESPERANZA MINE AND VICINITY, PINA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 70 P.
- 27) OAKLEY, C.A., 1973, A SYNOPSIS OF ALTERATION AND MINERALIZATION AT THE SIERRITA AND ESPERANZA MINES: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 28) REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.
- 29) SAVELY, J.P., 1972, ORIENTATION AND ENGINEERING PROPERTIES OF JOINTING IN THE SIERRITA PIT, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 30) SMITH, V.L., 1975, HYPOGENE ALTERATION AT THE ESPERANZA MINE, PINA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.
- 31) STECKLEY, R.C., LARSON, W.C., AND D'ANDREA, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUR. MINES REP. INVEST., RI 8070, 47 P.
- 32) TANTER, S.L., 1947, REPORT OF INVESTIGATIONS, AMARGOSA (ESPERANZA) MOLYBDENUM-COPPER PROPERTY: U.S. BUR. MINES REPT. INV. 4016.
- 33) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS UNPUBLISHED REPORTS, AND FILE RECORDS
- 34) WORLD MINING, JUNE 1972 SIERRITA.

RECORD 00021

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030542
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILL, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... ESPERANZA MINE GROUP (OLD)
SYNONYM NAME..... INCLUDED THE HUGHES GROUP, CAPARDS, SNYDER, CASTILLO, WHEELER-PERRY, AND MAGNET
COPPER GROUPS AND THE CROWN KING AND TIGER MINES; CHESTERFIELD COPPER CO., ELSTON ESPERANZA CO., BLANCHE ROSE
MNG. CO., PIKE, MAGNET COPPER CO.

MINING DISTRICT/AREA/SUBDIST. PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-52-20N 111-08-08W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S
RANGE.... 12E
SECTION.. SQ. 8, SW 9, S 16, N17, N CENTER 21
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 3990 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NOW IN ESPERANZA PIT

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AG AU MO

MAIN COMMOD..... PB ZN CU AG AU
MINOR COMMOD..... MO

MAIN ORE MINERALS:

GALENA, SPHALERITE AND CHALCOPYRITE AND PYRITE

MINOR ORE MINERALS:

COPPER AND MOLYBDENUM SULFIDES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DESSIM. POR CU
FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
NUMEROUS RELATIVELY SHALLOW SHAFTS, ADITS, PITS AND SMALL OPEN CUTS (KEITH, 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 135

PRODUCTION COMMENTS.... ORIGINALLY PROSPECTED IN SPANISH COLONIAL TIMES BUT MAIN INTERMITTENT PRODUCTION, FROM EARLY 1900'S THROUGH 1943, AND SMALL SCALE WAS ABOUT 2000 TONS OF ORE AVERAGING SOME 12% PB, 4% CU, 12 OZ AG/T AND MINOR ZN AND AU. FOR LATER PRODUCTION UNDER DUVAL, SEE ESPERANZA OPEN PIT MINES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
HOST ROCK TYPES..... RHYOLITE, QUARTZITE, GRAY WACKE, AND CONGLOMERATE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY, GRANODIORITE PORPHYRY

AGE OF MINERALIZATION..... TERT. (53.5 M.Y.)

PERTINENT MINERALOGY..... QUARTZ - CALCITE FISSURE VEINS WITH ORE MINERALS

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATED IN SILICEOUS, BRECCIATED LARAMIDE QUARTZ MONZONITE PORPHYRY, CRETACEOUS ROCK AND QUARTZ MASSES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIATED

SIGNIFICANT ALTERATION:
PARTLY OXIDIZED; LOCALLY KADLINIZED AND SERICITIZED, SLIGHTLY SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):
DISSEMINATED CHALCOPYRITE AND MOLYBDENITE IN SILICEOUS BRECCIATED INTRUSIVES AND CRETACEOUS ROCKS

RECORD 00023

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899994

NAME AND LOCATION

DEPOSIT NAME..... GLOVE MINE GROUP

MINING DISTRICT/AREA/SUBDIST. TYNDALL DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER M030408

GENERAL REFERENCES

- 1) OLSON, H.J., 1966, OXIDATION OF SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 2) GLOVE MINE REFERENCES:
 - OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 82 P., MAPS.
 - 3) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P.
 - 4) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 84 P., PLATES, MAPS.
 - 5) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 206.
 - 7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #37.
 - 8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 9) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 85.
 - 10) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365, P. 10.
 - 11) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 185.
 - 12) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 13) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 14) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS, 41 P., MAPS.
 - 15) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 81, 100.
 - 16) ARIZ. DEPT. MINERAL RESOURCES, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES. FILE DATA, PHOENIX.
- 3) GEOLOGY OF SANTA RITA MTS.:
 - DREWES, HARALD 9. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 4) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 5) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

- 6) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 7) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 8) DREWES, H., 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 9) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 10) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 11) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
 - 12) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
 - 13) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
 - 14) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 15) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 16) ROHRBACKER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS 81 P.
 - 17) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
 - 18) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
 - 19) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P., (1959)
 - 20) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
 - 21) HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 4) GEOLOGY OF MOLYBDENUM AND OF SANTA CRUZ CO.:
- SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
 - 5) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
 - 6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 7) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CDO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
 - 8) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
 - 9) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
 - 10) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
 - 11) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920
 - 12) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
 - 13) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
 - 14) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

- 15) KIRKMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 16) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

RECORD 00024

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030527
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... GOPHER MINE
SYNONYM NAME..... HILTANO GP, STATE OF MAINE GP

MINING DISTRICT/AREA/SUBDIST. EMPIRE/EMPIRE MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAINS, ARIZ.

LATITUDE LONGITUDE
31-52-26N 110-36-36W

UTM NORTHING UTM EASTING UTM ZONE NO
3525950.0 533750.0 +12

TWP..... 18S
RANGE.... 17E
SECTION.. 18 NE
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4850 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.1 KM SE BM 4092 (DAVIDSON CANYON)

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AG AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB ZN AG
MINOR PRODUCTS.. CU

MAIN COMMOD..... PB ZN
MINOR COMMOD..... CU AG AU MO

MAIN ORE MINERALS:
 ANGLESITE, CERUSSITE, WULFENITE, COPPER CARBONATES

MINOR ORE MINERALS:
 GALENA, CHALCOPYRITE PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 YEAR OF DISCOVERY..... MINERAL DISCOVERED AT COPPER CAMP IN 1879

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 REPLACEMENT; FISSURE VEIN
 FORM/SHAPE OF DEPOSIT: IRREGULAR AND CHIMNEYS (COARSE STOCKWORK)

SIZE/DIRECTIONAL DATA
 STRIKE OF OREBODY.... SSW
 DIP OF OREBODY..... STEEP NW

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
 INCLINE SHAFT OPERATIONS (KEITH 1974)

PRODUCTION

YES
 SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 118

PRODUCTION COMMENTS.... WORKED IRREGULARLY SINCE LATE 1800'S TO 1930, PRODUCING SOME 1,200 TONS OF ORE AVERAGING
 ABOUT 20% PB, 3% ZN, 0.8% CU, 1.50Z AG/T AND MINOR AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
 HOST ROCK TYPES..... CONCHA LIMESTONE AND INTERBEDDED QUARTZITES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (7) M.Y.)
 IGNEOUS ROCK TYPES..... INTRUSIVE GRANITE, APLITE AND RHYOLITE DIKES; SYCAMORE CANYON QUARTZ MONZONITE

IMPORTANT ORE CONTROL/LOCUS.. REPLACEMENTS AND CHIMNEYS ALONG FISSURE INTERSECTIONS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 FOLDED AND FAULTED PERMIAN LIMESTONE BLOCKS ALONG NW FAULTS

SIGNIFICANT ALTERATION:

CONTACT METAMORPHISM IN ROCKS ADJACENT TO GRANITE BATHOLITH

COMMENTS (GEOLOGY AND MINERALOGY):

3 COPPER CAMP VEINS TREND NE DIP STEEPLY NW ACROSS DIP OF ROCKS. GOPHER VEIN BRANCHES OBLIQUELY TO SS/N AND S FROM POINT OF JUNCTION WITH SE VEIN. BOTH BRANCHES ARE INTERSECTED BY JEROME VEIN.

GENERAL REFERENCES

- 1) KEITH, STANTON R., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156, P., P. 118
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 148.
- 3) ALBERDING, M., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
- 4) ALEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 6) BERNAN, D.J. 2. GEOLOGICAL RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 41 (1958)
- 7) BERNAN, D.J. 3. TERTIARY SEDIMENTARY ROCKS AND STRUCTURES OF THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 5, P. 45-58 (1962)
- 8) BUTLER, W.E., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 9) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES RI - 5650.
- 10) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MT., TUCSON, P. 315-324
- 11) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 12) FEISS, J.W., 1929, GEOLOGY AND ORE DEPOSITS OF HILTON CAMP, ARIZONA: UNIV. ARIZ., MS THESIS
- 13) FINNELL, T.L., 1970, PANTANO FORMATION: IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE USGS, 1968: USGS BULL. 1294-A, P. 35-36
- 14) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT
- 15) GALBRAITH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM., BULL., V. 51, P. 1927
- 16) GALBRAITH, F.W. 4. EMPIRE MOUNTAINS OVERTHRUST: PAM-AM. GEOL., V. 73, P. 377-378 (1940)
- 17) GALBRAITH, F.W., 1949, THRUST FAULTING IN THE EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 60, P. 1889-90
- 18) GALBRAITH, F.W. 11. THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 127-133 (1959)
- 19) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 20) MARVIN, T.C., 1942, THE GEOLOGY OF THE HILTON RANCH AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 21) MAYUGA, M.N., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 74 P.
- 22) METZ, R. THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 66 P. (1963)
- 23) MOORE, ROBERT A. 2. CRETACEOUS (?) STRATIGRAPHY OF THE SOUTHEAST FLANK OF THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 55 P. (1960)
- 24) SCHAFFROTH, D.W., 1965, STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS
- 25) SCHAFFROTH, DON W. 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS, 135 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 8, P. 4578-4579 (1966)
- 26) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

- 27)SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 28)SCHRADER, F.C. AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163
- 29)SCHRADER, F.C. 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 (1910); (ABST.): MIN. WORLD, V. 33, P. 185-187 (1910)
- 30)SEARS, DAVID, 2ND GEOLOGY OF THE PANTANO HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 48 P., MAPS (1939)
- 31)SOPP, G.P. (1940) GEOLOGY OF THE MONTANA MINE AREA, EMPIRE MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63 P.
- 32)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF THE ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168
- 33)WILSON, E.D., 1951, EMPIRE DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS, PART II, P. 49-56; ARIZ. BUR. MINES BULL 158
- 33)WILSON, R.A., 1934, THRUST FAULTING IN THE EMPIRE MOUNTAINS OF SOUTHEASTERN ARIZONA: JOUR. GEOL., V. 42, P. 422-429

RECORD 00025

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 4030427
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... HUSKON #11
 MINING DISTRICT/AREA/SUBDIST. CAMERON AREA
 COUNTRY CODE..... US
 STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
 1: 0062500 CAMERON AR17.

LATITUDE LONGITUDE
 35-45-13N 111-17-17W

TWP..... 28N 27N
 RANGE.... 10E 10E
 SECTION.. 33 04
 MERIDIAN. GCS.R

ALTITUDE.. 4050 FT

LOCATION COMMENTS: S. EDGE 33

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO

MAIN COMMOD..... U

MAIN ORE MINERALS:
 METATORBERNITE, METAAUTINITE, URANINITE COFFEBSITE

MINOR ORE MINERALS:
 SEE LIST UNDER CAMERON DISTRICT) ILSEMANNITE, MARCASITE JORDISITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	500	FT
MAX WIDTH.....	100	FT
STRIKE OF OREBODY....	NE	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 225

PRODUCTION COMMENTS.... PROBABLY SEVERAL HUNDRED TONS PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	TRI
HOST ROCK TYPES.....	SANDSTONE SHINARUMP MEMBER OF CHINLE FORMATION
IGNEOUS ROCK TYPES.....	NONE

PERTINENT MINERALOGY..... ABUNDANT CARBONIZED PLANT REMAINS

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

ILSEMANNITE WITH MARCASITE IN AS INKY BLUE MASSES & STAINS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILY, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289.
- 2) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 3) HINKKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 5) ISACHSEN, Y.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.
- 6) GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM.,
- 7) PETERSEN, R.G. 1. (AND HAMILTON, J.C. AND MYERS, A. T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1776 (1957)
- 8) FINCH, W.L. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
- 9) KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL, V. 69, P. 1075-1109.
- 10) HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.
- 11) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA,

- ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.
- 12) AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.
- 13) GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.
- 14) GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.
- 15) BOTINELLY, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.
- 16) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLOR.
- 17) HINCKLEY, DAVID, N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).
- 18) AUSTIN, S.R. 1958, MINERALOGY OF THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (IN PRESS).
- 19) REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 2000, P. 128-138.
- 20) REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 21) HAMILTON, P. AND P.F. KERR (1959) UMOHOITE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1248-1260.
- 22) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 160, P. 230-238.
- 4) PLATEAU URANIUM:
- GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51- P. 7.
- 5) EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMO-659, 19 P., MAPS (1950)
- 6) CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)
- 7) HARSHBARGER, J.W., REPENNING, C.A., AND IRWIN, J.H., 1957 STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.
- 8) MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.
- 9) WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.
- 10) KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.
- 11) ISACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)
- 12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY PROF. PAPER 455-G, 146 P.
- 13) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
- 14) GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)
- 15) GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)
- 16) GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)
- 17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMO-566, PT. 3 (1952)
- 18) GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
- 19) BOTINELLY, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO PLATEAU: USGS BULL. 1074-A, 2 P. (1957)
- 20) BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS

PAGE 65 Follows
PAGE 0061

PROF. PAPER 300, P. 187-193 (1956)

RECORD 00028

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030358
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... LAXTON PROPERTY
SYNONYM NAME..... 14 UNPAT. CLAIMS HELD IN 1940 BY GEORGE LAXTON

MINING DISTRICT/AREA/SUBDIST. WHEELER WASH AREA NORTHEAST HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK, ARIZ.

LATITUDE LONGITUDE
35-05-30N 113-51-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3886800. 239500. +12

TWP..... 20N
RANGE.... 15W
SECTION.. 26 27 NE
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES WEST DOLE RANCH, 22 MILES FROM KINGMAN AND THE SANDY & DEMOCRAT
ROADS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN W

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WOLFRAMITE, SCHEELITE, CHALCOPYRITE, CHALLOCITE, MOLYBDENITE, COPPER OXIDES, PYRITE, GALENA, SPHALERITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS, DISSEM.
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... N60E
DIP OF OREBODY..... 70SW

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... MEDIUM GRAINED GRANITE, NEAR QUARTZ DIORITE GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. 65.2+/-2.4 M.Y.
IGNEOUS ROCK TYPES..... INTRUDED BY LARGE STOCK OF GRANITOID (QUARTZ MONZONITE) ROCKS & ASSOC. APLITE DIXES

PERTINENT MINERALOGY..... COARSELY CRYSTALLINE, IRON-STAINED, DULL-WHITE QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. PYRITIC QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
JUST SOUTH OF SOAP WASH FAULT ZONE

COMMENTS (GEOLOGY AND MINERALOGY):
MOON CLAIMS (1/2 MILE NW OF DDLE RANCH) HAVE TUNGSTEN PRODUCTION

GENERAL REFERENCES

- 1) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15.
- 2) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 3) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 6) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 7) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 8) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 10) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 14) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 16) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, M.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 17) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.

- 18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 19) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 21) LEMMON, D.M., AND IWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 22) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 24) MALACH, RGMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 25) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 26) MENSCH, W.A., 1999-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454. MINING WORLD, V. 3, NO. 4, 1941.
- 27) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 28) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-1069
- 27) RUMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 30) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 397.
- 31) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 32) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 33) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 34) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 36) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS., MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 37) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 38) TOYOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 39) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-7009
- GENERAL GEOLOGY VALLEY NEAR HUALAPAI MTS:
- 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEODHYROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 43) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MINED REP., 6 P.
- 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED REP., 17 P.
- 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 47) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.

52) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP

RECORD 00029

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M003826
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... LEVIATHAN MINE

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT (NEAR DELUGE WASH)/E. HUALAPAI MTS. PLACED IN CEDAR DISTRICT BY
MALACH. 177. SOMETIMES IS PLACED IN CEDAR VALLEY DISTRICT AS IT IS NEARBY BUT WEST OF THE DIAMOND JOE AREA ON THE
WEST SLOPE OF THE HUALAPAI MTS (HEWETT ET AL. 1936)

COUNTRY CODE..... US

STATE CODE..... 04
SECTION.. NE

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MI. WEST OF DIAMOND JOE PEAK IN EAST HUALAPAI MTS/30 MILES SOUTHEAST
OF KINGMAN/3 MILES SOUTHEAST OF COPPERVILLE/25 MILES EAST OF YUCCA.

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
MOLYBDENITE, COPPER

COMMODITY COMMENTS:

WHOLE VEIN AVERAGES ABOUT 2% MoS_2 , AND A TRIFLE OVER 2% CU

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

1% MO; 1% CU IN CHALCOPYRITE, LESS CU IN PYRITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... PROPERTY IS INACTIVE
OWNERS IN 1962 WERE HEIRS OF EARL HEATH OF YUCCA, ARIZ.

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1500 FT
 MAX WIDTH..... 30 FT
 STRIKE OF OREBODY.... N30E
 DIP OF OREBODY..... 80W

COMMENTS(DESCRIPTION OF DEPOSIT):

ON THE WHALE VEIN, THE OUTCROP IS STRONG FOR 1500 FT WITH 'PINCH & SWELL' FROM 19 INCHES TO 30 FT. UNDERGROUND IT SHOWS AN AVERAGE WIDTH OF OVER 3 FT.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 220 FT

PRODUCTION YEARS..... THERE IS REPORTED TO BE 25,000 TONS OF MEASURED ORE BLOCKED OUT ABOVE THE 2600 FT LEVEL THAT AVERAGES 1.18% MOS₂, 0.83% CU, AND 0.58 OZ/T AG. THE GEOLOGICAL SURVEY IS REPORTED TO HAVE ESTIMATED THAT 17,000 TONS OF THE SAME GRADE ORE MAY BE INFERRED IN THE EXTENSION OF THE VEIN BELOW THE 260 FT LEVEL.

SOURCE OF INFORMATION (PRODUCTION).. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS-ARIZONA

PRODUCTION COMMENTS.... A MILL WAS BUILT IN 1916 & OPERATED FOR SOME TIME WITH NOT VERY SATISFACTORY RECOVERY. 1943 MIN. YRBK REPORTED IT A HEAVY PRODUCER WHI. OPERATIONS STOPPED 4/1943 USBM

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS-ARIZONA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
 HOST ROCK TYPES..... QUARTZ DIORITE - DIAMOND JOE STOCK

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
 IGNEOUS ROCK TYPES..... DIAMOND JOE STOCK

IMPORTANT ORE CONTROL/LOCUS.. ORE IN QUARTZ VEINS CUTTING QUARTZ DIORITE. ON THE WHALE VEIN, THE VEIN IS DISTINGUISHED BY CROSSING INSTEAD OF CONFORMING TO THE JOINTURE OF THE GRANITE. THERE IS ALSO MORE EVIDENCE OF MOVEMENT; THE FOOTWALL BEING A CLEAN SLIP, WHILE THE HANGING WALL IS IRREGULAR.

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., & BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 2) LEVIATHAN MINE REFERENCE: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 3) GENERAL GEOLOGY OF HUALAPAI MTS:
 BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 4) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 5) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEN, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 971, 197 P.
- 6) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 7) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 8) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.

- 9)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
- 10)PUTMAN, .W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: *GEOCHIMICA ET COSMOCHIMICA ACTA*, V. 27, P. 53-106.
- 11)ROMSLO, T.M., 1948, ANTILER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 12)VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 13)GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: *MIN. WORLD*, V. 33, P. 1179-1180.
- 14)HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 15)UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 4) GENERAL GEOLOGY OF MOHAVE CO.:
 - HOUSEHOLDER, E., 1930, GEOLOGY OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: *ARIZ. WATER COMM. BULL.* 6, 40 P.
 - 5)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 6)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
 - 7)DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613
 - 8)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. APRESS.
 - 9)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: *MINES AND MINERALS*, V. 20, P. 169, 454.
 - 10)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 11)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): *SCIENCE*, NEW SER., V. 27, P. 957-958.
 - 12)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): *AIME BULL.* 123, P. 379-384.
 - 13)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: *MIN. SCI. PRESS*, V. 113, NO. 21, P. 733-737.
 - 14)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., *AIME BULL.* 124, P. 456-460.
 - 15)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: *AM. INST. MIN. ENG. TRANS.*, VOL. 56, PP. 195-236.
 - 16)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: *MIN. ENGR. WORLD*, V. 35, P. 243-244.
 - 17)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: *UESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN*, V. 55, P. 9-10.
 - 18)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: *ARIZ. BUR. MINES*, SCALE 1:375,000.
 - 19)DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
 - 20)WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. *ARIZ. BUR. MINES BULL.* 148, *GEOL. SERIES* 14, 54 P.
 - 21)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 22)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: *ARIZ. WATER COMM. BULL.* 6, 40 P.
 - 23)GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: *ARIZ. STATE LAND DEPT. WATER RES. REP.* 26, 39 P.
 - 24)GILLESPIE, J.B. AND BENTLEY, C.B., 1971 GEDHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
 - 25)LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: *ARIZ. GEOL. SOC. DIGEST*, V. 3, P. 155-159.
 - 26)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: *ARIZ. STATE WATER COMMISSION*, 6 P., MAP; U.S. GEOL. SURVEY MINED REP., 6 P.
 - 27)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED REP., 17 P.
 - 28)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: *ARIZ. STATE WATER COMMISSION*, 20 P., MAPS
 - 29)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: *AM. MINERALOGIST*, V. 13, NO. 5, P. 195-197
 - 30)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: *AM. MINERALOGIST*, V. 26, NO. 10, P. 627-629.
 - 31)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S.

GEOL. SURVEY BULL. 1354-C, 10 P.

32) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.

33) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.

34) TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00030

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030324
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MABLE MINE GROUP
SYNONYM NAME..... MABLE MINE (INCORRECT) PUCKETT PROPERTY; OWNERS SMITH, J.A. MCCADDEN, IN 1933 JONES

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME DIST

COUNTRY CODE..... US

STATE CODE..... 04
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS, ARIZ.

LATITUDE LONGITUDE
33-02-10N 114-09-45W

UTM NORTHING UTM EASTING UTM ZONE NO
3658600. 764950. 11J

TWP..... 04S
RANGE..... 18W
SECTION.. 31 WC NW OF SW
MERIDIAN. GILA & SALT R., ARIZ. BASELINE

ALTITUDE.. 1410 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 1/2 SSE OF CASTLE DOME PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO

MAIN COMMOD..... PB AG F
MINOR COMMOD..... BA V MO

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA, PARTLY OXIDIZED

MINOR ORE MINERALS:
WULFENITE & VANADINITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: LENSING SPOTTY POCKETS & IRREGULAR MASSES

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1 FT

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 380 FT

COMMENTS(DESCRIP. OF WORKINGS):

SMALL STOPES FROM NUMEROUS SHAFTS WORKED SPORADICALLY FROM 1880'S (KEITH, 1978, P. 122). WORKINGS INCLUDED IN 1933 FIVE SHAFTS THAT WERE 324, 380, 60, 50 AND 49 FEET DEEP.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	.2	TON	1880-?	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 122

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM 1880'S WITH TOTAL ESTIMATED & RECORDED PRODUCTION OF SOME 200 TONS OF ORE AVERAGING ABOUT 20% PB, 8 OZ. AG/T, 0.2 OZ. AU/T AND 0.2% CU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC

HOST ROCK TYPES..... SHALES

IGNEOUS ROCK TYPES..... DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES

PERTINENT MINERALOGY..... GANGUE OF CRYSTALLINE CALCITE, FLUORITE, & MINOR BARITE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR, LENSING FISSURE VEINS IN MESOZOIC SHALES CUT BY DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES.

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

MINOR WULFENITE & VANADINITE IN VUGS & SOLUTION CHANNELS; GRAVEL-MANTLE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 122.

- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 102.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 113-114.
- 4) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00031

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030422
RECORD TYPE..... X1
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... MAYBEE GROUP

MINING DISTRICT/AREA/SUBDIST. RIVERSIDE

COUNTRY CODE..... US

STATE CODE..... 04

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MI. SW OF RAY

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO PB AG AU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... OWNERS: LEO WALL, ETAL, RAY, AZ

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 60 FT

LENGTH OF WORKINGS..... 700 FT

COMMENTS(DESCRIP. OF WORKINGS):

60 FT SHAFT, ABOUT 700 FT. OF TUNNELS AND VARIOUS STOPES AND OPEN CUTS

GENERAL REFERENCES

1) ARIZ. DEPT. MINERAL RESOURCES, 1962. MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

RECORD 00032

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4899987

NAME AND LOCATION

DEPOSIT NAME..... MIAMI

MINING DISTRICT/AREA/SUBDIST. MIAMI DISTRICT

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 1000 FT

OVERALL LENGTH OF MINED AREA.... 2500 FT

OVERALL WIDTH OF MINED AREA..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):

OLD MIAMI UNDERGROUND WORKINGS; MIAMI EAST IS UNDER DEVELOPMENT WITH PLANNED PRODUCTION OF 2000 T/DAY

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	130303.0	TONS	1920-1978	MIAMI COPPER
16 CU	ACC	2152143.	LBS	1920-1978	MIAMI COPPER
17 AG	ACC	1766.478	OZS	1920-1978	MIAMI COPPER
18 AU	ACC	36.616	OZS	1920-1978	MIAMI COPPER
19 MO	ACC	2177.876	LBS	1949-1959	MIAMI COPPER
20 ORE	ACC	0.507	TONS		MIAMI CLEANUP
21 CU	ACC	196.900	LBS		MIAMI CLEANUP
22 AG	ACC	0.236	OZ		MIAMI CLEANUP
23 AU	ACC	0.009	OZ		MIAMI CLEANUP

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. MIN. GEOLOGY FILE DATA

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER M003085

GENERAL REFERENCES

- 1) PETERSON, N.P., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P.
- 2) OLMSTEAD, H.W., AND D.W. JOHNSON (1966) INSPIRATION GEOLOGY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 143-150.
- 3) ABM FILE DATA, ARIZ. MIN. MINE MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN RIDGE, J.D., ED., ORE DEPOSITS OF THE UNITED STATES 1933-1967: AM. INST. MIN. MET. AND PET. ENG., N.Y., P. 1163-1190.
 - 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 6) (ANON.), FLOTATION AT THE INSPIRATION MINE, ARIZ.: MIN. AND SCI. PRESS, VOL. 111, PP. 7-10, 1915.
 - 7) BECKETT, P.G., 1917, THE WATER PROBLEM AT THE OLD DOMINION MINE: AM. INST. MIN. ENG. TRANS. (FOR 1916), V. 55, P. 35-66.
 - 8) BIDEAUX, R.A., AND WILLIAMS, S.A., 1960, SOME NEW OCCURRENCES OF MINERALS OF ARIZONA: ARIZ. GEOL. SOC.

DIGEST, V. 3, P. 53-56.

- 9)BJORGE, C.N., AND SHOEMAKER, A.H., 1933, APPLIED GEOLOGY AT THE OLD DOMINION MINE, GLOBE, GILA COUNTY, ARIZ. IN ORE DEPOSITS OF THE WESTERN STATES: AM. INST. MIN. METALL. ENG., LINDGREN VOLUME, P. 709-716.
- 10)BLAKE, W.P., GEOLOGY OF THE SILVER KING MINE: ENG. AND MIN. JOUR., VOL. 35, PP. 238-239, 254-256, 270-271, 1883.
- 11)BOWEN, H.P., DATA ON MIAMI CHURN DRILLING: ENG. AND MIN. JOUR., VOL. 97, PP. 903-904, 1914.
- 12)BOWEN, H.P., ENGINEERING NOTES AND METHODS AT MIAMI: ENG. AND MIN. JOUR., VOL. 100, PP. 15-17, 1915.
- 13)BURCH, H.K., CONCENTRATION AT INSPIRATION--I: ENG. AND MIN. JOUR., VOL. 102, PP. 411-415, 1916.
- 14)BURCH, H.K., AND WHITING, M.A., AUTOMATIC OPERATION OF MINE HOISTS AS EXEMPLIFIED BY THE NEW ELECTRIC HOISTS FOR THE INSPIRATION CONSOLIDATED COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 10-23, 1917.
- 15)BURCH, H. KENYON, MINE AND MILL PLANT OF THE INSPIRATION CONSOLIDATED COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 707-740, 1917.
- 16)CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 17)CREASEY, S.C., 1978, CHARACTERISTICS OF A PORPHYRY COPPER STOCK IN GLOBE-MIAMI DISTRICT OF ARIZONA (ABS.) U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 7.
- 18)CREASEY, IN PRESS, AGE DATES OF GLOBE MIAMI DIST.
- 19)DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 20)DEANE, E.G., THE BLOCK METHOD OF TOP SLICING OF THE MIAMI COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 240244, 1917.
- 21)DEMPSEY, W.J. 5. AEROMAGNETIC MAP OF GLOBE QUADRANGLE, GILA COUNTY, ARIZONA: USGS OPENFILE REP. (1952)
- 22)DEWHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 23)DOUGLAS, JAMES, THE COPPER INDUSTRY OF ARIZONA: MINERAL INDUSTRY, 1897, PP. 231-232.
- 24)EARL, T.A., 1973, A HYDROGEOLOGIC STUDY OF AN UNSTABLE OPEN-PIT SLOPE, MIAMI, GILA COUNTY, ARIZONA (ABS.): UNPUB.. PH.D. THESIS, UNIV. ARIZ.
- 25)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P., P. 92.
- 26)EMMONS, S.F., THE SECONDARY ENRICHMENT OR ORE DEPOSITS: AM. INST. MIN. ENG. TRANS., VOL. 30, PP. 192-193, 1901.
- 27)FLETCHER, J.B., 1971, IN PLACE LEACHING AT MIAMI MINE, MIAMI, ARIZONA, IN SPECIAL MINING AND EXPLORATION ISSUE: SOC. MIN. ENG. AIME, TRANS., V. 250, NO. 4, P. 310-314.
- 28)FULD, H.A., PROSPECTING WITH CHURN DRILLS AT MIAMI, ARIZ.: ENG. AND MIN. JOUR., VOL. 90, PP. 804-805, 1910.
- 29)GAHL, RUDOLPH, HISTORY OF THE FLOTATION PROCESS AT MIAMI, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 576-645, 1917.
- 30)GRAYBEAL, F.T. (1972) THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 220 P.
- 31)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 32)HERRICK, R.L., MINING AT MIAMI, ARIZ.: MINES AND MINERALS, VOL. 30, PP. 751-756, 1910.
- 33)HIGGINS, EDWIN, COPPER DEPOSITS OF THE GLOBE-KELVIN DISTRICTS: ENG. AND MIN. JOUR., VOL. 89, PP. 769-772, 813-816, 870-874, 1910.
- 34)KERN, R.W., INTERNATIONAL SMELTER AT MIAMI: ENG. AND MIN. JOUR., VOL. 101, PP. 421-424, 1916.
- 35)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 36)KUELLMER, F.J., 1960, COMPOSITIONAL VARIATIONS OF ALKALI FELDSPARS IN SOME INTRUSIVE ROCKS NEAR GLOBE-MIAMI, ARIZONA: ECON. GEOLOGY, V. 55, P. 557-562.
- 37)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 38)LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 39)LAUSEN, C. (1923) GEOLOGY OF THE OLD DOMINION MINE, GLOBE, ARIZONA. UNIV. ARIZONA M.S. THESIS, 155 P.
- 40)LEGGE, J.A., JR. (1939) PARAGENESIS OF THE ORE MINERALS OF THE MIAMI MINE, ARIZONA. UNIV. ARIZONA M.S. THESIS, 47 P.

RECORD 00033

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M800114
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... MIAMI-INSPIRATION DIST.

GENERAL COMMENTS

CONTINUED REFERENCES FROM 7030447

GENERAL REFERENCES

- 1) 56) PETERSON, N.P., 1954, COPPER CITIES COPPER DEPOSIT, GLOBE-MIAMI DISTRICT, ARIZONA: ECON. GEOL., V. 49, P. 362-377
- 57) PETERSON, N.P. 15. GEOLOGY OF THE GLOBE QUADRANGLE, ARIZONA: USGS MAP GQ-41, WITH TEXT (1954)
- 58) PETERSON, N.P. 19. GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P. (1962)
- 59) PETERSON, N.P. 20. GEOLOGY AND ORE DEPOSITS OF THE GLOBE QUADRANGLE: N. MEX. GEOL. SOC., GUIDEBOOK 13TH FIELD CONF., P. 158-162 (1962)
- 60) PETERSON, N.P., 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, 18 P., GEOL. MAP.
- 61) PETERSON, N.P., GILBERT, C.M., AND QUICK, G.L., 1945, HYDROTHERMAL ALTERATION ON THE CASTLE DOME COPPER DEPOSIT (MIAMI, ARIZONA) (ABS.): GEOL. SOC. AMERICA BULL., V. 56, NO. 12, PT. 2, P. 1190.
- 62) PETERSON, N.P., GILBERT, C.M., AND QUICK, G.L., 1945, HYDROTHERMAL ALTERATION ON THE CASTLE DOME COPPER DEPOSIT (MIAMI, ARIZ.): ECON. GEOL., V. 40, NO. 8, P. 602.
- 63) PETERSON, N.P., ET AL., 1946, HYDROTHERMAL ALTERATION IN THE CASTLE DOME COPPER DEPOSIT, ARIZONA: ECON. GEOL., V. 41, P. 820-840
- 64) PETERSON, N.P. 10. (AND GILBERT, C.M., AND QUICK, G.L.) GEOLOGY AND ORE DEPOSITS OF THE CASTLE DOME AREA, GILA COUNTY, ARIZONA: USGS BULL. 971, 134 P., MAPS (1951)
- 65) PETERSON, N.P. 13. (AND GILBERT, C.M., QUICK, J.V., AND OTHERS) GEOLOGIC MAP OF A PORTION OF THE INSPIRATION QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 MAPS (1953)
- 66) RANSOME, F.L. (1903) GEOLOGY OF THE GLOBE COPPER DISTRICT, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 12, 168 P.
- 67) RANSOME, F.L. 6. DESCRIPTION OF THE GLOBE QUADRANGLE, ARIZONA: USGS FOLIO 111, 17 P., MAPS (1904)
- 68) RANSOME, F.L., 1910, GEOLOGY AT GLOBE ARIZ., MIN. AND SCI. PRESS, V. 100, P. 256-257.
- 69) RANSOME, F.L., 1919, THE COPPER DEPOSITS OF RAY AND MIAMI, ARIZONA: U.S. GEOL. SURV. PROF. PAPER 115, 192 P., PARTICULARLY P. 107-121 AND 144-176
- 2) 70) REED, E.F., AND SIMMONS, W.W., 1962, GEOLOGICAL NOTES ON THE MIAMI-INSPIRATION MINE: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOCOLLON RM, EAST-CENTRAL ARIZONA, P. 153-157.
- 71) REED, I.W., 1975, TRACE ELEMENT DISTRIBUTION AND ALTERATION STUDY OF THE COPPER CITIES DEPOSIT, ARIZONA: M.S. THESIS, OKLAHOMA STATE
- 72) RICE, C.T., DISSEMINATED ORES AT MIAMI: MINES AND METHODS (PUBLISHED IN SALT LAKE CITY AND DISCONTINUED IN JUNE, 1913), VOL. 1, PP. 269-275, 1910.
- 73) RICKETTS, L.O., DUST LOSSES IN COPPER SMELTING: ENG. AND MIN. JOUR., VOL. 102, PP. 396-397, 1917.
- 74) SANDERS, JOHN, HEMATITE IN VEINS OF THE GLOBE DISTRICT: ENG. AND MIN. JOUR., VOL. 92, PP. 1191-1192, 1911.
- 75) SCHWARTZ, G.M., 1921, NOTES ON TEXTURES AND RELATIONSHIPS IN THE GLOBE COPPER ORES: ECON. GEOL., V. 16, P. 322-329
- 76) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 349-352, PARTICULARLY P. 328-329, 346-352

- 77)SCOTT, DAVID B., STOPING METHODS OF MIAMI COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 137-153, 1917.
- 78)SIMMONS, W.W. AND J.E. FOWELLS (1966) GEOLOGY OF THE COPPER CITIES MINE, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 151-156.
- 79)STEPHENS, E.C., 1950, GEOLOGY OF THE MIAMI-INSPIRATION AND CASTLE DOME DEPOSITS, GILA COUNTY, ARIZONA: PRIVATE REPORT.
- 80)STILL, A.R. URANIUM AT COPPER CITIES AND OTHER PORPHYRY COPPER DEPOSITS, MIAMI DISTRICT, ARIZONA: HARVARD UNIV., PHD THESIS (1962)
- 81)TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 82)TENNEY, J.B., 1935, GLOBE-MIAMI DISTRICT (ARIZONA): IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 189-201
- 83)THOMAS, KIRBY, THE GLOBE MINING DISTRICT, ARIZ.: MINING AND METALLURGY, VOL. 24, PP. 231-232, 1901.
- 84)THOMSEN, R., 1957, MICROMOUNTS FROM THE APACHE MINE: THE MINERAL EXPLORER, V. 1, NO. 1
- 85)THROOP, A.H. (1970) THE NATURE AND ORIGIN OF BLACK CHRYSOCOLLA AT THE INSPIRATION MINE, ARIZONA, M.S. THESIS, ARIZONA STATE UNIVERSITY, 54 P.
- 86)THROOP, A.H., AND BUSECK, P.R., 1971 NATURE AND ORIGIN OF BLACK CHRYSOCOLLA AT THE INSPIRATION MINE, ARIZONA: ECON. GEOL., V. 66, NO. 8, P. 1168-1175.
- 87)TOLMAN, C.F., JR., THE MIAMI-INSPIRATION ORE ZONE: MIN. AND SCI. PRESS, VOL. 99, PP. 646-658, 1909.
- 88)TOLMAN, C.F., JR., GEOLOGY AT GLOBE, ARIZ.: MIN. AND SCI. PRESS, VOL. 100, PP. 327-328, 1910.
- 89)TOVOTE, W.L., MAGMATIC ORIGIN OF ORE-FORMING SOLUTIONS: MIN. AND SCI. PRESS, VOL. 104, PP. 601-602, 1912.
- 90)TOVOTE, W.L., 1914, THE GLOBE MINING DISTRICT, ARIZONA: MIN. AND SCI. PRESS, V. 108, NO. 11, P. 442-449, 487-492.
- 91)TURNER, G.L., 1962, THE DEMING AXIS, SOUTHEASTERN ARIZONA, NEW MEXICO, AND TRANS-PECOS, TEXAS: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOCOLLON RIM, EAST-CENTRAL ARIZONA, P. 59-71.
- 92)U.S. BUREAU OF MINES, 1924-53, MINERALS YEARBOOK.
- 93)U.S. GEOLOGICAL SURVEY, 1911-23, MINERAL RESOURCES OF THE UNITED STATES
- 94)WEED, W.H., 1925, THE MINES HANDBOOK: THE MINES HANDBOOK CO., TUCKAHOE, N.Y., V. 16.
- 95)WENDT, A.F., THE COPPER ORES OF THE SOUTHWEST: AM. INST. MIN. ENG. TRANS., VOL. 15, PP. 60-68, 1887.
- 96)WILLIS, C.F., 1922, NEW DOMINION COPPER COMPANY: ARIZONA MIN. JOUR., V. 5, NO. 23, P. 38.
- 97)WILSON, W.E., 1971, CLASSIC LOCALITY: THE APACHE MINE: MINERALOGICAL RECORD, V. 2, NO. 6, P. 252-258.
- 98)WOODBIDGE, D.E. (1906) ARIZONA AND SONORA--V. -- THE GLOBE DISTRICT. ENGR. MIN. JOUR. 81: 1229.

RECORD 00034

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4899991

NAME AND LOCATION

DEPOSIT NAME..... MISSION MINE

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER W002676

GENERAL REFERENCES

- 1) KINNISON, J.E. (1966) THE MISSION COPPER DEPOSIT, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZ. PRESS, TUCSON: 281-287.
- 2) RICHARD, K., AND J.H. COURTRIGHT (1959) SOME GEOLOGIC FEATURES OF THE MISSION COPPER DEPOSIT, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ANN. ARIZ. GEOL. SOC. DIGEST: 201-204.
- 3) KINNISON, J.E., 1963, PROBABLE ORIGIN OF MISSION COPPER DEPOSIT: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-33.
- 4) GALE, R.E., "GEOLOGY OF MISSION COPPER MINE, PIMA MINING DISTRICT, ARIZONA" UNPUBLISHED PH.D. DISSERTATION, STANFORD UNIVERSITY, STANFORD, CAL., 1965.
- 5) COOPER, J.R., 1960, SOME GEOLOGIC FEATURES OF THE PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1112-C, 103 P.
- 6) CANNEY, F.C. 1. SOIL SAMPLING EXPERIMENTS IN THE MISSION MINE AREA, PIMA COUNTY, ARIZONA (ABS.): MIN. ENGR., V. 15, NO. 1, P. 61 (1963)
- 7) THURMOND, R.E., HEINRICH, W.E., AND SPAULDING, E.D., 1954, GEOPHYSICAL DISCOVERY AND DEVELOPMENT OF THE PIMA MINE, PIMA COUNTY, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 197-202.
- 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #29
- 9) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 10) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 11) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 136
- 12) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 13) BEEDER, J.R., "GEOLOGY OF THE PIMA MINE," PIMA MINING CO. REPORT, 1963, 5 PP.
- 14) BRYANT, D.L., "DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA," SOUTHERN ARIZONA GUIDEBOOK III, ARIZONA GEOLOGICAL SOCIETY, 1968, PP. 33-47.
- 15) COOPER, JR., "SOME GEOLOGIC FEATURES OF THE PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA," BULLETIN 1112-C, 1963, U.S. GEOLOGICAL SURVEY, PP. 63-103.
- 16) COOPER, J.R., 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D, P. 42.
- 17) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 18) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 19) DAMES AND MOORE, 1976, SLOPE STABILITY STUDIES, PIMA OPEN PIT MINE, ARIZONA: INTERNAL COMPANY REPORT SUBMITTED TO CYPRUS PIMA MINING CO., MARCH.
- 20) DAMON, P.E., AND MAUGER, R.L., 1966, EPIROGENY-DOROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC.

- MINING ENGINEERS TRANS., V. 235, NO. 1, P. 99-112.
- 21) DREWES, H., 1976, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: RIZONA GEOL. SOC. DIGEST, V. 10, P. 151-167.
- 22) ECKEL, E.B., 2. GEOLOGY AND ORE DEPOSITS OF THE MINERAL HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P., MAPS (1930)
- 23) HEINRICH, W.E., 1976, PIMA DISTRICT, ARIZONA--A HISTORICAL AND ECONOMIC PERSPECTIVE: UNPUBLISHED PREPRINT, A.I.M.E. ANNUAL MEETING, LAS VEGAS, NEVADA, 21 P.
- 24) HIMES, MARSHALL D., 1971, MINERALIZATION AND ALTERATION AT THE PIMA MINE. A COMPLEX PORPHYRY COPPER DEPOSIT. PIMA COUNTY, ARIZ. (ABSTR): MIN. ENG., VOL. 23, NO. 12, P. 71.
- 25) HIMES MARSHALL D., 1972, GEOLOGY OF THE PIMA MINE. PIMA COUNTY, ARIZONA: MASTER'S UNIV. ARIZONA.
- 26) HIMES, MARSHALL D., 1973, MINERALIZATION AND ALTERATION AT PIMA MINE: A COMPLEX PORPHYRY COPPER DEPOSIT: SOC. MIN. ENG. AIME. TRANS., VOL. 254, P. 166-174.
- 27) IRVIN, G.W., "PYROMETASOMATIC DEPOSITS AT SAN XAVIER MINE," SOUTHERN ARIZONA GUIDEBOOK II, 1959, PP. 195-197.
- 28) JOURNEAY, J.A. R.E. THURMOND, ET AL. (1958) PIMA: A THREE-PART STORY--GEOLOGY, OPEN PIT, MILLING. MIN. ENG. 10:453-462.
- 29) JOURNEAY, J.A. (1959) PYROMETASOMATIC DEPOSITS AT PIMA MINE, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 198-199.
- 30) KINNISON, J.E., AND BARTER, C.F., 1976, GEOLOGY OF THE PIMA MINING DISTRICT: ARIZONA GEOL. SOC., FIELD TRIP GUIDE 8.
- 31) LACY, W.C., 1959, STRUCTURE AND ORE DEPOSITS OF THE EAST SIDE OF THE SIERRITA MOUNTAINS, ARIZONA, IN HEINDL, L.A., ED., SOUTHERN ARIZONA GUIDEBOOK II: TUCSON, ARIZONA GEOL. SOC., P. 185-192.
- 32) LANGLUIS, J.D., 1978, GEOLOGY OF THE CYPRUS PIMA MINE. PIMA COUNTY, ARIZONA, IN JENNEY, J.P. AND HAUCK, H.R. ED: PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIG. VOL. 11, P. 103-113.
- 33) LOWELL, J.D., AND GUILBERT, J.M., 1970, LATERAL AND VERTICAL ALTERATION-MINERALIZATION ZONING IN PORPHYRY ORE DEPOSITS: ECON. GEOLOGY, V. 65, P. 373-406.
- 34) LUKANUSKI, J.N., NEVIN, A.E., AND WILLIAMS, S.A., 1975, LOCOMOTIVE-TYPE POST-ORE FANGLOMERATES AS EXPLORATION GUIDES FOR PORPHYRY COPPER DEPOSITS: A.I.M.E. PREPRINT 75-S-35, 18 P.
- 35) MACKENZIE, F.D. 1. PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 193-194 (1959)
- 36) MACKENZIE, F.D. 2. GEOLOGICAL INTERPRETATION OF THE PALD VERDE MINE BASED UPON DIAMOND DRILL CORE: ARIZ. GEOL. SOC. DIG., V. 6, P. 41-48 (1963)
- 37) MAYUGA, MANUEL N. 2. THE GEOLOGY AND ORE DEPOSITS OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 126 P., MAPS (1942)
- 38) REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.
- 39) REHRIG, W.A. AND HEIDRICK, T.L., 1976, REGIONAL TECTONIC STRESS DURING THE LARAMIDE AND LATE TERTIARY INTRUSIVE PERIODS, BASIN AND RANGE PROVINCE, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 10, P. 205-228.
- 40) STUDEBAKER, IRVING G. STRUCTURE AND STRATIGRAPHY OF THE HELMET PEAK AREA. PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 26 P. (1960)
- 41) THURMOND, R.E. 3. (AND STORMS, W.R.) DISCOVERY AND DEVELOPMENT OF THE PIMA COPPER DEPOSIT, PIMA MINING CO., PIMA COUNTY, ARIZONA: USBM, IC 7822, 19 P., ILLUS., MAP (1958)
- 42) THURMOND, R.E., HEINRICH, W.E., JR. AND SPAULDING, E.D., "GEOPHYSICAL DISCOVERY AND DEVELOPMENT OF THE PIMA MINE, PIMA COUNTY, ARIZONA, A SUCCESSFUL EXPLORATION PROJECT," MINING ENGINEERING, VOL. 6, NO. 2, 1954, PP. 197-202.
- 43) THURMOND, R.E., "A DESCRIPTION OF THE PIMA ORE BODY," MINING CONGRESS JOURNAL, VOL. 41, NO. 1, 1955, PP. 27-30
- 44) HEAVER, R.R., 1971, UPLIFT AND GRAVITATIONAL ADJUSTMENT, RUBY STAR RANCH AREA, PIMA MINING DISTRICT, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 9, P. 197-211.
- 5) CREASEY, S.C., AND KISTLER, R.W., "AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA," PROFESSIONAL PAPER 450-D, 1962, U.S. GEOLOGICAL SURVEY, PP. D1-D5.
- 6) LACY, W.C., AND TITLEY, S.R., "GEOLOGICAL DEVELOPMENTS IN THE TWIN BUTTES DISTRICT," MINING CONGRESS JOURNAL, APRIL 1962.
- 7) MEYER, C., AND HEMLEY, J.J., "WALL ROCK ALTERATION," GEOCHEMISTRY OF HYDROTHERMAL ORE DEPOSITS. H.L. BARNES, ED., 1967, PP. 166-235.
- 8) LOWELL, J.D., AND GUILBERT, J.M., "LATERAL AND VERTICAL ALTERATION MINERALIZATION ZONING IN PORPHYRY ORE

- DEPOSITS," ECONOMIC GEOLOGY, VOL. 65, NO. 4, 1970, PP. 373-408.
- 9)JEIT, J.H., AND KNIGHT, F.P., "GOLD AND SILVER STATISTICS FOR 1969, 1970 (PRELIMINARY), AND OTHER YEARS, ARIZONA. THE UNITED STATES, AND THE WORLD." ARIZONA DEPT. OF MINERAL RESOURCES, PHOENIX, 1971.
- 10)COOPER, J.R. "PRELIMINARY GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, PIMA COUNTY, ARIZONA." OPEN FILE MAP 1:48,000, 1970, U.S. GEOLOGICAL SURVEY.
- 11)CREASEY, S.C., "HYDROTHERMAL ALTERATION," GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, EDS, THE UNIVERSITY OF ARIZONA PRESS, TUCSON, 1966, PP. 51-74.
- 12)DAMON, P.E., ET AL., ANNUAL PROGRESS REPORT NO. C00-689-60, 1966, UNIVERSITY OF ARIZONA, TUCSON, P. 23.
- 13)FOLK, R.L., PETROLOGY OF SEDIMENTARY ROCKS, HEMPHILL'S, AUSTIN, TEXAS, 1968.
- 14)HAYES, P.T., AND DREWES, H. "MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA," SOUTHERN ARIZONA GUIDEBOOK 111, ARIZONA GEOLOGICAL SOCIETY, 1968, PP. 49-58.
- 15)HEMLEY, J.J., AND JONES, W.R., "CHEMICAL ASPECTS OF HYDROTHERMAL ALTERATION AND EMPHASIS ON HYDROGEN METASOMATISM," ECONOMIC GEOLOGY, VOL. 59, 1964, PP. 538-569.
- 16)HIMES, M.D., "GEOLOGY OF THE PIMA MINE, PIMA COUNTY, ARIZONA," UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 1972.
- 17)JOURNEAY, J.A., "PYROMETASOMATIC DEPOSITS AT PIMA MINE," SOUTHERN ARIZONA GUIDEBOOK II, 1959, PP. 198-199.
- 18)KINNISON, J.E., "THE MISSION COPPER DEPOSIT," GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, EDS., THE UNIVERSITY OF ARIZONA PRESS, TUCSON, 1966, PP. 281-287.
- 19)LACY, W.C., "STRUCTURE AND ORE DEPOSITS OF THE EAST SIERRITA AREA." SOUTHERN ARIZONA GUIDEBOOK II, ARIZONA GEOLOGICAL SOCIETY, 1959, PP. 185-192.
- 20)MACKENZIE, F.D., "PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES," SOUTHERN ARIZONA GUIDEBOOK II, ARIZONA GEOLOGICAL SOCIETY, 1959, PP. 193-194.
- 21)MACKENZIE, F.D., "GEOLOGICAL INTERPRETATION OF THE PALO VERDE MINE BASED UPON DIAMOND DRILL CORE," DIGEST, ARIZONA GEOLOGICAL SOCIETY, 1963, VOL. 6, PP. 41-48.
- 22)MAUGER, R.L., "A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS, PIMA COUNTY, ARIZONA," PH.D. DISSERTATION, UNIVERSITY OF ARIZONA, TUCSON, 1966.
- 23)MAYUGA, M.N., "THE GEOLOGY AND ORE DEPOSITS OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA," UNPUBLISHED PH.D. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 1942.
- 24)PARK, C.F., JR., AND MACDIARMID, R.A., ORE DEPOSITS, W.H. FREEMAN, SAN FRANCISCO, 1964, 475 PP.
- 25)RANSOME, F.L., "ORE DEPOSITS OF THE SIERRITA MOUNTAINS, ARIZONA." BULLETIN 725, 1922. U.S. GEOLOGICAL SURVEY.
- 26)RICHARD, K.E., AND COURTRIGHT, J.H. "SOME GEOLOGIC FRATURES OF THE MISSION COPPER DEPOSIT," SOUTHERN ARIZONA GUIDEBOOK II, ARIZONA GEOLOGICAL SOCIETY, 1959, PP. 200-204.
- 27)THURMOND, R.E., AND STORMS, W.R., "DISCOVERY AND DEVELOPMENT OF THE PIMA COPPER DEPOSIT, PIMA MINING CO., PIMA COUNTY, ARIZONA" INFORMATION CIRCULAR 7822, 1958, U.S. BUREAU OF MINES, P. 19.
- 28)WILSON, E.D., "ARIZONA ZINC AND LEAD DEPOSITS, PIMA DISTRICT" BULLETIN 156, 1950, ARIZONA BUREAU OF MINES, THE UNIVERSITY OF ARIZONA, TUCSON, PP. 39-51.

RECORD 00035

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030550
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... MOMMOTH MINE
SYNONYM NAME..... OLD BOOT, IMPERIAL, UNION, PAGE, SOUTHERN BEAUTY

MINING DISTRICT/AREA/SUBDIST. SILVER BELL DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-24-52N 111-31-44W

UTM NORTHING UTM EASTING UTM ZONE NO
3586350. 450320. 412

TWP..... 12S
RANGE.... 08E
SECTION.. 04
MERIDIAN. GILA AND SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE E. OF EL TIRO

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN MO AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG PB ZN AU

MAIN COMMOD..... CU AG
MINOR COMMOD..... PB ZN MO AU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... MD

MAIN ORE MINERALS:
 PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
 COPPER, LEAD AND ZINC CARBONATES AND SULFIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1865 BOOTMINE OPENED, FIRST IN SILVERBELL DIST.

PRESENT/LAST OWNER..... HUACHUCA MNG. AND SMLTG. CO., PIMA CO. MNG AND SMLTG. CO., SILVER BELL MNG. CO., ALBERT
 STEINFELD CO., IMPERIAL COPPER CO., AS S. AND R. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, DISSEMINATED

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

PROSPECTED AND WORKED FROM 1870'S TO 1931 AS AN UNDERGROUND MINE (KEITH 1974)

PRODUCTION

YES

MEDIUM PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	1000		TONS	1870-1931	3% CU, 10Z AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 143

PRODUCTION COMMENTS.... WORKED FROM 1870'S TO 1931 AND PRODUCED OVER 1 MILLION TONS OF ORE AVERAGING BETTER THAN 3%
 CU AND ABOUT 1 OZ AG/T WITH MINOR PB, ZN AND AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC
 HOST ROCK TYPES..... ALTERED OR GARNETIZED LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TERT
 IGNEOUS ROCK TYPES..... DACITE PORPHYRY AND MONZONITE INTRUSIVES

AGE OF MINERALIZATION..... CRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. FISSURE VEINS AND IRREGULAR DISSEMINATIONS IN PYROMETASOMATIC DEPOSITS IN GARNETIZED OR ALTERED PALEOZOIC LIMESTONE BLOCKS ENGULFED IN LARAMIDE DACITE PORPHYRY AND MONZONITE INTRUSIVES ALONG A MAJOR FAULT ZONE

LOCAL GEOLOGY

**SIGNIFICANT LOCAL STRUCTURES:
ALONG A MAJOR FAULT ZONE**

**SIGNIFICANT ALTERATION:
GARNETIZED OR ALTERED PALEOZOIC LIMESTONES**

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 143.
- 2) RICHARD K. AND COURTRIGHT J.H. (1966) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, (EDS.). UNIV. ARIZONA PRESS, TUCSON: 157-163.
- 3) RICHARD, KENYON, AND COURTRIGHT, J.H., 1954, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MINING ENG., NOVEMBER, AND AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 1095-1099.
 - 4) RICHARD, K., AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.
 - 5) RICHARD, K.E. 1. (AND COURTRIGHT, J.H.) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MIN. ENGR. V. 6, NO. 11, P. 1095-1099, ILLUS., MAP (1954); AIME TRANS. 1954, V. 199 (1955); (DISCUSSION BY T.W. MITCHAM AND REPLY BY AUTHORS): MIN. ENGR., V. 7, NO. 3, P. 300 (1955); AIME TRANS. 1955, V. 202 (1956)
 - 6) STEWART, C.A. 2. THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA: AIME BULL. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-290, MAP (1913); (43ST.): - MIN. WORLD, V. 36, P. 1104-1107, 1117-1150 (1912)
 - 7) STEWART, C.A. (1912) THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA. TRANS. AIME 43: 240-290.
 - 8) COPPER HANDBOOK, 1902, 1903, 1904, 1905. U.S. GEOL. SURVEY, MINERAL RESOURCES, 1905 ARIZONA BUREAU OF MINES, FILE DATA.

RECORD 00036

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4899995

NAME AND LOCATION

DEPOSIT NAME..... MORENCI OPEN PIT MINE

MINING DISTRICT/AREA/SUBDIST. MORENCI DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER W002681

GENERAL REFERENCES

- 1) MOOLICK, R.T. AND DUREK, J.J., 1966, THE MORENCI DISTRICT: P. 221-231 IN TITLEY, S.R., AND HICKS, C.L., EDITORS, GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA; UNIV. ARIZ. PRESS, TUCSON
- 2) LINDGREN, W. 7. DESCRIPTION OF THE CLIFTON QUADRANGLE: USGS FOLIO 129, 13 P., MAPS (1905)
- 3) LINDGREN, WALDMAR, 1905, THE COPPER DEPOSITS OF THE CLIFTON-MORENCI DISTRICT, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 43.
- 4) BUTLER, B.S. AND WILSON, E.D., 1938, CLIFTON-MORENCI DISTRICT: IN SOME ARIZONA ORE DEPOSITS, ARIZ. BUR. MINES, GEOL. SER. NO. 12, BULL. NO. 145, P. 72-80.
- 5) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 339-344, 346-352
- 6) REBER, L.E., 1916, THE MINERALIZATION OF CLIFTON-MORENCI: ECON. GEOLOGY, V. 11, P. 528-573.
- 7) LINDGREN, W. 9. THE GENESIS OF THE COPPER DEPOSITS OF CLIFTON-MORENCI, ARIZONA: AME TRANS., V. 35, P. 511-550 (1905); (ABSTS.): MIN. REP., V. 50, P. 617 (1904); MIN. SCI.
- 8) USGS 13. AEROMAGNETIC MAP OF THE MORENCI-MONTICELLO AREA, SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO: USGS OPEN-FILE REP., SCALE 1:62,500 (1970)
- 9) BENNETT, K.C., 1975, GEOLOGY AND ORIGIN OF THE BRECCIAS IN THE MORENCI - METCALF DISTRICT, GREENLEE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 153 P. (AGE DATES).
- 10) LINDGREN, W. AND HILLEBRAND, W.F., 1904, MINERALS FROM THE CLIFTON-MORENCI DISTRICT, ARIZONA: AMER. JOUR. SCI., 4TH SER., V. 18, NO. 108, P. 448-460
- 11) TOYOTE, W.L., 1910, THE CLIFTON-MORENCI DISTRICT OF ARIZONA --1: MIN. AND SCI. PRESS, V. 101, NO. 24, P. 770-773
- 12) WILSON, E.D., 1962, A RESUME OF THE GEOLOGY OF ARIZONA: ARIZONA BUR. MINES BULL. 171, 140 P.
- 13) CLELAND, R.G., 1952, A HISTORY OF PHELPS DODGE: NEW YORK, ALFRED A. KNOPF.
- 14) COLQUHOUN, J., 1924, THE HISTORY OF THE CLIFTON-MORENCI MINING DISTRICT: LONDON, JOHN MURRAY AND CO.
- 15) PARSON, A.B., 1957, THE PORPHYRY COPPERS IN 1956: AM. INST. MINING METALL. ENGINEERS, ROCKY MOUNTAIN FUND SERIES, NEW YORK.
- 16) TENNEY, J.B., 1935, MORENCI DISTRICT: IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 213-221
- 17) DEWHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 18) RANSOME, F.L. 10. THE COPPER DEPOSITS OF THE CLIFTON-MORENCI DISTRICT, ARIZONA (REVIEW OF USGS PROF. PAPER 43 BY WALDEMAR LINDGREN): ECON. GEOL., V. 1, P. 612-615 (1906)
- 19) BARR, F.R., 1940, PHELPS DODGE CORPORATION, MORENCI BRANCH, PLANT-PRODUCTION HISTORY: UNPUBLISHED REPORT.
- 20) SCHWARTZ, 1953, MICROSCOPIC STUDY OF SPECIMENS FROM THE MORENCI PIT: UNPUBLISHED REPORT.
- 21) RIDGE, J.O., 1958, SELECTED BIBLIOGRAPHIES OF HYDROTHERMAL AND MAGMATIC MINERAL DEPOSITS: GEOL. SOC. AMERICA, MEM. 75, 199 P. P. 33-37 AZ.
- 22) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 23) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

- 24) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 25) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 26) LANGTON, J.M., 1973, ORE GENESIS IN THE MORENCI-METCALF DISTRICT: SOC. MIN. ENG. (AIME) TRANS., V. 254, P. 247-257.
- 27) LANGTON, J.M., 1971, ORE GENESIS IN THE MORENCI-METCALF DISTRICT (ABS.): ECON. GEOL., V. 66, NO. 8, PP. 1268.
- 28) LANGTON, J.M., 1971, ORE GENESIS IN THE MORENCI-METCALF DISTRICT (ABS.): MIN. ENG., V. 23, NO. 12, P. 81-82.
- 29) U.S. GEOL. SURVEY, 1972, AEROMAGNETIC MAP OF THE MORENCI-MONTICELLO AREA, SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO: U.S. GEOL. SURVEY, GEOPHYS. INVEST. MAP GP-838.
- 30) LANGTON, J.M., 1972, ORE GENESIS IN THE MORENCI-METCALF DISTRICT: AIME PREPRINT NO. 72-1-47.

RECORD 00037

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... MB99999

NAME AND LOCATION

DEPOSIT NAME..... NEW CORNELIA (AJO) MILE

MINING DISTRICT/AREA/SUBDIST. AJO DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER MR00115

GENERAL REFERENCES

- 1) GILLULY, JAMES, 1946, THE AJO MINING DISTRICT, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 209, 112 P.
- 2) DIXON, D.W., 1966, GEOLOGY OF THE NEW CORNELIA MINE, AJO, ARIZONA: P. 123-132 IN TITLEY, S.R., AND HICKS, C.L., EDITORS, GEOLOGY OF THE PORPHYRY COPPER DEPOSITS: UNIV. ARIZ. PRESS, TUCSON, ARIZ., P. 123-132
- 3) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 83
- 4) HALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: TUCSON, ARIZONA UNIVERSITY, PH.D. THESIS, UNPUBLISHED, 184 P.
- 5) BELL, PETER M. 2. (AND ROY, ROBERT F.) HEAT FLOW AND GRAVITY MEASUREMENTS AT AJO, ARIZONA: CARNEGIE INST. WASH. YEARBOOK 65, 1965-1966, P. 414-415, ILLUS. (1967); GEOPHYS. ABS., NO. 255, ITEM 307 (1968)
- 6) BELL, PETER M. 1. (AND ROY, ROBERT F.) HEAT FLOW AT AJO, ARIZONA: CARNEGIE INST. WASH. YEARBOOK 64, 1964-1965, P. 150-153, ILLUS., TABLES (1965); (ABS.): AM. GEOPHYS. UNION TRANS., V. 47, NO. 1, P. 180 (1966)
- 7) BRYAN, KIRK 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499, 436 P.
- 8) BUTLER, B.S., 1947, THE AJO MINING DISTRICT, ARIZONA: (REV) ECON. GEOL., V. 42, P. 583-587
- 9) DEKALB, C., 1918, AJO COPPER MINE: MIN. AND SCI. PRESS, V. 115, 26 JAN., P. 115-118; 2 FEB., P. 153-156
- 10) DAMON, P.E., MAUGER, R.L., BIKERMAN, M., 1964, K-AR DATING OF LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF ARIZONA AND SONORA: INTERNATIONAL GEOLOGIC CONGRESS, 22ND, NEW DELHI, INDIA, P. 45-55.
- 11) DAVIS, J.D., 1971, THE DISTRIBUTION AND ZONING OF THE RADIOELEMENTS POTASSIUM, URANIUM, AND THORIUM IN SELECTED PORPHYRY COPPER DEPOSITS: M.S. THESIS UNIV. ARIZ., 130 P.
- 12) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 13) EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.
- 14) FELLOWS, M.L., 1976, COMPOSITION OF EPIDOTE FROM PORPHYRY COPPER DEPOSITS: M.S. THESIS, UNIV. ARIZ., 190 P.
- 15) GILLULY, J., 1935, AJO DISTRICT (ARIZONA): IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 228-233
- 16) GILLULY, JAMES 2. PEDIMENTS OF THE AJO REGION, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 26, P. 388-389 (1936)
- 17) GILLULY, JAMES 3. PHYSIOGRAPHY OF THE AJO REGION, ARIZONA: GEOL. SOC. AM. BULL., V. 48, P. 323-347, MAP (1937); (ABST.): GEOL. SOC. AM. PROC. 1937, P. 122-123 (1938)
- 18) GILLULY, J. (1937) GEOLOGY AND ORE DEPOSITS OF THE AJO QUADRANGLE, ARIZONA: UNIVERSITY OF ARIZONA, ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY BULLETIN #141, 83 P.
- 19) GILLULY, J. (1942) THE MINERALIZATION OF THE AJO COPPER DISTRICT, ARIZONA. ECON. GEOL. 37: 297-309.
- 20) GILLULY, J. (1942) MINERALIZATION OF THE AJO COPPER DISTRICT, ARIZONA. AMER. MIN. 27: 222-223.
- 21) GILLULY, J., 1938, AJO DISTRICT: ARIZ. BUR. MINES BULL. 145, P. 86-90
- 22) GILLULY, JAMES 13. GEOLOGY OF THE NEW CORNELIA MINE, AJO, ARIZONA: ARIZ. GEOL. SOC. GEOL. SOC. AM.; GUIDEBOOK SOUTHERN ARIZ., P. 58-61, MAP (1952)
- 23) GREELY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER

- INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 24) INGHAM, G.R., AND BARR, A.T., 1932, MINING METHODS AND COSTS AT THE NEW CORNELIA BRANCH, PHELPS DODGE CORPORATION, AJO, ARIZONA: U.S. BUR. MINES INF. CIRC. 6666.
- 25) JADNES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.
- 26) JORALEMON, I.B., 1914, THE AJO COPPER MINING DISTRICT: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 49, P. 593-610.
- 27) JORALEMON, I.B. (1914) THE AJO COPPER DISTRICT, ARIZONA. ENGR. MINING JOUR. 98: 663.
- 28) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 29) KAHLE, K., CONWAY, D., AND HAXEL, G., 1979, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.
- 30) LUKANUSKI, J.N., 1975, LOCOMOTIVE-TYPE POST-ORE FANGLOMERATES AS EXPLORATION GUIDES FOR PORPHYRY COPPER DEPOSITS (ABSTR): SEG MEETING W/ AIME, ECON. GEOLOGY, VOL. 70, NO. 1, P. 248.
- 31) MCDOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.
- 32) ROSE, A.W., AND COOK D.R., 1965, RADIOACTIVE AGE DATES OF PORPHYRY COPPER DEPOSITS IN THE WESTERN UNITED STATES (ABS.): GEOLOGICAL SOCIETY OF AMERICA SPECIAL PAPERS 87, P. 139.
- 33) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 323, 346-352
- 34) STEWART, L.A. (1933) A STUDY OF THE AJO COPPER ORE MINERALS. UNIV. ARIZONA M.S. THESIS 24 P.
- 35) TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399,
- 36) WADSWORTH, W.B., 1974, CORNELIA PLUTON, ARIZONA: PETROGENESIS INFERRED FROM GRAIN-TRANSITION PROBABILITIES (ABSTR.): EOS, V. 55, NO. 4, P. 485.
- 37) BRAMWELL, A.W., 1918, IN AJO AND SCHEELITE DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 7, P. 20
- 38) BRAMWELL, A.W., 1919, NEWS OF AJO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 39) DEHLINGER, M.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 182-188
- 41) JORALEMON, I.B., 1914, THE AJO COPPER MINING DISTRICT: AIME BULL., V. 92, P. 2011-2028; 1915, AIME TRANS., V. 49, P. 593-609; 1914, ENG. MIN. JOUR., V. 93, P. 663-665
- 42) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 43) ROMSLO, T.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850
- 44) ALLEN, A.W., 1922, AJO ENTERPRISE OF THE NEW CORNELIA COPPER COMPANY: ENGR. MIN. JOUR. PRESS, V. 113, P. 952-956, 1003-1008
- 45) ARIZONA MINING JOURNAL, 1922
- 46) GREENWAY, J.C., 1920, SUCCESS AFTER FAILURES (STORY OF NEW CORNELIA): ARIZ. MIN. JOUR., V. 3, NO. 8, P. 17
- 47) HARDWICK, W.R., 1960, OPEN PIT COPPER MINING METHODS OF NEW CORNELIA BRANCH, PHELPS DODGE CORP., PIMA COUNTY, ARIZONA: U.S. BUR. MINES IC-7938
- 48) MAY, B.T., 1968, MAGNETIC PROPERTIES OF ROCKS ASSOCIATED WITH THE NEW CORNELIA PORPHYRY COPPER DEPOSIT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
- 49) RICHARD, T.A., 1923, THE STORY OF THE NEW CORNELIA: ENG. MIN. JOUR. PRESS, V. 115, P. 7-10
- 50) RICHARD, T.A., 1925, THE LATER STORY OF THE NEW CORNELIA ENTERPRISE: ENGR. MIN. JOUR., V. 119, P. 285-289

RECORD 00038

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M800111
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... ORACLE DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030532

GENERAL REFERENCES

- 1) 56) DAVIS, GEORGE H., 1973, MID-TERTIARY GRAVITY-GLIDE FOLDING NEAR TUCSON, ARIZONA ABSTR. GEOL. SOC. AM., ABSTR., (GAAPBC), VOL. 5, NO. 7, P. 592, 1973 S (SERIAL)
- 57) DAVIS, G.H., 1975, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA: GEOL. SOC. AMERICA BULL., V. 86, P. 979-990.
- 58) DAVIS, G.H., 1977A, CHARACTERISTICS OF METAMORPHIC CORE COMPLEXES, SOUTHERN ARIZONA (ABSTRACT): GEOLOGICAL SOCIETY OF AMERICA ABSTRACTS WITH PROGRAMS, V. 9, NO. 7, P. 944.
- 59) DAVIS, G.H., 1977B, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--REPLY: GEOL. SOC. AMER. BULL., V. 88, P. 1212-1216.
- 60) DAVIS, G.H., 1978, THIRD DAY, ROAD LOG FROM TUCSON TO COLOSSAL CAVE AND SAGUARO NATIONAL MONUMENT (LAND OF COCHISE, SOUTHEASTERN ARIZONA), NEW MEXICO GEOL. SOC. 29TH FIELD CONF., P. 77-87.
- 61) DAVIS, G.H., 1979, LARAMIDE FOLDING AND FAULTING IN SOUTHEASTERN ARIZONA: AMER. C. SCIENCE, IN PRESS.
- 62) DAVIS, G.H., IN PRESS, STRUCTURAL CHARACTERISTICS OF METAMORPHIC CORE COMPLEX, SOUTHERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 63) DAVIS, G.H., ANDERSON, P., BUDDEN, R.T., KEITH, S.B., AND KIVEN, C.W., 1973, ORIGIN OF LINEATION IN THE CATALINA-RINCON-TORTOLITA GNEISS COMPLEX, ARIZONA (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 7, NO. 5 P. 602.
- 64) DAVIS, G.H., AND CONEY, P.J., 1979, GEOLOGIC DEVELOPMENT OF THE CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOLOGY, V. 7, NO. 3, P. 120-124.
- 65) DAVIS, G.H., AND FROST, E.G., 1976, INTERNAL STRUCTURE AND MECHANISM OF EMPLACEMENT OF A SMALL GRAVITY-GLIDE SHEET, SAGUARO NATIONAL MONUMENT (EAST) TUCSON, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 287-304.
- 66) SCRUTINY OF FOLDED GRAVITY-GLIDE SHEETS IN SAGUARO NATIONAL MONUMENT. ARIZONA ABSTR. DAVIS, G.H., FROST, E.G., SCHLODERER, J.P. IN ROCKY MOUNTAIN SECTION. 27TH ANNUAL MEETING., GEOL. SOC. AM., ABSTR., (GAAPBC), VOL. 6, NO. 5, P. 439, 1974
- 67) DAVIS, W.M. 18. THE SANTA CATALINA MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 22, P. 289-317 (1931); (ABST.): PAN-AM. GEOL., V. 55, P. 372-373 (1931); GEOL. SOC. AM. BULL., V. 43, P. 235 (1932)
- 68) DARTON, N.H., LAUSEN, C., AND WILSON, E.D., 1924, GEOLOGIC MAP OF THE STATE OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOLOGICAL SURVEY.
- 69) DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 70) DEMPSEY, W.J. (AND HILL, M.E.) AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419 (1963)
- 71) DREWES, H. (1974) GEOLOGIC MAP AND SECTIONS OF THE HAPPY VALLEY QUAD, COCHISE COUNTY, ARIZONA. U.S.G.S. MAP I-832.
- 72) DREWES, H., 1976, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 151-167.
- 73) DREWES, H., 1977, GEOLOGIC MAP AND SECTIONS OF THE RINCON VALLEY QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP I-997.

- 74)DREWES, H., 1978, THE CORDILLERAN OROGENIC BELT BETWEEN NEVADA AND CHIHUAHUA: GEOL. SOC. AMERICA BULL., V. 89, P. 641-657.
- 75)DREWES, H., AND THORMAN, C.H., 1978, NEW EVIDENCE FOR MULTIPHASE DEVELOPMENT OF THE RINCON METAMORPHIC CORE COMPLEX EAST OF TUCSON, ARIZONA: GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 10, NO. 3, P. 103.
- 2) 76)DREWES, H.D., THORMAN, C.H., 1979, MULTIPLE DEFORMATION OF GNEISS DOME NEAR RINCON MOUNTAINS IN SOUTHEASTERN ARIZONA (ABSTR): U.S. GEOL. SURV., PROF. PAP. NO. 1100, P. 73.
- 77)DOCKTER, R.D., BANKS, N.G., MAP SHOWING PHOTO LINEAMENTS IN THE TORTOLITA MOUNTAINS QUADRANGLE, ARIZONA U.S. GEOL. SURV., OPEN-FILE, (USA) (XGROAG), NO. 77-152, UNPAGINATEDP., 1977, TECT. MAP, SCALE: 1:62,500
- 78)DUBOIS, R.L., 1959A, GEOLOGY OF THE SANTA CATALINA MOUNTAINS: ARIZ. GEOL. SOC. GUIDEBOOK 11, P. 106-116.
- 79)DUBOIS, R.L., 1959B, PETROGRAPHY AND STRUCTURE OF A PART OF THE GNEISSIC COMPLEX OF THE SANTA CATALINA MOUNTAINS: ARIZONA GEOL. SOC. GUIDEBOOK 11, P. 117-127.
- 80)DURNING, W.P., 1975, MINERALIZATION AND ALTERATION AT THE LITTLE HILLS MINE, PINAL COUNTY, ARIZONA(ABSTR): N.M. GEOL. SOC., ANNU. FIELD CONF., GUIDEBOOK (NMGAS), NO. 26, GUIDEBOOK OF THE LAS CRUCES COUNTRY, P. 337-338.
- 81)DURNING, WILLIAM P., 1972, GEOLOGY AND MINERALIZATION OF LITTLE HILL MINE, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA
- 82)MASTER'S ARIZONA, T (THESIS) 1973 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 1-02 (ECONOMIC GEOLOGY) ARIZONA, ECONOMIC GEOLOGY: COPPER: PINAL COUNTY: SANTA CATALINA MOUNTAINS: LITTLE HILL MINE: UNITED STATES: GENESIS: PETROLOGY: STRUCTURE.
- 83)EBERLY, L.D., AND STANLEY, OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMER. BULL., V. 89, P. 921-940.
- 84)ERICKSON, R.C., 1962, PETROLOGY AND STRUCTURE OF AN EXPOSURE OF THE PINAL SCHIST, SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., M.S. THESIS, 71 P.
- 85)FAIR, CHARLES L. 2. (AND JINKS, J.E.) SANTA CATALINA FOOTHILLS FAULT IN THE PONTOTOC AREA: ARIZ. GEOL. SOC. DIG., V. 4, P. 131-133 (1961)
- 86)FRUST, E.G., 1977, MID-TERTIARY, GRAVITY-INDUCED DEFORMATION IN HAPPY VALLEY, PIMA AND COCHISE COUNTIES, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 86 P.
- 87)FRUST, E.G.; DAVIS, G. H., 1976, MID-TERTIARY, GRAVITY-INDUCED FOLDING AND TRANSPOSITION IN HAPPY VALLEY, PIMA AND COCHISE COUNTY, ARIZONA, GSA ABSTR., VOL. 8, NO. 6, P. 876-877, 1976.
- 88)GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL. V. 72, P. 639-644.
- 89)HANSON, H.S., 1966, PETROGRAPHY AND STRUCTURE OF THE LEATHERWOOD QUARTZ DIOIRITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 104 P.
- 90)HANSON, HIRAM STANLEY 2. ORIGIN OF INCLUSIONS IN THE LEATHERWOOD QUARTZ DIOIRITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEORGIA ACAD. SCI. BULL., V. 25, NO. 2, P. 87 (1967)
- 91)HARSHBARGER, J.W., 1970, GROUNDWATER SYSTEMS IN THE SAN PEDRO VALLEY, MAMMOTH AREA, SECTION 6: IN MINING AND ECOLOGY IN THE ARID ENVIRONMENT -- CONF., TUCSON, ARIZ. 1970 PROC. (PETERS, W.C., ED.): UNIV. ARIZ., COLLEGE OF MINES, TUCSON, ARIZ., SEC. 6-1-6-2.
- 92)HEINDL, L.A. 8. MEMORANDUM ON GEOLOGY AND GROUNDWATER RESOURCES IN THE VICINITY OF ORACLE, PINAL COUNTY, ARIZONA: USGS MIMED. REP., 11 P., ILLUS. (1955)
- 93)HEINDL, L.A., 1963, CENOZOIC GEOLOGY IN THE MAMMOTH AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV. BULL. 1141-E, 41 P.
- 94)HERNON, R.M., 1932, PEGMATITE ROCKS OF THE CATALINA-RINCON MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 65 P.
- 95)HILL, J.M., 1946, REPORT ON THE MAUDITA TUNGSTEN MINE, ORACLE, PINAL COUNTY, ARIZ.: PRIVATE REPORT, 9 P.
- 96)HOELLE, J.L., 1972, STRUCTURAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA A PRELIMINARY REPORT (ABS.): GEOL. SOC. AMERICA, ROCKY MOUNTAIN SECTION 25TH ANN. MEETING, ABSTR., V. 4, NO. 6 P. 382.
- 97)HOELLE, J.L., 1976, STRUCTURAL AND GEOCHEMICAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 79 P.
- 98)JACOBS, L.L., 1977, RODENTS OF THE HEMPHILLIAN AGE REDINGTON LOCAL FAUNA, SAN PEDRO VALLEY, ARIZONA: J. PALEONTOLOGY, VOL. 51, NO. 3, PP. 505-519, 1977.
- 99)TERTIARY MAGMATIC PATTERNS IN SOUTHWESTERN NORTH AMERICA: GEOLOGY, V. 6, P. 515-521.
- 100)KEITH, S.B., REYNOLDS, S.J., DAMON, P.E., SHAFIQUILLAH, M., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1980, EVIDENCE FOR MULTIPLE INTRUSION AND DEFORMATION WITHIN THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: GEOL. SOC. AMERICA MEM., SYMPOSIUM VOLUME, PENROSE CONF. ON METAMORPHIC CORE COMPLEXES, IN PRESS.
- 101)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156

- 102)KERN, J.R. GEOLOGY OF THE AGUA VERDE HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 69 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)
- 103)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 104)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 105)LAUGHLIN, A.W. PETROLOGY OF THE MOLINO BASIN AREA OF THE SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P. (1960)
- 106)LAYTON, D.W. STRATIGRAPHY AND STRUCTURE OF THE SOUTHWESTERN FOOTHILLS OF THE RINCON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 87 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51 (1958)
- 107)LANEY, R.L., 1975, WEATHERING OF GRANODIORITIC ROCKS AND GEOCHEMISTRY OF WATER IN THE ROSE CANYON LAKE AREA, SANTA CATALINA MOUNTAINS, ARIZONA ABSTR
- 108)U.S. GEOL. SURV. PHOENIX, ARIZ. USA GEOL. SOC. AM., ABSTR. PROGRAMS (GAAPBC), VOL. 7, NO. 7, P. 1160, 1975 S (SERIAL); ANL (ANALYTIC) 77-00297 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 2-02 (GEOCHEMISTRY) ARIZONA: GEOMORPHOLOGY; WEATHERING; SANTA CATALINA MOUNTAINS; ROSE CANYON LAKE; IGNEOUS ROCKS; GRANODIORITE WATER; RATES; DATA; UNITED STATES; GEOCHEMISTRY; HYDROCHEMISTRY; CONC; ALTERATION; MINERALS; EFFECTS; DISSOLVED SOLIDS; GROUND WATER; SURFACCENTRATION.
- 109)LEGER, ARTHUR R. STRUCTURE AND TECTONIC HISTORY OF THE SOUTHWEST PART OF TANQUE VERDE RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 40 P. (1967)
- 110)LEMMON, D.M., AND THEID, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.

RECORD 00039

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO..... M800128
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... ORACLE DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030532

GENERAL REFERENCES

- 1) 111)LIMING, RICHARD BRETT, 1974, GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE MARTINEZ RANCH AREA, PIMA COUNTY, ARIZONA MASTER'S ARIZONA. T (THESIS)
- 112)LIVINGSTON, D.E., 1969, GEODCHRONOLOGY OF OLDER PRECAMBRIAN ROCKS IN GILA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 224 P.
- 113)LIVINGSTON, D.E., AND DAMON, P.E., 1968, THE AGES OF STRATIFIED PRECAMBRIAN ROCK SEQUENCES IN CENTRAL ARIZONA AND NORTHERN SONORA: CANADIAN J. EARTH SCI., V. 5, NO. 753, P. 763-772.
- 114)LIVINGSTON, D.E., DAMON, P.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, IN COGENETIC FELDSPAR MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RESEARCH, V. 72, P. 1362-1375.
- 115)LUDDEN, R.W., 1950, GEOLOGY OF THE CAMPO BONITO AREA, ORACLE, ARIZONA: UNIV. ARIZ., MS THESIS, 52 P., MAPS
- 116)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 117)MARVIN, R.F., NAESER, C.W., AND MEHNERT, H.H., 1978, TABULATION OF RADIOMETRIC AGES--INCLUDING UNPUBLISHED K-AR AND FISSION TRACK AGES--FOR ROCKS IN SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 243-257.
- 118)MARVIN, R.F., AND COLE, J.L., 1976, RADIOMETRIC AGES: COMPILATION A, U.S. GEOLOGICAL SURVEY: ISOCHRON/WEST, NO. 22, P. 3-14.
- 119)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 120)MATTER, P., 1969, PETROCHEMICAL VARIATIONS ACROSS SOME ARIZONA PEGMATITES AND THEIR ENCLOSING ROCKS (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 173 P.
- 121)MAUGER, R.L., DAMON, P.E., AND LIVINGSTON, D.E., 1968, CENOZOIC ARGON AGES ON METAMORPHIC ROCKS FROM THE BASIN AND RANGE PROVINCE: AMER. J. SCIENCE, V. 266, P. 579-589.
- 122)MAYO, E.B., 1964, FOLDS IN GNEISS BEYOND NORTH CAMPBELL AVENUE, TUCSON, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 7, P. 123-145.
- 123)MCCULLOUGH, E.J., JR., 1963, A STRUCTURAL STUDY OF THE PUSCH RIDGE--ROMERO CANYON AREA, SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 67 P.
- 124)MCKENNA, JOHN J. BUEHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)
- 125)MEDHI, P.K., 1964, A GEOLOGIC STUDY OF THE PONTATOC MINE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 126)MILES, C.H., 1965, METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEQUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 98 P.
- 127)MILES, CHARLES H. METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEQUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 96 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 9, P. 5977 (1966)
- 128)MINERALS YEARBOOK, 1945, U.S. DEPT. INTERIOR, U.S. BUR. MINES: U.S. GOV'T PRINT. OFFICE, WASHINGTON, P. 663.

- 129)MOORE, B.N. 2. GEOLOGIC MAP OF THE HAPPY VALLEY QUADRANGLE, ARIZONA: USGS OPEN-FILE REP. (1935)
- 130)MOORE, B.N., TOLMAN, C.F., JR., BUTLER, B.S., AND HERNDON, R.M., 1949, GEOLOGY OF THE TUCSON QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 20 P.
- 131)MURPHY B.J., 1976, SLOPE FORM AND STABILITY IN THE NORTHWEST PORTION OF THE MOUNT LEMMON QUADRANGLE, PIMA COUNTY: ARIZ. BUR. MIN. TUCSON, ARIZ. USA ARIZ. BUR. MINES, FIELD NOTES (FNMAAE), VOL. 6, NO. 2, 5-7. 10-14 1976, ILLUS., GEOL. SKETCH MAP S (SERIAL); ANL (ANALYTIC) 2-22 (ENGINEERING & ENVIRONMENTAL GEOLOGY) PIMA COUNTY: ARIZONA: ENGINEERING GEOLOGY; SLOPE STABILITY; MOUNT LEMMON QUADRANGLE; ANALYSIS; LITHOSTRATIGRAPHY; UNITED STATES.
- 132)NICHOLAS, D.E., 1976, UNDERGROUND MINE PILLAR DESIGN UTILIZING ROCK MASS PROPERTIES, MARBLE PEAK, PIMA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.
- 133)PASHLEY, E.F., JR. 2. A REINTERPRETATION OF THE ANTICLINAL STRUCTURE EXPOSED IN THE NORTHWEST FACE OF PUSCH RIDGE, SANTA CATALINA MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 6, P. 49-54 (1963)
- 2) 134)PASHLEY, E. FRED 2. FOLDS IN THE TANQUE VERDE, RINCON, AND SOUTHERN SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 76, P. 289 (1964)
- 135)PASHLEY, E.F., 1966, STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, NORTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 273 P.
- 136)PASHLEY, E. FRED 1. STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, NORTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA: UNIV. ARIZ., PHD THESIS, 273 P. (1966); (ABS.): DISSERT. ABS., V. 27, NO. 5, P. 1516-B (1966)
- 137)PASHLEY, E. FRED 3. CENOZOIC EVOLUTION OF THE NORTHERN HALF OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 541 (1969)
- 138)PASHLEY, E. FRED 4. RIGIN OF THE FRONTAL FAULT OF THE SANTA CATALINA AND RINCON MOUNTAINS, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 620 (1969)
- 139)PASHLEY, E. FRED 5. ALLUVIAL FANS AND EROSION SURFACES OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 540 (1969)
- 140)PEIRCE, FREDERICK L. STRUCTURE AND PETROGRAPHY OF PART OF THE SANTA CATALINA MOUNTAINS: UNIV. ARIZ., PHD THESIS, 86 P. (1958); (ABS.): ARIZ. GEOL. SOC. DIG., V. 1., P. 53-54 (1958)
- 141)PETERSON, N.C., 1938, GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: UNIVERSITY OF ARIZONA, ARIZONA BUREAU OF MINES BULL. 1448 63 P.
- 142)PETERSON, N.P., AND CREASEY, S.C., 1943, SOME COPPER DEPOSITS IN THE OLD HAT MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT, 12 P., MAPS.
- 143)PETERSON, R.C., 1968, A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORE-RANGE, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 105 P.
- 144)PETERSON, RICHARD C. A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORERANGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 105 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 4, P. 1409-B (1968)
- 145)PILKINGTON, H.D., 1967, STRUCTURE AND PETROLOGY OF A PART OF THE EAST FLANK OF THE SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 120 P.
- 146)PILKINGTON, H.D. (AND DUBOIS, ROBERT L.) PETROGRAPHY AND STRUCTURE OF THE SOUTHERN SANTA CATALINA MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 73, P. 57-58 (1963)
- 147)PLUT, FREDERICK H. GEOLOGY OF THE EAGLE PEAK-HELLS GATE AREA, HAPPY VALLEY QUADRANGLE, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 78 P. (1968)
- 148)RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUCHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS
- 149)RANSOME, F.L., 1916, SOME PALEOZOIC SECTIONS OF ARIZONA AND THEIR CORRELATION: U.S. GEOL. SURVEY PROF. PAPER 98-K, P. 144-145.
- 150)REHRIG, W.A., REYNOLDS, S.J., 1977, A NORTHWEST ZONE OF METAMORPHIC CORE COMPLEXES IN ARIZONA (ABSTR): GEOL. SOC. AM., ABSTR. PROGRAMS VOL. 9, NO. 7, P. 1139 1977 (THE GEOLOGICAL SOCIETY OF AMERICA, 90TH ANNUAL MEETING)
- 151)REHRIG, W.A., AND REYNOLDS, S.J., THIS VOLUME, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 152)REYNOLDS, S.J., AND REHRIG, W.A., THIS VOLUME, MID-TERTIARY PLUTONISM AND MYLONITIZATION, SOUTH MOUNTAINS, CENTRAL ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 153)SCARBOROUGH, R.B., AND PEIRCE, H.W., 1978, LATE CENOZOIC BASINS OF ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 253-259.
- 154)SCHLÖDERER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REDINGTON PASS AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA MS THESIS.
- 155)SHAFIQUILLAH, M., DAMON, P.E., LYNCH, D.J., KUCK, P.H., AND REHRIG, W.A., 1978, MID-TERTIARY MAGMATISM IN SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK, 29TH FIELD CONF., LAND OF COCHISE, P. 231-241, P. 232,

236.

- 156)SHAKEL, D.W., 1972, "OLDER" PRECAMBRIAN GNEISSES IN SOUTHERN ARIZONA: 24TH INT'L. GEOL. CONGRESS, SECT. 1, P. 276-287.
- 157)SHAKEL, D.W., 1972, THE SANTA CATALINA AND RINCON MOUNTAINS; TURTLEBACK STRUCTURES NORTH AND EAST OF TUCSON, ARIZONA (ABS.): GEOL. SOC., AMERICA, CORDILLERAN SECTION, 58TH ANN. MEETING, ABSTR., V. 4, NO. 3, P. 234-235.
- 158)SHAKEL, D.W., 1974, THE GEOLOGY OF LAYERED GNEISSES IN PART OF THE SANTA CATALINA FORERANGE, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 233 P.
- 159)SHAKEL, D.W. (1977) OBSERVATIONS ON THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MOUNTAINS, SOUTHERN ARIZONA: GSA ABSTRACT, 9 (7), P. 1169.
- 160)SHAKEL, D.W., 1978, SUPPLEMENTAL ROAD LOG NUMBER 2: SANTA CATALINA MOUNTAINS VIA CATALINA HIGHWAY: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 105-111.
- 161)SHAKEL, D.W., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1972, GECHRONOLOGY OF CRYSTALLINE ROCKS IN THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: A PROGRESS REPORT (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 4, NO. 6, P. 408.
- 162)SHAKEL, D.W., SILVER, L.T., AND DAMON, P.E., 1977, OBSERVATIONS OF THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MTS., SOUTHERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 7, P. 1169-1170.
- 163)SHERWONIT, W.E., 1974, A PETROGRAPHIC STUDY OF THE CATALINA GNEISS IN THE FORERANGE OF THE SANTA CATALINA MOUNTAINS (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 165 P.
- 164)SHRIDE, A.F., 1967, YOUNGER PRECAMBRIAN GEOLOGY IN SOUTHERN ARIZONA: U.S. GEOL. SURVEY PROFESSIONAL PAPER 566, 89 P.
- 165)SILVER, L.T., 1968, PRECAMBRIAN BATHOLITHS OF ARIZONA (ABSTRACT): GEOL. SOC. AMER. SPECIAL PAPER 121, P. 558-559.
- 166)SILVER, L.T., 1978, PRECAMBRIAN FORMATIONS AND PRECAMBRIAN HISTORY IN COCHISE COUNTY, SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 157-164.
- 167)SILVER, L.T., AND DEUTSCH, S., 1963, URANIUM-LEAD ISOTOPIC VARIATIONS IN ZIRCONS: A CASE STUDY: J. GEOLOGY, V. 71, P. 721-758.
- 168)SMITH, WALTER J. CENOZOIC STRATIGRAPHY NEAR REDINGTON, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 96 P. (1966)
- 169)STEWART, S.D. THE OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 952 (1912)
- 170)STREITZ, ROBERT SUBSURFACE STRATIGRAPHY AND HYDROLOGY OF THE FILLITO CREEK-TANQUE VERDE WASH AREA, TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 60 P. (1962)
- 171)SUENMICHIT, G.A., 1977, THE GEOLOGY OF THE CANADA DEL ORD HEADWATERS, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 108 PP.
- 172)THORMAN, C.H., 1977, GRAVITY INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--A DISCUSSION: GEOL. SOC. AMER. BULL., V. 88, P. 1211-1212.
- 173)THORMAN, C.H., AND DREWES, H., 1979, MINERAL RESOURCES OF THE RINCON WILDERNESS STUDY AREA, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-596.
- 174)TENNEY, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 4 P.
- 175)VOELGER, KLAUS CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1953)
- 176)WAAG, CHARLES J. 1. STRUCTURAL GEOLOGY OF THE MT. BIGELOW-BEAR WALLOW-MT. LEMMON AREA, SANTA CATALINA MTS., ARIZONA: UNIV. ARIZ., PHD THESIS, 133 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 10, P. 3795-B (1969)
- 177)WAAG, CHARLES J. 2. GRAVITY TECTONICS ACCOMPANYING MANTLED GNEISS DOMES IN THE BASIN AND RANGE PROVINCE OF ARIZONA (ABS.): GEOL. SOC. AM. ABS. WITH PROGRAMS, V. 2, NO. 5, P. 353 (1970)
- 178)WALLACE, R.M., 1954, STRUCTURES OF THE NORTHERN END OF THE SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 45 P.
- 179)WEIDNER, M.I. THE GEOLOGY OF THE BEACON HILL-COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 34 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 46 (1958)
- 180)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 34.
- 181)WILSON, E.D., MOORE, R.T., AND COOPER, J.R., 1969, GEOLOGIC MAP OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOL. SURVEY.
- 182)WILSON, J.R., 1977, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE KORN KOB MINE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 103 P.

183)WOOD, M.M.. 1963, METAMORPHIC EFFECTS OF THE LEATHERWOOD QUARTZ DIORITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 68 P.

RECORD 00040

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030434
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... OVERLAND MINE

MINING DISTRICT/AREA/SUBDIST. BANNER DIST./DRIPPING SPRING MTS.

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

LATITUDE LONGITUDE
33-02-58N 110-48-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3656580. 517590. +12

TWP..... 04S
RANGE..... 15E
SECTION.. 28
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 2800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: S. OF REAGAN CAMP NEAR KEYSTONE CANYON

LOCATION COMMENTS: SE CORNER

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MN CU MO V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB

MAIN COMMOD..... PB
MINOR COMMOD..... CU MO V MN

MAIN ORE MINERALS:
GALENA, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
WULFENITE, VANDINITE, COPPER CARBONATES, DESCLOIZITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
LIMESTONE REPLACEMENT AND VEINS (?)

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
MAIN SHAFT AND A FEW SHORT TUNNELS

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. BANKS AND DRIEGER, 1977, P. 4

PRODUCTION COMMENTS.... MAY HAVE PRODUCED ONE OR TWO CARLOADS OF OXIDIZED LEAD ORE

GEOLOGY AND MINERALOGY
HOST ROCK TYPES..... TERTIARY CONGLOMERATE OF BIG DOME FORMATION ON SURFACE NACO LIMESTONE NEARBY AND
POSSIBLY UNDERLYING CONGL.

PERTINENT MINERALOGY..... MANGANESE OXIDES

GENERAL REFERENCES

- 1) BANKS, N.G., AND DRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA:
U.S. GEOL. SURVEY GEOL. QUAD. MAP, GQ-1391, P. 4.

RECORD 00041

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800125
 RECORD TYPE..... X2
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... PIMA DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030535

GENERAL REFERENCES

- 1) 106) MITCHAM, T.W., 1978, STRUCTURAL RECONNAISSANCE OF THE SOUTHWEST PORPHYRY COPPER PROVINCE, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 93-98.
- 107) MINES HANDBOOK 1918, 1920, 1925, 1926, 1931 MINERAL HILL MINE
- 108) OAKLEY, C.A., 1973, A SYNOPSIS OF ALTERATION AND MINERALIZATION AT THE SIERRITA AND ESPERANZA MINES: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 109) PARK, C.F., JR. (1929) CYPRUS DEVELOPS MOLYBDENUM SEPARATION FLOAT: ENG. MINING JOUR., MAY P. 97.
- 111) PRISER, JOHN 27. ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: USGS BULL. 725, P. 407-428 (1922)
- 112) RANSOME F.L. (1922) ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 725-J: 407-428.
- 113) REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.
- 114) REHRIG, W.A., AND HEIDRICK, T.L. 1975, REGIONAL TECTONIC STRESS DURING THE LARAMIDE AND LATE TERTIARY INTRUSIVE PERIODS, BASIN AND RANGE PROVINCE, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 10, P. 205-228.
- 115) RICHARD, K., AND J.H. COURTRIGHT (1959) SOME GEOLOGIC FEATURES OF THE MISSION COPPER DEPOSIT, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ANN. ARIZ. GEOL. SOC. DIGEST: 201-204.
- 116) RICHARD, K.E., AND J.H. COURTRIGHT, 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHEASTERN ARIZONA AND NEW MEXICO: ARIZ. GEOL. SOC. DIG., VOL. 3, P. 1-7.
- 117) ROMSLO, T.M., AND C.S. ROBINSON (1952) COPPER GIANT DEPOSITS. PIMA COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4850.
- 118) SAVELY, J.P., 1972, ORIENTATION AND ENGINEERING PROPERTIES OF JOINTING IN THE SIERRITA PIT, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 119) SCHMITT, H.A., D.M. CLIPPINGER, W.J. ROPER, AND H. TOOMBS 1959 DISSEMINATED DEPOSITS AT THE ESPERANZA COPPER MINE: ARIZ. GEOL. SOC. GUIDEBOOK 2, P. 205.
- 120) SEEGMILLER, BEN L., 1972, ROCK STABILITY ANALYSIS AT TWIN BUTTES, IN STABILITY OF ROCK SLOPES: SYMP. ROCK MECH., PROC., NO. 13, P. 511-536.
- 121) SEEGMILLER, B.L., 1974, HOW CABLE BOLT STABILIZATION MAY BENEFIT OPEN PIT OPERATIONS: MIN. ENG., V. 26, NO. 12, P. 29-34.
- 122) SHAFIQULLAH, M., AND LANGLUIS, J.D., 1978, THE PIMA MINING DISTRICT, ARIZONA - A GEOCHRONOLOGIC UPDATE, IN CALLENDER, J.F., WILT, J.C., AND CLEMONS, R.E., AND JEMS, H.L., EDS., LAND OF COCHISE, SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 29TH FIELD CONF. GUIDEBOOK, P. 321-327.
- 123) SHAFIQULLAH, M., LANGLUIS, J.D., AND DAMON P.E., 1976, CHRONOLOGY OF TECTONIC EVENTS IN THE PIMA MINING DISTRICT, SOUTHERN ARIZONA (ABSTR.): GEOL. SOC., AMERICA, ABSTR. PROGRAMS, V. 8, NO. 6, P. 1110-1111
- 124) SMITH, V.L., 1975, HYPOGENE ALTERATION AT THE ESPERANZA MINE, PIMA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.
- 125) STECKLEY, R.C., LARSON, W.C., AND D'ANDREA, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUR. MINES REP. INVEST., RI 8070, 47 P.
- 126) STEIGER, R.H., AND JAGER, E., 1977, SUBCOMMISSION ON GEOCHRONOLOGY: CONVENTION ON THE USE OF DECAY

- CONSTANTS IN GEO AND COSMOCHRONOLOGY: EARTH & PLAN. SCI. LETTERS, V. 36, P. 359-362.
- 127)STORMS, W.R. AND BOWMAN, A.B., 1957, MINING METHODS AND PRACTICES AT THE MINERAL HILL COPPER MINE, BANNER MINING CO., PIMA COUNTY, ARIZONA: U.S. BUR. MINES IC-7786
- 128)STUDEBAKER, I.G., 1959, STRUCTURE AND STRATIGRAPHY OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 26 P.
- 129)STUDEBAKER, IRVING G. STRUCTURE AND STRATIGRAPHY OF THE HELMET PEAK AREA. PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 26 P. (1960)
- 130)TAINIER, S.L. (19478) AMARGOSA (ESPERANZA) MOLYBDENUM-COPPER PROPERTY, PIMA COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4016.
- 131)TITLEY, S.R. AND LYNCH, D.J., 1968, STRUCTURE AND ORE DEPOSITS OF THE PIMA MINING DISTRICT: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 333-338.
- 132)THACPAW, S.C., 1960, GEOLOGY OF THE RUBY STAR RANCH AREA, TWIN BUTTES MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 59 P.
- 133)THOMS, JOHN ALROY THE GEOLOGY AND ORE DEPOSITS OF THE TASCUELA AREA, SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. MICH., PHD THESIS, 371 P. (1966); (ABS.): DISSERT. ABS., V. 27, NO. 7, P. 2420B-2421B (1967)
- 134)THURMOND, R.E., 1955, A DESCRIPTION OF THE PIMA ORE BODY MINING CONGRESS JOURNAL, VOL. 41, NO. 1, PP. 27-30.
- 135)THURMOND, R.E., HEINRICH, W.E., AND SPAULDING, E.D., 1954, GEOPHYSICAL DISCOVERY AND DEVELOPMENT OF THE PIMA MINE, PIMA COUNTY, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 197-202.
- 136)THURMOND, R.E., 1958, (AND STORMS, W.R.) DISCOVERY AND DEVELOPMENT OF THE PIMA COPPER DEPOSIT, PIMA MINING CO., PIMA COUNTY, ARIZONA: USBM, IC 7822, 19 P., ILLUS. MAP
- 137)VENABLE, B.W., 1963, MINING AT THE PALO VERDE MINE: MINING CONGRESS JOURNAL, V. 49, NO. 1, P. 14-18
- 138)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 139)WORLD MINING, JUNE 1972, SIERRITA
- 140)WALLER, H.E., 1960, THE GEOLOGY OF THE PAYMASTER AND OLIVETTE MINING AREAS, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 48 P.
- 141)WEAVER, R.R. 1965, STRUCTURAL INTERPRETATION OF THE RUBY STAR RANCH AREA, PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. OF ARIZ., UNPBL. M.S. THESIS, 74 P.
- 142)WEAVER, R.R., 1971, UPLIFT AND GRAVITATIONAL ADJUSTMENT RUBY STAR RANCH AREA, PIMA MINING DISTRICT, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 9, P. 197-211.
- 143)WEBBER, B.N., 1929, MARCASITE IN CONTACT METAMORPHIC ORE DEPOSITS OF THE TWIN BUTTES DISTRICT, PIMA COUNTY, ARIZONA: ECON. GEOL., V. 24, P. 304-310.
- 144)WHITCOMB, H.A. (1948) GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA. UNIV. ARIZONA. UNIV. ARIZONA M.S. THESIS, 83 P.
- 145)WILLIAMSON, D.R., 1975, GEOLOGIC FEATURES AT CYPRUS-PIMA MINE, TUCSON, ARIZONA (ABSTR.) MIN. ENG. VOL. 27, NO. 12, P. 70.
- 146)WILLIAMSON, D.R., 1976, GEOLOGIC FEATURES AT CYPRUS-PIMA MINE. TUCSON, ARIZONA (ABSTR.): ECON. GEOL. VOL. 71, NO. 3, SOCIETY OF ECONOMIC GEOLOGISTS WINTER MEETING, P. 703.
- 147)WILLIAMSON, D.R., MUELLER, E., 1975, ORE ESTIMATION AT CYPRUS PIMA MINE (ABSTR.): MIN. ENG. VOL. 27, NO. 12, 68A
- 148)WILLIAMSON, D.R., MUELLER, E.R., 1977, ORE ESTIMATION AT CYPRUS PIMA MINE: AIME. TRANS. VOL. 262, P. 17-29.
- 149)WILSON, CLYDE A. ORE CONTROLS OF THE SAN XAVIER MINE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 58 P. (1960)
- 150)WILSON, E.D., 1950, PIMA DISTRICT, CHAP. IV, ARIZONA ZINC AND LEAD DEPOSITS, PART 1, ARIZ. BUREAU OF MINES, GEOL. SERIES NO. 1P, BULL. NO. 156, V. XXI, NO. 2, P. 39-51.
- 151)WILSON, ELDRED D., 1950, GEOLOGIC MAPS OF COPPER GLANCE, COPPER QUEEN, MINNIE, COPPER BULLION, AND COPPER BUTTE MINE AREAS, TWIN BUTTES AREA. PIMA COUNTY: USBM, RI 4732, FIGS. 3A-3C

RECORD 00042

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800124
 RECORD TYPE..... X2
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... PIMA DISTRICT

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030535

GENERAL REFERENCES

- 1) 55) HEINRICH, W.E., JR., 1976, PIMA DISTRICT, ARIZONA: AN HISTORICAL AND ECONOMIC PERSPECTIVE (ABSTR.): ECON. GEOL., V. 71, NO. 3, P. 700.
- 56) HIMES, MARSHALL D., 1971, MINERALIZATION AND ALTERATION AT THE PIMA MINE. A COMPLEX PORPHYRY COPPER DEPOSIT, PIMA COUNTY, ARIZ. (ABSTR.): MIN. ENG., VOL. 23, NO. 12, P. 71.
- 57) HIMES, MARSHALL D., 1972, GEOLOGY OF THE PIMA MINE, PIMA COUNTY, ARIZONA: MASTER'S UNIV. ARIZONA.
- 58) HIMES, MARSHALL D., 1973, MINERALIZATION AND ALTERATION AT PIMA MINE: A COMPLEX PORPHYRY COPPER DEPOSIT: SOC. MIN. ENG. AIME, TRANS., VOL. 254, P. 166-174.
- 59) HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYR COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI
- 60) HILLMAN, B.A., KILIND, I.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYR COPPER DEPOSIT (ABST.): EOS, V. 53, NO. 4, P. 531.
- 61) HOUSER, F.N. (1949) THE GEOLOGY OF THE CONTENTION MINE AREA, TWIN BUTTES, ARIZONA. UNIV. ARIZONA M.S. THESIS, 61 P.
- 62) IRVIN, G.W. (1959) PYROMETASOMATIC DEPOSITS AT SAN XAVIER MINE, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE ARIZ. GEOL. SOC. DIGEST: 195-197.
- 63) ILES, C.D., 1973, MINERALIZATION CONTROL AT THE DUVAL-SIERRITA PROPERTY, PIMA COUNTY, ARIZONA: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 64) ILES, C.D. WEST, R.J., AND OAKLEY, C.A., 1975, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): MIN. ENG., V. 27, NO. 12, P. 70-71
- 65) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1976, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): ECON. GEOL., V. 71, NO. 3, P. 700-701.
- 66) JANCIC, I., 1971, DEVELOPMENT OF DUVAL CORPORATION'S SIERRITA MINE, PIMA COUNTY, ARIZONA (ABST.): AIME PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14-15.
- 67) JANSEN, L.J., 1976, THE SAN XAVIER FAULT, PIMA MINING DISTRICT, ARIZONA (ABS.): ARIZ. GEOL. SOC. UNIV. OF ARIZ. PORPHYRY COPPER SYMPOSIUM.
- 68) JANSEN, L.J., 1978, STRUCTURAL GEOLOGY AND STRATIGRAPHY OF MISSION COPPER DISTRICT: THE PIMA MINING DISTRICT, ARIZONA (IN PREPARATION).
- 69) JETT, J.H., AND KNIGHT, F.P., "GOLD AND SILVER STATISTICS FOR 1969, 1970 (PRELIMINARY), AND OTHER YEARS, ARIZONA, THE UNITED STATES, AND THE WORLD." ARIZONA DEPT. OF MINERAL RESOURCES, PHOENIX, 1971.
- 70) JOURNEAY, J.A. (1959) PYROMETASOMATIC DEPOSITS AT PIMA MINE, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 199-199.
- 71) JOURNEAY, J.A., R.E. THURMOND, ET AL. (1958) PIMA: A THREE-PART STORY--GEOLOGY, OPEN PIT, MILLING. MIN. ENG. 10: 453-462.
- 72) LACY, W.C., 1959, STRUCTURE AND ORE DEPOSITS OF THE EAST SIERRITA AREA: SOUTHERN ARIZONA GUIDEBOOK II, ARIZ. GEOL. SOC., P. 185-192, 206.
- 73) LACY, W.C., AND TITLEY, S.R., 1962, GEOLOGICAL DEVELOPMENT IN THE TWIN BUTTES DISTRICT: MINING CONGRESS J., V. 26, P. 62-65.
- 74) LANGLOIS, J.D., 1976, GEOLOGIC SUMMARY OF THE CYPRUS-PIMA MINE (ABS.): ARIZ. GEOL. SOC. UNIV. OF ARIZONA

PORPHYRY COPPER SYMPOSIUM.

- 75)LANGLOIS, J.D., 1978, GEOLOGY OF THE CYPRUS-PIMA MINE, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 103-113.
- 76)LOOTENS, D.J. (1965) STRUCTURE AND PETROGRAPHY OF THE EAST SIDE OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 225 P.
- 77)LOOTENS, DOUGLAS J. 2. STRUCTURAL ENVIRONMENT OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): MIN. ENGR., V. 17, NO. 8, P. 51 (1965)
- 78)LOOTENS, DOUGLAS J. 3. GEOLOGY AND STRUCTURAL ENVIRONMENT OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 8, P. 33-56, ILLUS., GEOL. MAP (1966)
- 79)LOVSTROM, K.A., AND HORSNAIL, R.F., 1978, PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA, IN LOVERING, T.C., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY; THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 222-225.
- 80)LOWELL, J.D. AND GUILBERT, J.M., 1970, LATERAL AND VERTICAL ALTERATION MINERALIZATION ZONING IN PORPHYRY ORE DEPOSITS: ECON. GEOL., V. 65, NO. 4, P. 373-408.
- 81)LUKANUSKI, J.N., NEVIN, A.E., AND WILLIAMS, S.A., 1975, LOCOMOTIVE-TYPE POST-ORE FANGLOMERATES AS EXPLORATION GUIDES FOR PORPHYRY COPPER DEPOSITS: A.I.M.E. PREPRINT 75-S-35, 18 P.
- 82)LUTTON, R.J. 4. A LENSOIDAL RHYOLITE NEAR TWIN BUTTES, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 4, P. 43-49 (1961)
- 83)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
- 84)KELLER, G.V. 2. (AND PLOUFF, D., AND ZIETZ, I.) GEOPHYSICAL STUDIES IN SUPPORT OF GEOLOGIC MAPPING IN THE TWIN BUTTES QUADRANGLE, ARIZONA: (ABST.): MIN. ENGR. V. 12, NO. 12, P. 1249 (1960)
- 85)KELLY, J.L., 1975, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY, ARIZONA (ABST.): MIN. ENG., V. 27, NO. 12, P. 70.
- 86)KELLY, J.L., 1976, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY, ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 701.
- 88)KELLY, J.L., 1977, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY, ARIZONA: AIME TRANS., V. 262, P. 110-116.
- 89)KING, J.R., 1976, GEOLOGY OF THE SAN XAVIER PORPHYRY COPPER DEPOSIT, PIMA MINING DISTRICT, ARIZONA (ABS.): ARIZ. GEOL. SOC. UNIV. OF ARIZONA PORPHYRY COPPER SYMPOSIUM.
- 90)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 91)KINNISON, J.E., 1966 THE MISSION COPPER DEPOSIT, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZ. PRESS, TUCSON: 281-287.
- 92)KINNISON, J.E., 1963, PROBABLE ORIGIN OF MISSION COPPER DEPOSIT: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-33, 14 P.
- 93)KINNISON, J.E., AND BARTER, C.F., 1976, GEOLOGY OF THE PIMA MINING DISTRICT: ARIZONA GEOL. SOC., FIELD TRIP GUIDE 8.
- 94)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ..
- 95)LYNCH, D.W. (1966) THE ECONOMIC GEOLOGY OF THE ESPERANZA MINE AND VICINITY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZONA PRESS, TUCSON: 267-279.
- 96)LYNCH, D.W. (1967) THE GEOLOGY OF THE ESPERANZA MINE AND VICINITY, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS. 70 P.
- 97)LYNCH, D.J., 1968, GEOLOGY OF THE ESPERANZA MINE: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 125-136.
- 98)MACKENZIE, F.D., 1959, PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 193-194
- 99)MACKENZIE, F.D., 1963, GEOLOGICAL INTERPRETATION OF THE PALO VERDE MINE BASED ON DIAMOND DRILL CORE: ARIZ. GEOL. SOC. DIGEST, V. 6, P. 41-48.
- 100)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 101)MAUGER, R.L., (1966) A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 140 P., 212 P.
- 102)MAUGER, R.L., DAMON, P.E. AND LIVINGSTON, D.E., 1968, CENOZOIC ARGON AGES FROM METAMORPHIC ROCKS FROM THE BASIN AND RANGE PROVINCE: AMER. JOUR. OF SCI., V. 266, P. 579-589.
- 103)MAUGER, R.L. 1964 GEOCHEMICAL AND PETROLOGIC INVESTIGATION OF THE SILVER BELL AND ESPERANZA QUARTZ

MONZONITE PORPHYRIES. IN CORRELATION AND CHRONOLOGY OF ORE DEPOSIT AND VOLCANIC ROCKS: ANN. PROG. REPT., NO. C00-689-42 CONTRACT AT (11-1)-68 TO RES. DIV., U.S. STOMIC ENERGY COMM.

104)MAYUGA, M.N. (1942) THE GEOLOGY AND ORE DEPOSITS OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 124 P.

105)MEYER, C., AND HENLEY, J.J., "WALL ROCK ALTERATION" GEOCHEMISTRY OF HYDROTHERMAL ORE DEPOSITS. H.L. BARNES, ED., 1967, PP. 166-235.

RECORD 00043

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899988

NAME AND LOCATION

DEPOSIT NAME..... PIMA OPEN PIT MINE

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT

DESCRIPTION OF WORKINGS
SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

OPEN PIT OPERATION (KEITH, 1974)

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	146000	TONS	1950-1978	LANGLOIS, 1978)
18 ORE	ACC	193509.			
19 CU	ACC	1846513.	LBS	1955 - 1978	
20 PB	ACC	29.900	LBS	1955 - 1978	
21 ZN	ACC	3434.400	LBS	1955 - 1978	
22 AG	ACC	10665.	OZS	1955 - 1978	
23 AU	ACC	8.567	OZS	1955 - 1978	
24 MO	ACC	14638.	LBS	1967-1978	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 137

PRODUCTION COMMENTS.... FROM 1955 THROUGH 1972, ABOUT 104 MILLION TONS OF ORE, AVERAGING ABOUT 0.56% CU AND 0.06 OZ AG/T WITH BY PRODUCT MO, ZN, AU AND PB HAVE BEEN PRODUCED.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE OR USE
1 COPPER ORE	EST	146000	TONS	1978	0.48% CU

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

THE ALTERATION AT PIMA CAN BE DIVIDED INTO TWO GENERAL CATEGORIES: (1) THE SKARN ALTERATION IN THE PALEOZOIC DOLOMITES AND LIMESTONES, AND, (2) THE ALTERATION OF THE TRIASSIC (?) CLASTIC SEDIMENTS AND THE TERTIARY QUARTZ MONZONITE PORPHYRY.

PALEOZOIC PERMIAN (?) DOLOMITES, LIMESTONES, AND SANDSTONES HAVE BEEN ALTERED TO CALC-SILICATE SKARN, MARBLE, AND QUARTZITE. THE PALEOZOIC CARBONATE ROCKS HAVE BEEN ALTERED TO THE GARNET DIOPSIDE, ACTINOLITE-TREMOLITE, AND EPIDOTE SKARN TYPICAL OF PYROMETASOMATIC DEPOSITS IN SOUTHWESTERN NORTH AMERICA. THE SKARN ALTERATION IN THE PALEOZOIC ROCKS PRECEDED AND CONTROLLED MINERALIZATION IN THOSE ROCKS. THE MINERALIZATION IS MORE OR LESS RESTRICTED TO AREAS ALTERED TO SKARN; IN FACT, THE SULFIDE MINERALS REPLACE THE CALCIUM, MAGNESIUM, AND IRON SILICATE SKARN MINERALS.

THREE TYPES OF HYDROTHERMAL ALTERATION IN THE CLASTIC ROCKS ARE PROPYLITIC ALTERATION (EPIDOTE, CHLORITE, AND QUARTZ, WITH OR WITHOUT SERICITE), QUARTZ-SERICITE ALTERATION, AND POTASSIC ALTERATION (K-FELDSPAR, QUARTZ, AND SERICITE, WITH OR WITHOUT CHLORITE AND CALCITE). THE PORPHYRY HAS UNDER ONE POTASSIC ALTERATION. THERE IS NO REAL APPARENT ZONING OF THE ALTERATION MINERAL ASSEMBLAGES, BUT THE PROPYLITIC ALTERATION IS CONCENTRATED IN THE SOUTHWEST CORNER OF THE PIT. THE POTASSIC ALTERATION IS WIDESPREAD, WHILE THE QUARTZ-SERICITE ALTERATION IS RESTRICTED TO SOME ISOLATED OCCURRENCES THROUGHOUT THE PIT. THERE ARE TWO AREAS WITHIN THE CLASTIC METASEDIMENTS WHICH SHOW A HIGH DEGREE OF POTASSIC ALTERATION. ONE AREA IS ON THE LOWER BENCHES ALONG THE NORTH SIDE OF THE PIT AND THE INTENSE POTASSIC ALTERATION MAY BE RELATED TO THE CLOSE PROXIMITY OF THE CLASTICS TO THE QUARTZ MONZONITE PORPHYRY. THE OTHER AREA IS THE "BRECCIA PIPE" AREA ON THE SOUTH SIDE OF THE PIT. IT MAY OR MAY NOT BE A TRUE BRECCIA PIPE BUT IT IS EXEMPLIFIED BY MASSIVE FINE GRAINED PINK K-FELDSPAR WITH HIGH GRADE COPPER MINERALIZATION. THE QUARTZ MONZONITE PORPHYRY HAS ESSENTIALLY BEEN SUBJECTED TO ONLY POTASSIC ALTERATION AS FAR AS CAN BE DISCERNED FROM THE LIMITED EXPOSURES. THE SMALL NUMBER OF OUTCROPS OF THE SYENITE SHOW ONLY QUARTZ-SERICITE ALTERATION. (HIMES, 1973)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE MINERALIZATION AT PIMA IS RELATED TO THE INTRUSION OF THE QUARTZ MONZONITE PORPHYRY AND MAY BE CONTROLLED BY BEDDING AND BY JOINTS AND FAULTS PARALLEL AND NORMAL TO BEDDING. WHEN THE PORPHYRY INTRUDED THE SEQUENCE OF FOLDED AND FAULTED SEDIMENTS, THE PALEOZOIC DOLOMITES AND IMPURE LIMESTONES WERE ALTERED TO CALCISILICATES WHILE THE PURE LIMESTONES AND SANDSTONES WERE CONVERTED TO MARBLE AND QUARTZITE. THIS ALTERATION WAS ESSENTIALLY DETERMINED BY THE ORIGINAL ROCK TYPES, BUT THE PERMEABILITY OF ALTERING FLUIDS WAS CERTAINLY AIDED BY FRACTURING AND FAULTING. DURING THIS TIME THE SEQUENCE OF CLASTIC SEDIMENTS WAS MODE-ATELY RECRYSTALLIZED. FOLLOWING DEVELOPMENT OF THE SKARN AND CLOSELY RELATED DEPOSITION OF MAGNETITE IN THE SKARN, SULFIDE MINERALS, PRINCIPALLY CHALCOPYRITE, WERE PREFERENTIALLY DEPOSITED IN THE MORE CHEMICALLY FAVORABLE SKARN. AT THE TIME OF SULFIDE DEPOSITION IN THE SKARN, HYDROTHERMAL ALTERATION AND SULFIDE DEPOSITION WAS GOING ON IN THE CLASTIC METASEDIMENTS AND QUARTZ MONZONITE PORPHYRY. ONE AREA ON THE EAST SIDE OF THE PRESENT PIT, PIPELIKE IN SHAPE, RECEIVED A HIGH CONCENTRATION OF CHALCOPYRITE AND POTASSIC ALTERATION. THE AREA MAY HAVE BEEN STRONGLY STRUCTURALLY PREPARED APPROXIMATELY CONCORDANT TO BEDDING. COPPER MINERALIZATION DECREASED OUTWARD FROM THESE TWO CENTERS OF HIGH GRADE MINERALIZATION TO ALMOST BARREN GROUND IN BETWEEN THE TWO AREAS. BELOW THE CLASTIC METASEDIMENTS ARE ZONES OF HIGH GRADE ORE IN MORE PALEOZOIC SKARN. PREMINERALIZATION FRACTURING WAS PROBABLY IMPORTANT IN AIDING THE CIRCULATION OF THE HYDROTHERMAL FLUIDS. DEPOSITION OF PYRITE CONTINUED AFTER OTHER SULFIDES. ALL ACTIVITY WAS FOLLOWED BY THE DEVELOPMENT OF CALCITE VEINLETS. SUBSEQUENT FRACTURING AND FAULTING HAS MODIFIED THE ORE BODY SLIGHTLY. (HIMES, 1973)

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE DOES SEEM TO BE MORE ABUNDANT IN THE QUARTZ MONZONITE PORPHYRY AND THE ARKOSE UNIT OF THE CLASTICS THAN IN OTHER ROCK TYPES. MOLYBDENUM MINERALIZATION IS NOT ALWAYS ASSOCIATED DIRECTLY WITH COPPER MINERALIZATION. (HIMES 1973).

ZONING RELATIONSHIPS AT THE CYPRUS PIMA MINE ARE POORLY KNOWN. WITH INCREASING DISTANCE TO THE EAST AWAY FROM THE PRESENT LOCATION OF THE PORPHYRY, THE PROPORTIONS OF TETRAHEDRITE-TENNANTITE AND SPHALERITE TO CHALCOPYRITE INCREASE. HORNBLENDE OCCURRENCE RELATIVE TO CHALCOPYRITE IS HIGHEST IN SLIGHTLY MARBLEIZED SECTIONS BELOW THE MAIN ORE ZONE. (LANGLOIS, 1973). TRIASSIC (?) CLASTIC ROCKS THE GRADE DECREASES SHARPLY (FIG. 8). EASTWARDLY THE GRADE DECREASES TO LESS THAN 0.10% AND THEN BEGINS TO INCREASE AGAIN UNTIL IT IS OVER 1% COPPER IN THE HIGH GRADE ZONE ON THE EAST. THIS HIGH GRADE ZONE, THE "BRECCIA PIPE" AREA, CONSISTS OF INTENSELY FRACTURED AND REVEALED CLASTICS WHICH HAVE BEEN Pervasively ALTERED TO FINE GRAINED PINK K-FELDSPAR AND QUARTZ, THE MINERALIZATION CONSISTING OF VEINLET AND DISSEMINATED CHALCOPYRITE WITH MINOR PYRITE. IT WILL BE NOTED IN FIG. 8 THAT THE COPPER CONTENT DECREASES MORE GRADUALLY AND MORE UNIFORMLY AWAY FROM THE HIGH GRADE AREA ON THE EAST THAN IT DOES AWAY FROM THE HIGH GRADE AREA ON THE WEST, NEAR WHICH THE COPPER CONTENT DROPS VERY SHARPLY. THIS RELATIONSHIP WOULD BE EXPECTED IF THE CONTROL OF THE MINERALIZATION ON THE WEST WERE PRINCIPALLY THE WALL ROCK TYPE, WITH THE HIGH GRADE ORE BEING DEPOSITED IN THE MORE REACTIVE CARBONATE OR SKARN ROCKS AND AT THE CONTACT WITH CLASTIC ROCKS, THE ASSAYS DROP VERY ABRUPTLY. IF THE HIGH GRADE AREA ON THE EAST REPRESENTS A TRUE STRUCTURALLY CONTROLLED BRECCIA PIPE, ONE WOULD EXPECT THE TYPE OF MINERALIZATION SHOWN IN FIG 8, IN WHICH THE GRADE OF COPPER DECREASES GRADUALLY OUTWARD FROM A MORE PERMEABLE STRUCTURALLY PREPARED CENTER OF MINERALIZATION. (HIMES, 1973)

GENERAL COMMENTS

CONTINUED INFORMATION FROM RECORD NUMBER W002678

RECORD 00044

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800120
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... PRINCE OF ARIZONA MINE
SYNONYM NAME..... PRINCE

MINING DISTRICT/AREA/SUBDIST. HIEROGLYPHIC MTS/WEST SIDE OF BRADSHAW MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 NEW RIVER MESA, ARIZ.

LATITUDE LONGITUDE
33-46-37N 112-21-53W

UTM NORTHING UTM EASTING UTM ZONE NO
373620. 373620. +12

TWP..... 05N
RANGE.... 01W
SECTION.. 16
MERIDIAN. 6&SR

ALTITUDE.. 1760 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE WEST OF WHITE PEAK; 5 MILES W. OF AGUA FRIA RIVER

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN V MO AG AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
MINOR PRODUCTS.. AG AU

MAIN COMMOD..... PB AG AU

MINOR COMMOD.... V MO ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... ZN

OCCURRENCE..... MO V

MAIN ORE MINERALS:

LEAD AND ZINC OXIDATION PRODUCTS

MINOR ORE MINERALS:

LEAD AND ZINC SULFIDES, HORN SILVER, RUBY SILVER VANADINITE, WULFINITE, BISMUTH AND URANIUM OXIDES, DISCOIZITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 3 CLAIMS STAKED IN 1901

BY WHOM..... STAKED FIRST BY D.D. MORGAN

PRESENT/LAST OWNER..... 17 ADDITIONAL CLAIMS WERE LOCATED IN 1920 BY C.C. MC GINNIS AND W.E. THOMAS

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1360 FT

STRIKE OF OREBODY.... E-W

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

OVERALL LENGTH OF MINED AREA.... 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

2 INCLINED SHAFTS ONE TO 40 FT, ANOTHER TO 120 FT
FT LONG

ABOUT 1901; OPEN PITS (OR SHALLOW BENCHES ABOUT 200

SOURCE OF INFORMATION (PRODUCTION).. WILLIS, 1920, P. 38

PRODUCTION COMMENTS.... SHIPPED 1 CARLOAD OF ORE IN 1920 WHICH RAN 52.7% PB, 39.7 OZ AG/T AND \$5 IN GOLD.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... YAVAPAI SCHIST

PERTINENT MINERALOGY..... LIME GANGUE; MANGANESE STAINING

IMPORTANT ORE CONTROL/LOCUS.. OF PARALLEL E-W LEDGES IN YAVAPAI SCHIST RUN INTO A LARGE N-S QUARTZ LEDGES

GENERAL REFERENCES

1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

2) WILLIS, C.F., 1920, PRINCE OF ARIZONA: ARIZ. MINING JOUR., APRIL, 1920, P. 38.

4) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

- 5) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 7) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.
- 8) LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- 9) HESS, F.L. AND E.S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725
- 10) HESS, F.L., 1917, TUNGSTEN MINERALS AND DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- 11) SCHALLER W.T. (1932) CHEMICAL COMPOSITION OF CUPROTUNGSTITE. AMER. MIN. 17: 234-237.
- 12) LEWIS, A.S. (1920) ORE DEPOSITS OF CAVE CREEK DISTRICT, ARIZONA. ENGR. MINING JOUR. 110: 713-716.

RECORD 00045

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003825
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PROSPECT NEAR OLD MILLSITE
SYNONYM NAME..... DIAMOND JOE DISTRICT (DELUGE WASH./E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ

LATITUDE LONGITUDE
34-49-25N 113-46-20W

UTM NORTHING UTM EASTING UTM12ONE NO

ALTITUDE.. 3920 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR AMERICAN MOLYBDENUM MINE. 1 1/4 MILE SOUTHWEST OF DIAMOND JOE PEAK,
SOUTH OF DELUGE WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB

MAIN ORE MINERALS:

MINOR ORE MINERALS:

AZURITE MALACHITE POSS. AG & MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY

AGE OF ASSOC. IGNEOUS ROCKS.. DIAMOND JOE STOCK=71.9+/-1.5; MINERALIZED PART=73.1+/-1.5MY
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY STOCK IN AREA

AGE OF MINERALIZATION..... CRET

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NW SHEAR ZONE WITH OXIDIZED COPPER

GENERAL REFERENCES

- 2) ARIZ. BUR. GEOL. MIN. TECH. FILE PAGES
- 4) GENERAL GEOLOGY OF HUALAPAI MTS.
 - 5) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
 - 6) DARTON, N. H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
 - 7) GREGORY, N. B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1190.
 - 8) HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA: UNIV. OF IDAHO, MOSCOW, DOCTORAL, 162 P.
 - 9) HESS, F. L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 10) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 - 11) HEWETT, D. F., CALLAGHAN, E. MOORE, B. N., NOLAN, T.B., RUBEY, W. W., AND SCHALLER, W. T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
 - 12) HOBBS, S. W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U. S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
 - 13) KERR, P. F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 - 14) KESSLER, E. J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 - 15) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
 - 16) PUTMAN, G. W., AND BURNHAM, C. W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GECHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
 - 17) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 - 18) VUTCH, J. S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
 - 19) WICKES, L. W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 - 20) DAVIDSON, B. S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
 - 21) GILLESPIE, J. B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
 - 22) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEODHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S.G. WATER SUPPLY PAPER 1899-H, 37 P.
 - 23) LANU, J.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
 - 24) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
 - 25) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
 - 26) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA. WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION. 20 P., MAPS
 - 27) ROSS, C.S., 1928, SEDIMENTARY AM. MINERALOGIST, V. 13, NO. 5, P. 145-147
 - 28) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
 - 29) SHEPPARD, R. A., AND GUDE, A. J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
 - 30) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, D50-D55.
 - 31) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS

- ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 32)TWENTER, F. R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576-A, P. 1-37, ILLUS., TABLE, GEOL. MAP.
- 33)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 34)TOWOTE, W. L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 35)WILSON, E. D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 36)DALE, V. B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 37)WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL SERIES 14, 54 P.
- 38)SCHRADER, F. C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 39)HOUSEHOLDER E. 1940 GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS
- 40)LEE, W. T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 41)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN ARIZONA, 142 P.
- 42)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS KINGMAN ARIZONA.
- 43)MASON, R. T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 44)MENSCH, W. A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 45)NOLAN, T.H., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 46)SCHRADER, F. C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 47)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 48)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 49)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.A., AIME BULL. 124, P. 456-460.
- 50)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ: AM. INST. MIN. ENG. TRANS., VOL. 50, PP. 195-236.

RECORD 00046

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M800129
 RECORD TYPE..... K1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... RAY MINE

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030471

GENERAL REFERENCES

- 2) PHILLIPS, C.H., GAMBELL, N.A., AND FOUNTAIN, D.S., 1974, HYDROTHERMAL ALTERATION, MINERALIZATION, AND ZONING IN THE RAY DEPOSIT: ECON. GEOL., V. 69, NO. 8, P. 1237-1250.
- 3) CORNWALL, H.R., BANKS, N.G., AND PHILLIPS, C.H., 1971-1972, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1021.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 8) BANKS, N.G., 1976, HALOGEN CONTENTS OF IGNEOUS MINERALS AS INDICATORS OF MAGMATIC EVOLUTION OF ROCKS ASSOCIATED WITH THE RAY PORPHYRY COPPER DEPOSIT. ARIZONA: U.S. GEOL. SURVEY JOUR. RESEARCH, V. 4, P. 91-117.
- 9) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURVEY, V. 2, NO. 2, P. 195-211.
- 10) BANKS, N.G., 1977, MAGMATIC BEHAVIOR OF CU, S, CL, F, AND H₂O IN IGNEOUS ROCKS ASSOCIATED WITH THE RAY PORPHYRY COPPER DEPOSIT, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT NO. 77-500, 28 P.
- 11) BANKS, N.G., AND PAGE, N.J., 1977, SOME OBSERVATIONS THAT BEAR ON THE ORIGIN OF PORPHYRY COPPER DEPOSITS: U.S. GEOL. SURVEY, OPEN-FILE REP. NO. 77-127, 14 P.
- 12) BANKS, N.G., AND STUCKLESS, J.S., 1973, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA; PART II, FISSION-TRACK AGES: ECON. GEOL., V. 68, NO. 5, P. 657-664.
- 13) BANKS, N.G., 1973, BIOTITE AS A SOURCE OF SOME OF THE SULFUR IN PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 68, NO. 5, P. 697-703.
- 14) BANKS, N.G., CORNWALL, H.R., SILBERMAN, M.L., CREASEY, S.C., AND MARVIN, R.F., 1972, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA; PART I, K-AR AGES: ECON. GEOL., V. 67, NO. 7, P. 864-878.
- 15) CLARKE, D.M., JR., 1952, STRUCTURAL CONTROL OF ORE DEPOSITION AT RAY, ARIZONA: ARIZONA GEOL. SOC. GUIDEBOOK FOR FIELD EXCURSIONS IN SOUTHERN ARIZONA, P. 91-95.
- 16) CLARKE, D.M., JR. (1953) GEOCHEMICAL PROSPECTING FOR COPPER AT RAY, ARIZONA. ECON. GEOL. 48: 39-45.
- 17) CORNWALL, H.R., AND BANKS, N.G., 1977, IGNEOUS ROCKS AND COPPER MINERALIZATION IN THE RAY PORPHYRY COPPER DISTRICT, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP. 77-255, 11 P.
- 18) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. 01-05.
- 19) CREASEY, S.C., D.W. PETERSON, AND N.A. GAMBELL (1975), PRELIMINARY GEOLOGIC MAP, TEAPOT MOUNTAIN QUAD, ARIZONA, U.S.G.S. OPEN FILE REPORT 75-314
- 20) DAMON, P.E., 1968, POTASSIUM-ARGON DATING OF IGNEOUS AND METAMORPHIC ROCKS WITH APPLICATIONS TO THE BASIN RANGES OF ARIZONA AND SONORA, IN HAMILTON, E.L., AND FARQUHAR, R.M., EDS., RADIOMETRIC DATING FOR GEOLOGISTS: NEW YORK, INTERSCIENCE PUBLISHERS, P. 1-71.
- 21) DAMON, P.E., AND MAUGER, R.L., 1966, EPEIROGENY-OROGENY VIEWED FROM THE BASIN RANGE PROVINCE: SOC. MINING

ENGINEERS TRANS., V. 235, P. 99-111.

22) DAMON, P.E., ET AL., 1970, NEW K-AR DATES FOR THE SOUTHERN BASIN AND RANGE PROVINCE, IN ANNUAL PROGRESS REPORTS TO RESEARCH DIVISION: U.S. ATOMIC ENERGY COMM., JUNE 1970, P. 38.

23) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P., P. 99, 78, 64.

24) GAMBELL, N.A., 1978, GEOLOGY AND MINERALIZATION OF RAY SILICATE DREBODY, PINAL COUNTY, ARIZONA (ABS.), IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 35.

25) GOWING, F.A., 1904, NOTES ON GEOLOGY OF MINERAL CREEK DISTRICT, PINAL COUNTY, ARIZONA: MIN. REPORTER, V. 49, P. 501-504 (1904)

26) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 93-87.

27) HEINDL, L.A., 1959, STRATIGRAPHIC RELATIONSHIPS OF THE WHITETAIL AND GILA CONGLOMERATES NEAR RAY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1724-1725 (1959)

28) JAMES, A.H., 1971, HYPOTHETICAL DIAGRAMS OF SEVERAL PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 66, NO. 1, P. 43-47.

29) JAMES, A.H., 1970, HYPOTHETICAL DIAGRAMS OF SEVERAL PORPHYRY COPPER DEPOSITS (ABS.): ECON. GEOL., V. 64, NO. 7, P. 833.

30) KEITH, W.J., AND THEODORE, T.G., 1978, TERTIARY VOLCANIC ROCKS OF THE MINERAL MOUNTAIN AND TEAPOT MOUNTAIN QUADRANGLES, PINAL COUNTY, ARIZONA (ABS.): GEOL. SOC. AM., ABSTR. WITH PROGRAMS, V. 10, NO. 7, P. 433.

31) KEITH, W.J., THEODORE, T.G., AND CREASEY, S.C., 1978, TERTIARY VOLCANIC SEQUENCE AT MINERAL MOUNTAIN IN ARIZONA (ABS.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 182-183

32) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

33) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.

34) KRIEGER, M.H., CORNWALL, H.R., AND BANKS, N.G., 1968, BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: U.S. GEOL. SURVEY BULL. 1394-A, P. 54-62.

35) KRIEGER, M.H., 1973, MEGABRECCIAS (LARGE LANDSLIDE BLOCKS) INTERBEDDED IN MIOCENE PLAYA AND ALLUVIAL DEPOSITS, SOUTH OF RAY, ARIZONA (ABS.): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, V. 5, NO. 7, P. 699-700.

36) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.

37) LIVINGSTON, D.E., MAUGER, R.L., AND DAMON, I.E., 1968, GEOCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 63, P. 30-36.

38) METZ, ROBERT A. 2. (AND PHILLIPS, C.H., AND CAVINESS, C.R.) RECENT DEVELOPMENTS IN THE GEOLOGY OF THE RAY AREA: ARIZ. GEOL. SOC., S. ARIZ. GUIDEBOOK III, P. 137-145, ILLUS. (1968)

39) MOORBATH, S., HURLEY, P.M., AND FAIRBAIRN, H.W., 1967, EVIDENCE FOR THE ORIGIN AND AGE OF SOME MINERALIZED LARAMIDE INTRUSIVES IN THE SOUTHWESTERN UNITED STATES FROM STRONTIUM ISOTOPE AND RUBIDIUM-STRONTIUM MEASUREMENTS: ECON. GEOL., V. 62, NO. 2, P. 228-236.

40) PHILLIPS, C.H., H.R. CORNWALL, AND M. RUBIN (1971) A HOLOCENE ORE BODY OF COPPER OXIDES AND CARBONATES AT RAY, ARIZONA. ECON. GEOL. 66: 495-198.

41) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.

42) RANSOME, F.L., 1915, THE COPPER DEPOSITS OF RAY AND MIAMI, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 115, 192 P.

43) SCHMIDT, E.A. (1971) A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA. UNIVERSITY OF ARIZONA, UNPUBLISHED PHD THESIS, 248 P.

44) STEPHENS, J.D., AND METZ, R.A., 1968, COPPER-BEARING CLAY MINERALS IN OXIDIZED PORTIONS OF THE DISSEMINATED COPPER DEPOSITS AT RAY, ARIZONA: GEOL. SOC. AMERICA ANN. MEETING (1967) PROGRAM, NEW ORLEANS, LA., P. 213; GEOL. SOC. AMERICA SPEC. PAPER 115, P. 213.

45) STEPHENS, J.D., AND METZ, R.A., 1967, THE OCCURRENCE OF COPPER BEARING CLAY MINERALS IN OXIDIZED PORTIONS OF THE DISSEMINATED COPPER DEPOSIT AT RAY, ARIZONA (ABS.): ECON. GEOL., V. 62, NO. 6, P. 876-877.

46) THEODORE, T.G., AND KEITH, W.J., 1978, CALC-ALKALINE INTRUSIVE RELATIONS AT MINERAL MOUNTAINS IN ARIZONA (ABS.): U.S. GEOL. SURV., PROF. PAPER 1100, P. 186.

47) THEODORE, T.G., KEITH, W.J., AND CREASEY, S.C., 1978, CALC-ALKALIC INTRUSIVE ROCKS AT MINERAL MOUNTAIN, SOUTH-SOUTH-CENTRAL ARIZONA (ABS.): U.S. GEOL. SURV., PROF. PAPER 1100, P. 74.

48) THEODORE, T.G., KEITH, W.J., TILL, A.B., AND PETERSON, J.A., AND CREASEY, S.C., 1978, PRELIMINARY GEOLOGIC

MAP OF THE MINERAL MOUNTAIN 7.5 = MINUTE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP. NO. 79-469.

RECORD 00047

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4800109
 RECORD TYPE..... 12
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... REDDINGTON DIST.

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030544

GENERAL REFERENCES

- 1) 56) DAVIS, G.H., 1975, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA: GEOL. SOC. AMERICA BULL., V. 86, P. 979-990.
- 57) DAVIS, G.H., 1977A, CHARACTERISTICS OF METAMORPHIC CORE COMPLEXES, SOUTHERN ARIZONA (ABSTRACT): GEOLOGICAL SOCIETY OF AMERICA ABSTRACTS WITH PROGRAMS, V. 9, NO. 7, P. 944.
- 58) DAVIS, G.H., 1977B, GRAVITY-INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--REPLY: GEOL. SOC. AMER. BULL., V. 88, P. 1212-1216.
- 59) DAVIS, G.H., 1978, THIRD DAY, ROAD LOG FROM TUCSON TO COLLOSSAL CAVE AND SAGUARO NATIONAL MONUMENT (LAND OF COCHISE, SOUTHEASTERN ARIZONA), NEW MEXICO GEOL. SOC. 29TH FIELD CONF., P. 77-87.
- 60) DAVIS, G.H., 1979, LARAMIDE FOLDING AND FAULTING IN SOUTHEASTERN ARIZONA: AMER. J. SCIENCE, IN PRESS.
- 61) DAVIS, G.H., THIS VOLUME, STRUCTURAL CHARACTERISTICS OF METAMORPHIC CORE COMPLEXES, SOUTHERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 62) DAVIS, G.H., ANDERSON, P., BUDDEN, R.T., KEITH, S.B., AND KIVEN, C.W., 1973, ORIGIN OF LINEATION IN THE CATALINA-RINCON-TORTOLITA GNEISS COMPLEX, ARIZONA (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 7., NO. 5 602.
- 63) DAVIS, G.H., ANDERSON, J.L., FROST, E.G., AND SHAKELFORD, T.G., THIS VOLUME, MYLONITIZATION AND DETACHMENT FAULTING IN THE SHIPPLE-BUCKSIN-FAWHIDE MOUNTAINS TERRANE, SOUTHERN CALIFORNIA AND WESTERN ARIZONA: GEOLOGICAL SOC. AMER. MEMOIR.
- 64) DAVIS, G.H., AND CONEY, P.J., 1979, GEOLOGIC DEVELOPMENT OF THE CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOLOGY, V. 7, NO. 3, P. 120-124.
- 65) DAVIS, G.H., AND FROST, E.G., 1976, INTERNAL STRUCTURE AND MECHANISM OF EMPLACEMENT OF A SMALL GRAVITY-GLIDE SHEET, SAGUARO NATIONAL MONUMENT (EAST) TUCSON, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 287-304.
- 66) SCRUTINY OF FOLDED GRAVITY-GLIDE SHEETS IN SAGUARO NATIONAL MONUMENT, ARIZONA ABSTR. DAVIS, G.H.; FROST, E.G.; SCHLODERER, J.P. IN ROCKY MOUNTAIN SECTION, 27TH ANNUAL MEETING, GEOL. SOC. AM ABSTR., (GAAPBC) VOL. 6, NO. 5, P. 439, 1974
- 67) DAVIS, W.M. 18. THE SANTA CATALINA MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 22, P. 289-317 (1931); (ABSTR.): PAN-AM. GEOL., V. 55, P. 372-373 (1931); GEOL. SOC. AM. BULL., V. 43, P. 235 (1932)
- 2) 68) DARTON, N.H., LAUSEN, C., AND WILSON, E.O., 1924, GEOLOGIC MAP OF THE STATE OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOLOGICAL SURVEY.
- 69) DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 70) DEMPSEY, W.J. (AND HILL, M.E.) AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419 (1963)
- 71) DREWES, H. (1974) GEOLOGIC MAP AND SECTIONS OF THE HAPPY VALLEY QUAD, COCHISE COCHISE COUNTY, ARIZONA. U.S.G.S. MAP I-832.
- 72) DREWES, H., 1976, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 151-167.
- 73) DREWES, H., 1977, GEOLOGIC MAP AND SECTIONS OF THE RINCON VALLEY QUADRANGLE, PIMA COUNTY, ARIZONA: U.S.

GEOL. SURVEY MAP I-997.

- 74) DREWES, H., 1978, THE CORDILLERAN OROGENIC BELT BETWEEN NEVADA AND CHIHUAHUA: GEOL. SOC. AMERICA BULL., V. 89, P. 641-657.
- 75) DREWES, H., AND THORMAN, C.H., 1978, NEW EVIDENCE FOR MULTIPHASE DEVELOPMENT OF THE RINCON METAMORPHIC CORE COMPLEX EAST OF TUCSON, ARIZONA: GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 10, NO. 3, P. 103.
- 76) DREWES, H.D., THORMAN, C.H., 1978, MULTIPLE DEFORMATION OF GNEISS DOME NEAR RINCON MOUNTAINS IN SOUTHEASTERN ARIZONA (ABSTR): U.S. GEOL. SURV., PROF. PAP. NO. 1100, P. 73.
- 77) DOCKTOR, R.D., BANKS, N.G., MAP SHOWING PHOTO LINEAMENTS IN THE TORTOLITA MOUNTAINS QUADRANGLE, ARIZONA
- 78) U.S. GEOL. SURV., OPEN-FILE REP. (USA) (XGROAG), NO. 77-152, UNPAGINATED 1977, TECT. MAP. SCALE: 1:62,500
- 79) DUBOIS, R.L., 1959A, GEOLOGY OF THE SANTA CATALINA MOUNTAINS: ARIZ. GEOL. SOC. GUIDEBOOK II, P. 106-116.
- 80) DUBOIS, R.L., 1959B, PETROGRAPHY AND STRUCTURE OF A PART OF THE GNEISSIC COMPLEX OF THE SANTA CATALINA MOUNTAINS: ARIZONA GEOL. SOC. GUIDEBOOK II, P. 117-127.
- 81) DURNING, W.P., 1975, MINERALIZATION AND ALTERATION AT THE LITTLE HILLS MINE, PINAL COUNTY, ARIZONA (ABSTR): N.M. GEOL. SOC., ANNU. FIELD CONF. GUIDES DURNING, WILLIAM P., 1972, GEOLOGY AND MINERALIZATION OF LITTLE HILL MINE, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA
- 82) MASTER'S ARIZONA, T (THESIS) 1973 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 1-02 (ECONOMIC GEOLOGY) ARIZONA; ECONOMIC GEOLOGY; *COPPER; PINAL COUNTY; SANTA CATALINA MOUNTAINS; LITTLE HILL MINE; UNITED STATES; GENESIS; PETROLOGY; STRUCTURE.
- 83) EBERLY, L.D., AND STANLEY, T.B., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMER. BULL., V. 89, P. 921-940.
- 84) ERICKSON, R.C., 1962, PETROLOGY AND STRUCTURE OF AN EXPOSURE OF THE PINAL SCHIST, SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., M.S. THESIS, 71 P.
- 85) FAIR, CHARLES L. 2. (AND JINKS, J.E.) SANTA CATALINA FOOTHILLS FAULT IN THE PONTOTOC AREA: ARIZ. GEOL. SOC. DIG., V. 4, P. 131-133 (1961)
- 86) FROST, E.G., 1977, MID-TERTIARY, GRAVITY-INDUCED DEFORMATION IN HAPPY VALLEY, PIMA AND COCHISE COUNTIES, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 86 P.
- 87) FROST, E.G., DAVIS, G.H., 1976, MID-TERTIARY, GRAVITY-INDUCED FOLDING AND TRANSPOSITION IN HAPPY VALLEY, PIMA AND COCHISE COUNTY, ARIZONA. GSA ABSTR., VOL. 8, NO. 6, P. 876-877, 1976.
- 88) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 89) HANSON, H.S., 1966, PETROGRAPHY AND STRUCTURE OF THE LEATHERWOOD QUARTZ DIOIRITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 104 P.
- 90) HANSON, HIRAM STANLEY 2. ORIGIN OF INCLUSIONS IN THE LEATHERWOOD QUARTZ DIOIRITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEORGIA ACAD. SCI. BULL., V. 25, NO. 2, P. 87 (1967)
- 91) HARSHBARGER, J.W., 1970, GROUNDWATER SYSTEMS IN THE SAN PEDRO VALLEY, MAMMOTH AREA, SECTION 6: IN MINING AND ECOLOGY IN THE ARID ENVIRONMENT--CONF., TUCSON, ARIZ. 1970 PROC. (PETERS, W.C., ED.): UNIV. ARIZ., COLLEGE OF MINES, TUCSON, ARIZ., SEC. 6-1-6-2.
- 92) HEINDL, L.A. B. MEMORANDUM ON GEOLOGY AND GROUNDWATER RESOURCES IN THE VICINITY OF ORACLE, PINAL COUNTY ARIZONA: USGS MIMFO. REP., 11 P., ILLUS. (1955)
- 93) HEINDL, L.A., 1963, CENOZOIC GEOLOGY IN THE MAMMOTH AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV. BULL. 1141-E, 41 P.
- 94) HERNON, R.M., 1932, PEGMATITE ROCKS OF THE CATALINA-RINCON MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 65 P.
- 95) HILL, J.M., 1946, REPORT ON THE MAUDINA TUNGSTEN MINE, ORACLE, PINAL COUNTY, ARIZ.: PRIVATE REPORT, 9 P.
- 96) HOELLE, J.L., 1972, STRUCTURAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA A PRELIMINARY REPORT (ABS.): GEOL. SOC. AMERICA, ROCKY MOUNTAIN SECTION 25TH ANN. MEETING, ABSTR., V. 4, NO. 6 P. 382.
- 97) HOELLE, J.L., 1976, STRUCTURAL AND GEOCHEMICAL ANALYSIS OF THE CATALINA GRANITE, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 79 P.
- 98) JACOBS, L.L., 1977, RODENTS OF THE HEMPHILLIAN AGE REDINGTON LOCAL FAUNA, SAN PEDRO VALLEY, ARIZONA: J. PALEONTOLOGY, VOL. 51, NO. 3, PP. 505-519, 1977.
- 99) KEITH, S.B. 1978, PALEOSUBDUCTION GEOMETRIES INFERRED FROM CRETACEOUS TERTIARY MAGMATIC PATTERNS IN SOUTHWESTERN NORTH AMERICA: GEOLOGY, V. 6, P. 515-521.
- 100) KEITH, S.B., REYNOLDS, S.J., DAMON, P.E., SHAFIKULLAH, M., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1980, EVIDENCE FOR MULTIPLE INTRUSION AND DEFORMATION WITHIN THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: GEOL. SOC. AMERICA MEM., SYMPOSIUM VOLUME, PENROSE CONF. ON METAMORPHIC CORE COMPLEXES, IN PRESS.

- 102)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156
- 103)KERN, J.R. GEOLOGY OF THE AGUA VERDE HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 69 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)
- 104)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 105)KUCK, P.H., 1970, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 106)LAUGHLIN, A.W. PETROLOGY OF THE MOLINO BASIN AREA OF THE SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P. (1960)
- 107)LAYTON, D.W. STRATIGRAPHY AND STRUCTURE OF THE SOUTHWESTERN FOOTHILLS OF THE RINCON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 87 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51 (1958)
- 108)LANEY, R.L., 1975, WEATHERING OF GRANODIORITIC ROCKS AND GEOCHEMISTRY OF WATER IN THE ROSE CANYON LAKE AREA, SANTA CATALINA MOUNTAINS, ARIZONA ABSTR
- 109)U.S. GEOL. SURV. PHOENIX, ARIZ. USA GEOL. SOC. AM., ABSTR. PROGRAMS (GAAPBC), VOL. 7, NO. 7, P. 1160, 1975 S (SERIAL): ANL (ANALYTIC) 77-00297 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 2-02 (GEOCHEMISTRY) *ARIZONA; GEOMORPHOLOGY; WEATHERING; SANTA CATALINA MOUNTAINS; ROSE CANYON LAKE; IGNEOUS ROCKS; GRANODIORITE; ALTERATION; MINERAL; EFFECTS; DISSOLVED SO
- 110)LEGER, ARTHUR R. STRUCTURE AND TECTONIC HISTORY OF THE SOUTHWEST PART OF TANQUE VERDE RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 40 P. (1967)
- 111)LEMMON, D.M., AND IWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 112)LIMING, RICHARD BRETT, 1974, GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE MARTINEZ RANCH AREA, PIMA COUNTY, ARIZONA MASTER'S, ARIZONA. T (THESIS)
- 113)LIVINGSTON, D.E., 1969, GEODHONOLGY OF OLDER PRECAMBRIAN ROCKS IN GILA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 224 P.
- 114)LIVINGSTON, D.E., AND DAMON, P.E., 1968, THE AGES OF STRATIFIED PRECAMBRIAN ROCK SEQUENCES IN CENTRAL ARIZONA AND NORTHERN SONORA: CANADIAN J. EARTH SCI., V. 5, NO. 763, P. 763-772.
- 115)LIVINGSTON, D.E., DAMON, P.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, AR IN COGENETIC FELDSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RESEARCH, V. 72, P. 1362-1375.
- 116)LUDDEN, R.W., 1950, GEOLOGY OF THE CAMPO BONITO AREA, ORACLE, ARIZONA: UNIV. ARIZ., MS THESIS, 52 P., MAPS
- 117)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 118)MARVIN, R.F., MAESER, C.W., AND MEHNERT, H.H., 1978, TABULATION OF RADIO-METRIC AGES--INCLUDING UNPUBLISHED K-AR AND FISSION TRACK AGES--FOR ROCKS IN SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 243-257.
- 119)MARVIN, R.F., AND COLE, J.L., 1978, RADIO-METRIC AGES: COMPILATION A, U.S. GEOLOGICAL SURVEY: ISOCRON/WEST, NO. 22, P. 3-14.
- 120)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 121)MATTER, P., 1969, PETROCHEMICAL VARIATIONS ACROSS SOME ARIZONA PEGMATITES AND THEIR ENCLOSING ROCKS (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 173 P.
- 122)MAUGER, R.L., DAMON, P.E., AND LIVINGSTON, D.E., 1968, CENOZOIC ARGON AGES ON METAMORPHIC ROCKS FROM THE BASIN AND RANGE PROVINCE: AMER. J. SCIENCE, V. 266, P. 579-589.
- 123)MAYO, E.B., 1964, FOLDS IN GNEISS BEYOND NORTH CAMPBELL AVENUE, TUCSON, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 7, P. 123-145.
- 124)MCCULLOUGH, E.J., JR., 1963, A STRUCTURAL STUDY OF THE PUSCH RIDGE--ROMERO CANYON AREA, SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 67 P.
- 125)MCKENNA, JOHN J. BUEHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)
- 126)MEDHI, P.K., 1964, A GEOLOGIC STUDY OF THE PONTATOC MINE AREA, PIMA COUNTY, ARIZONA, UNIV. ARIZ., MS THESIS
- 127)MILES, C.H., 1965, METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHUGUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 98 P.

RECORD 00048

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800126
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... REDINGTON DIST.

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030544

GENERAL REFERENCES

- 2) 128)MILES, CHARLES H. METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEQUILLA PEAK AREA OF THE RINCON MOUNTAINS, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 96 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 9, P. 5977 (1966)
129)MINERALS YEARBOOK, 1945, U.S. DEPT. INTERIOR, U.S. BUR. MINES: U.S. GOV'T PRINT. OFFICE, WASHINGTON, P. 663.
130)MOORE, B.N. 2. GEOLOGIC MAP OF THE HAPPY VALLEY QUADRANGLE, ARIZONA: USGS OPEN-FILE REP. (1935)
131)MOORE, B.N., TOLMAN, C.F., JR., BUTLER, B.S., AND HERMON, R.M., 1949, GEOLOGY OF THE TUCSON QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 20 P.
133)MURPHY, B.J., 1976, SLOPE FORM AND STABILITY IN THE NORTHWEST PORTION OF THE MOUNT LEMMON QUADRANGLE, PIMA COUNTY: ARIZ. BUR. MIN. TUCSON, ARIZ. USA ARIZ. BUR. MINES, FIELD NOTES (FNMAAE), VOL. 6, NO. 2, 5-7, 10-14, 1976, ILLUS., GEOL. SKETCH MAP 5 (SERIAL); ANL (ANALYTIC) 2-22 (ENGINEERING AND ENVIRONMENTAL GEOLOGY) PIMA COUNTY: ARIZONA: ENGINEERING GEOLOGY; SLOPE STABILITY; MOUNT LEMMON QUADRANGLE; ANALYSIS; LITHOSTRATIGRAPHY; UNITED STATES.
134)NICHOLAS, D.E., 1976, UNDERGROUND MINE PILLAR DESIGN UTILIZING ROCK MASS PROPERTIES, MARBLE PEAK, PIMA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.
135)PASHLEY, E.F., JR., 2. A REINTERPRETATION OF THE ANTICLINAL STRUCTURE EXPOSED IN THE NORTHWEST FACE OF PUSCH RIDGE, SANTA CATALINA MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 6, P. 49-54 (1963)
136)PASHLEY, E. FRED 2. FOLOS IN THE TANQUE VERDE, RINCON AND SOUTHERN SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 76, P. 289 (1964)
137)PASHLEY, E.F., 1966, STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, NORTHERN AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 273 P.
138)PASHLEY, E. FRED 1. STRUCTURE AND STRATIGRAPHY OF THE CENTRAL NORTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA: UNIV. ARIZ., PHD THESIS, 273 P. (1966); (ABS.): DISSERT. ABS., V. 27, NO. 5, P. 1516-B (1966)
139)PASHLEY, E. FRED 3. CENOZOIC EVOLUTION OF THE NORTHERN HALF OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 541 (1969)
140)PASHLEY, E. FRED 4. ORIGIN OF THE FRONTAL FAULT OF THE SANTA CATALINA AND RINCON MOUNTAINS, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 620 (1969)
141)PASHLEY, E. FRED 5. ALLUVIAL FANS AND EROSION SURFACES OF THE TUCSON BASIN, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 540 (1969)
142)PEIRCE, FREDERICK L. STRUCTURE AND PETROGRAPHY OF PART OF THE SANTA CATALINA MOUNTAINS: UNIV. ARIZ., PHD THESIS, 86 P. (1958); (ABS.): ARIZ. GEOL. SOC. DIG., V. 1., P. 53-54 (1958)
143)PETERSON, N.C., 1938, GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: UNIVERSITY OF ARIZONA, ARIZONA BUREAU OF MINES BULL. 144, 63 P.
144)PETERSON, N.P., AND CREASEY, S.C., 1943, SOME COPPER DEPOSITS IN THE OLD HAT MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT, 12 P., MAPS.
145)PETERSON, R.C., 1968, A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORERANGE, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 105 P.

- 146)PETERSON, RICHARD C. A STRUCTURAL STUDY OF THE EAST END OF THE CATALINA FORERANGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 105 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 4, P. 1409-B (1968)
- 147)PILKINGTON, H.D., 1952, STRUCTURE AND PETROLOGY OF A PART OF THE EAST FLANK OF THE SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 120 P.
- 148)PILKINGTON, H.D. (AND DUBOIS, ROBERT L.) PETROGRAPHY AND STRUCTURE OF THE SOUTHERN SANTA CATALINA MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 73, P. 57-58 (1963)
- 149)PLUT, FREDERICK W. GEOLOGY OF THE EAGLEPEAK-HELLS GATE AREA, HAPPY VALLEY QUADRANGLE, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 78 P. (1968)
- 150)RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUEHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS
- 151)RANSOME, F.L., 1916, SOME PALEOZOIC SECTIONS OF ARIZONA AND THEIR CORRELATION: U.S. GEOL. SURVEY PROF. PAPER 98-K, P. 144-145.
- 152)REHRIG, W.A., REYNOLDS, S.J., 1977, A NORTHWEST ZONE OF METAMORPHIC CORE COMPLEXES IN ARIZONA (ABSTR): GEOL. SOC. AM., ABSTR. PROGRAMS, VOL. 9, NO. 7, P. 1139. 1977 (THE GEOLOGICAL SOCIETY OF AMERICA, 90TH ANNUAL MEETING)
- 153)REHRIG, W.A., AND REYNOLDS, S.J., THIS VOLUME, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 154)REYNOLDS, S.J., AND REHRIG, W.A., THIS VOLUME, MID-TERTIARY PLUTONISM AND MYLONITIZATION, SOUTH MOUNTAINS, CENTRAL ARIZONA: GEOL. SOC. AMER. MEMOIR.
- 155)SCARBOROUGH, R.B., AND PEIRCE, H.W., 1978, LATE CENOZOIC BASINS OF ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 253-259.
- 156)SCHLÖDERER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REDINGTON PASS AREA, PIMA COUNTY, ARIZONA; UNIVERSITY OF ARIZONA MS THESIS.
- 157)SHAFIQUILLAH, M., DAMON, P.E., LYNCH, D.J., KUCK, P.H., AND REHRIG, W.A., 1978, MID-TERTIARY MAGMATISM IN SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK, 29TH FIELD CONF., LAND OF COCHISE, P. 231-241, P. 232, 236.
- 158)SHAKEL, D.W., 1972, "OLDER" PRECAMBRIAN GNEISSES IN SOUTHERN ARIZONA: 24TH INT'L GEOL. CONGRESS., SECT. 1, P. 278-287.
- 159)SHAKEL, D.W., 1972, THE SANTA CATALINA AND RINCON MOUNTAINS: TURTLEBACK STRUCTURES NORTH AND EAST OF TUCSON, ARIZONA (ABS.): GEOL. SOC., AMERICA, CORDILLERAN SECTION, 68TH ANN. MEETING, ABSTR., V. 4, NO. 3, P. 234-235.
- 160)SHAKEL, D.W., 1974, THE GEOLOGY OF LAYERED GNEISSES IN PART OF THE SANTA CATALINA FORERANGE, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 233 P.
- 162)SHAKEL, D.W. (1977) OBSERVATIONS ON THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MOUNTAINS, SOUTHERN ARIZONA: GSA ABSTRACT, 9 (7), P. 1169.
- 163)SHAKEL, D.W., 1978, SUPPLEMENTAL ROAD LOG NUMBER 2: SANTA CATALINA MOUNTAINS VIA CATALINA HIGHWAY: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 105-111.
- 164)SHAKEL, D.W., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1972, GECHRONOLOGY OF CRYSTALLINE ROCKS IN THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: A PROGRESS REPORT (ABSTRACT): GEOL. SOC. AMER. ABSTRACTS WITH PROGRAMS, V. 4, NO. 6, P. 408.
- 165)SHAKEL, D.W., SILVER, L.T., AND DAMON, P.E., 1977, OBSERVATIONS OF THE HISTORY OF THE GNEISSIC CORE COMPLEX, SANTA CATALINA MTNS., SOUTHERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 7, P. 1169-1170.
- 166)SHERWONIT, W.E., 1974, A PETROGRAPHIC STUDY OF THE CATALINA GNEISS IN THE FORERANGE OF THE SANTA CATALINA MOUNTAINS (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 155 P.
- 167)SHRIDE, A.F., 1967, YOUNGER PRECAMBRIAN GEOLOGY IN SOUTHERN ARIZONA: U.S. GEOL. SURVEY PROFESSIONAL PAPER 566, 89 P.
- 168)SILVER, L.T., 1968, PRECAMBRIAN BATHOLITHS OF ARIZONA (ABSTRACT): GEOL. SOC. AMER. SPECIAL PAPER 121, P. 558-559.
- 169)SILVER, L.T., 1978, PRECAMBRIAN FORMATIONS AND PRECAMBRIAN HISTORY IN COCHISE COUNTY, SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK FOR 29TH FIELD CONF. (LAND OF COCHISE, SOUTHEASTERN ARIZONA), P. 157-164.
- 170)SILVER, L.T., AND DEUTSCH, S., 1963, URANIUM-LEAD ISOTOPIC VARIATIONS IN ZIRCONS: A CASE STUDY: J. GEOLOGY V. 71, P. 721-758.
- 171)SMITH, WALTER J. CENOZOIC STRATIGRAPHY NEAR REDINGTON, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 96 P. (1966)
- 172)STEWART, S.O. THE OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 952 (1912)
- 173)STREITZ, ROBERT SUBSURFACE STRATIGRAPHY AND HYDROLOGY OF THE RILLITO CREEK-TANQUE VERDE WASH AREA, TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 60 P. (1962)

- 174)SUEMNIKT, G.A., 1977, THE GEOLOGY OF THE CANADA DEL DRD HEADWATERS, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 108 PP.
- 175)THORMAN, C.H., 1977, GRAVITY INDUCED FOLDING OFF A GNEISS DOME COMPLEX, RINCON MOUNTAINS, ARIZONA--A DISCUSSION: GEOL. SOC. AMER. BULL., V. 88, P. 1211-1212.
- 176)THORMAN, C.H., AND DREWES, H., 1978, MINERAL RESOURCES OF THE RINCON WILDERNESS STUDY AREA, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-596.
- 177)TENNEY, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 4 P.
- 178)VOELGER, KLAUS CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1953)
- 179)WAAG, CHARLES J. 1. STRUCTURAL GEOLOGY OF THE MT. BIGELOW-BEAR WALLOW-MT. LEMMON AREA, SANTA CATALINA MTS., ARIZONA: UNIV. ARIZ., PHD THESIS, 133 P. (1968); (ABS.): DISSERT. ABS. INTERNATL., V. 29, NO. 10, P. 3795-B (1969)
- 180)WAAG, CHARLES J. 2. GRAVITY TECTONICS ACCOMPANYING MANTLED GNEISS DOMES IN THE BASIN AND RANGE PROVINCE OF ARIZONA (ABS.): GEOL. SOC. AM. ABS. WITH PROGRAMS, V. 2, NO. 5, P. 353 (1970)
- 181)WALLACE, R.M., 1954, STRUCTURES OF THE NORTHERN END OF THE SANTA CATALINA MOUNTAINS, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 45 P.
- 182)WEIDNER, M.T. THE GEOLOGY OF THE BEACON HILL-COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 34 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 46 (1958)
- 183)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 34.
- 184)WILSON, E.D., MOORE, R.T., AND COOPER, J.R., 1969, GEOLOGIC MAP OF ARIZONA: ARIZONA BUREAU OF MINES AND U.S. GEOL. SURVEY.
- 185)WILSON, J.R., 1977, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE KORN KOB MINE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 103 P.
- 186)WOOD, M.M., 1963, METAMORPHIC EFFECTS OF THE LEATHERWOOD QUARTZ DIOIRITE, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 68 P.

RECORD 00049

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030371
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... SALLY ANN MINE

MINING DISTRICT/AREA/SUBDIST. OWENS DIST

COUNTRY CODE..... US

STATE CODE..... 04

POSITION FROM NEAREST PROMINENT LOCALITY: 8 MILES WEST OF ALAMO CROSSING

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB MO

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

THERE WERE SHAFTS 35, 50 AND 60 FEET DEEP AND ONE 20 FEET TUNNEL.

GENERAL REFERENCES

- 1) MALACH, 1977, P. 49
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 3) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZONA, 63 P.
- 3) GENERAL GEOLOGY OF ARTILLERY:
GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
- 4) HEAD, R.E., 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USPM, RI 3560, P. 6-7 (1941)
- 5) JONES, E.L., JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.
- 6) KUMKE, C.A., 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: USPM, RI 5292, 87 P., ILLUS. (1957).
- 7) LASKY, S.G., AND G.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-R: 417-448.
- 8) LASKY, S.G. 1. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)
- 9) LASKY, S.G. AND WEBBER, B.N. 1949, MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.

- 10)MOUAT, M.M. MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6. P., 744-752 (1962)
 - 11)MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS
 - 12)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 13)MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
 - 14)PETERSON, DONALD L. 5. BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
 - 15)SANFORD, R.S., (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USBM, RI 4275, 45 P. (1948)
 - 16)SHACKELFORD, T.J. STRUCTURAL GEOLOGY OF THE RAWHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA.
 - 17)UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL, UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIF., USA, UNPAGINATED P., 1976. (DISS. ABSTR. INT., VOL. 38, NO. 4, P. 1622B-1623B, 1977)
 - 18)SHERRER, P.L. CATACLASTIC ROCKS OF THE RAWHIDE MOUNTAINS, WEST-CENTRAL ARIZONA SANDIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S, SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGINATED P., 1976
 - 19)WILSON, E.O., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.
- 4) MOHAVE CO.:
- DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
 - 5)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 6)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 7)TODTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
 - 8)WILSON, E.O., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 - 9)WILSON, E.O., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
 - 10)DAVIDSON, E.S., 1975, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
 - 11)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 12)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
 - 13)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P.
 - 14)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 15)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 - 16)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 17)SCHRADER, F.C., 1906, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 18)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 19)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 20)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 21)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS. VOL. 56, PP. 195-236.

RECORD 00050

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4899989

NAME AND LOCATION

DEPOSIT NAME..... SANTO NINO MINE

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER M000982

GENERAL REFERENCES

1) GENERAL REFERENCES:

KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 82.

2) SANTO NINO MINE:

KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16.

3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #36.

4) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 187, 188.

5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.

6) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

7) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319, P. 314, 316.

8) BAKER, R.C., 1962, THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS, P. 194-196, 202, 254.

9) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762

10) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

11) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100.

12) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

3) GEOLOGY OF PATAGONIA DISTRICT:

SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P

4) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA-RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

5) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.

6) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.

7) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.

8) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

9) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.

10) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.

- 11) FETH, J.H., 1954, GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P.
- 12) HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK 111: ARIZ. GEOL. SOC., P. 49-58.
- 13) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 14) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 15) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 16) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
- 17) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 18) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 19) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 20) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 21) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS,
- 22) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 23) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CDD-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
- 24) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 25) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 26) DAVIS, H.E., 126, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 27) DALE, V.B. L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 28) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 29) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 30) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 31) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 32) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 33) WILSON, E.D. AND BUTLER G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 34) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 35) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 36) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, P. 286-313, PT. 1
- 37) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 38) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 39) HUTTL, J.R., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 40) HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.

4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):

DREWES, HARALD 8. GEOLOGIC MAP OF THE SANHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HARALD, 1970, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.

11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00051

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899992

NAME AND LOCATION

DEPOSIT NAME..... SAN MANUEL-KALAMAZOO DEPOSIT

MINING DISTRICT/AREA/SUBDIST. SAN MANUEL DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER M000670

GENERAL REFERENCES

1) GENERAL REFERENCES:

THOMAS, L.A. (1966) GEOLOGY OF THE SAN MANUEL ORE BODY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 133-142.

2) CREASEY, S.C. AND J.D. PELLETIER (1965) GEOLOGY OF THE SAN MANUEL AREA, PINAL COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 471, 64 P.

3) IMPORTANT SAN MANUEL KALAMAZOO REFERENCES:

CREASEY, S. CYRUS S. GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS BULL. 1218, 94 P., GEOL. MAP, SCALE 1:40,000, SECTIONS (1967)

4) SCHWARTZ, G.M., 1953, GEOLOGY OF THE SAN MANUEL COPPER DEPOSIT, ARIZONA: U.S. GEOL. SURV. PROF. PAPER 256, 65 P.

5) WILSON, E.D., 1957, GEOLOGIC FACTORS RELATED TO BLACK CAVING AT SAN MANUEL COPPER MINE, PINAL COUNTY, ARIZONA: U.S. BUR. MINES R.T. 5336, 78 P.

6) LOWELL, J.D. (1968) GEOLOGY OF THE KALAMAZOO OREBODY, SAN MANUEL DISTRICT, ARIZONA. ECON. GEOL. 63: 645-654.

7) LOWELL, J.D. AND J.M. GUILBERT (1970) LATERAL AND VERTICAL ALTERATION-MINERALIZATION ZONING IN PORPHYRY ORE DEPOSITS. ECON. GEOL. 65: 373-408.

4) SAN MANUEL REFERENCES:

ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.

5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142

6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

7) ASHBY, H.I., 1954, DRIFTING OPENS HUGE OREBODY FOR BLOCK CAVING: MINING ENG., V. 6, NO. 7, P. 695-696.

8) BANERJEE, ANIL K., 1957, STRUCTURE AND PETROLOGY OF THE ORACLE GRANITE, PINAL CO., ARIZONA: UNIV. ARIZONA, PH.D. THESIS.

9) BROWN, RONALD G., 1970 GEOCHEMICAL SURVEY OF THE ORACLE VICINITY (PINAL CO.) OF ARIZONA. ARIZONA STATE, 1970. M.S. THESIS.

10) BUCHANAN, J.F. (AND BUCHELLA, F.H.) THE HISTORY AND DEVELOPMENT OF THE SAN MANUEL MINE: AIME, SOC. MIN. ENGR. PREPRINT 60AU90, 21 P., ILLUS. (1960)

11) CHAFFEE, M.A., 1978, A GEOCHEMICAL STUDY OF THE KALAMAZOO PORPHYRY COPPER DEPOSITS, PINAL COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM, (ABS.): ARIZ. GEOL. SOC. DIGEST, V. 11, P. 33-34.

12) CHAFFEE, M.A., 1976, PRIMARY GEOCHEMICAL ZONING OF THE KALAMAZOO PORPHYRY COPPER DEPOSIT, ARIZONA, U.S.A., AND APPLICATIONS TO GEOCHEMICAL PROSPECTING (ABS.): INT. GEOL. CONGR. ABSTR., CONGR. GEOL. INT., RESUMES, NO. 25, V. 2, SECT. 10B: EXPLORATION GEOCHEMISTRY, P. 438-439.

13) DAVIS, J.D., 1974, GEOTHERMOMETRY, GEOCHEMISTRY, AND ALTERATION AT THE SAN MANUEL PORPHYRY COPPER OREBODY, SAN MANUEL, ARIZONA: UNIV. ARIZ., PH.D. THESIS.

14) CHAFFEE, M.A., 1976, THE ZONAL DISTRIBUTION OF SELECTED ELEMENTS ABOVE THE KALAMAZOO PORPHYRY COPPER DEPOSIT,

- SAN MANUEL DISTRICT, PINAL COUNTY, ARIZONA: JOUR. GEOCHEM. EXPLOR., V. 5, NO. 2, P. 145-165.
- 15) CHAFFEE, M.A., 1975, THE ZONAL DISTRIBUTION OF SELECTED ELEMENTS ABOVE THE KALAMAZOO PORPHYRY COPPER-MOLYBDENUM DEPOSIT, SAN MANUEL, ARIZONA (ABS.): IN SOC. ECON. GEOLOGISTS MEETING WITH AIME, ECON. GEOL., V. 70, NO. 1, P. 243.
- 16) CHAPMAN, T.L., 1947, SAN MANUEL COPPER DEPOSIT, PINAL COUNTY, ARIZ.: U.S. BUR. MINES, R.I. 410B, 93 P. (MAINLY DRILL-HOLE LOGS)
- 17) CREASEY, S.C., 1950, GEOLOGY OF THE ST. ANTHONY (MAMMOTH) AREA, PINAL COUNTY, ARIZONA: IN ARIZONA ZINC AND LEAD DEPOSITS, PT. 1. ARIZ. BUR. MINES, GEOL. SER. NO. 18, BULL. 156, P. 63-84.
- 18) CREASEY, S.C. 9. (AND JACKSON, E.D., AND GULBRANDSEN, R.A.) RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-238 (1961)
- 19) CRESEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPERBEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 20) DAMON, P.E., LIVINGSTON, D.E., AND ERICKSON, R.C., 1962, NEW K-AR DATES FOR THE PRECAMBRIAN OF PINAL, GILA, YAVAPAI, AND COCONINO COUNTIES, ARIZONA: NEW MEXICO GEOLOGICAL SOC. FIELD CONF. 13TH, GUIDEBOOK OF THE MOGOLLON RIM, EAST-CENTRAL ARIZONA, P. 56.
- 21) DAMON, P.E., 1959, GEOCHEMICAL DATING OF IGNEOUS AND METAMORPHIC ROCKS IN ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 18.
- 22) DEMPSEY, W.J. (AND HILL, M.E.) AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419 (1963)
- 23) DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 24) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 25) GUILBERT, J.M., AND LOWELL, J. DAVID, 1974, VARIATIONS IN ZONING PATTERNS IN PORPHYRY ORE DEPOSITS: CAN. MIN. METALL. BULL., V. 67, NO. 742, P. 99-109.
- 26) GUILBERT, J., AND LOWELL, J. DAVID, 1974, VARIATIONS IN ZONING PATTERNS IN PORPHYRY ORE DEPOSITS: CAN. INST. MIN. MET., TRANS., V. 77, P. 105-115.
- 27) HARSHBARGER, J.W., 1970, GROUNDWATER SYSTEMS IN THE SAN PEDRO VALLEY, MAMMOTH AREA, SECTION 6: IN MINING AND ECOLOGY IN THE ARID ENVIRONMENT -- CONF., TUCSON, ARIZ. 1970 PROC. (PETERS, W.C., ED.): UNIV. ARIZ., COLLEGE OF MINES, TUCSON, ARIZ., SEC. 6-1-6-2.
- 28) HATHEWAY, A.W., 1966, ENGINEERING GEOLOGY OF SUBSIDENCE AT SAN MANUEL MINE, PINAL COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS, 110 P.
- 29) HATHEWAY, A.W., 1964, ENGINEERING GEOLOGY OF SUBSIDENCE AT SAN MANUEL MINE, PINAL COUNTY, ARIZONA: (ABS.): MIN. ENGR., V. 16, NO. 12, P. 92.
- 30) HATHEWAY, A.W., 1969, SUBSIDENCE AT SAN MANUEL COPPER MINE, PINAL COUNTY, ARIZONA (ABS.): ABS. (1968), GEOL. SOC. AMERICA SPEC. PAPER 121, P. 511.
- 31) HATHEWAY, A.W., 1968, SUBSIDENCE AT SAN MANUEL COPPER MINE, PINAL COUNTY, ARIZONA: ARIZ. GEOL. SOC. S. ARIZ. GUIDEBOOK III, 113-124.
- 32) HATHEWAY, A.W., 1968, SUBSIDENCE AT SAN MANUEL COPPER MINE, PINAL COUNTY, ARIZONA: IN ENGINEERING GEOLOGY CASE HISTORIES, NO. 6 (KIERSCH, G.A., AND FLUHR, T.W., EDS.): GEOL. SOC. AM., P. 65-81.
- 33) HILLEBRAND, JAMES, 1953, GEOLOGY AND ORE DEPOSITS OF THE VICINITY OF PUTNAM, WASH., PINAL COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS.
- 34) KENDORSKI, F.S. III, 1971, INFLUENCE OF JOINTING ON ENGINEERING PROPERTIES OF SAN MANUEL MINE ROCK, (SAN MANUEL, PINAL CO., ARIZONA): UNIV. ARIZ., M.S. THESIS
- 35) KENDORSKI, F.S., AND MAHTAB, M.A., 1976, FRACTURE PATTERNS AND ANISOTROPY OF SAN MANUEL QUARTZ MONZONITE: ASSOC. ENG. GEOL., BULL., V. 13, NO. 1, P. 23-52.
- 36) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23.
- 37) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 38) KNOERR, A.W., 1956, SAN MANUEL--AMERICA'S NEWEST LARGE COPPER PRODUCER: ENG. MINING JOUR., V. 157, APRIL, P. 75-100.
- 39) KRIEGER, M.H., 1973, MEGABRECCIAS (LARGE LANDSLIDE BLOCKS) INTERBEDDED IN MIOCENE PLAYA AND ALLUVIAL DEPOSITS, SOUTH OF RAY, ARIZONA (ABS.): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, V. 5, NO. 7, P. 699 - 700.
- 40) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE LOOKOUT MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP 670, 2 P.

- 41) KRIEGER, M.H., CORNWALL, H.R., AND BANKS, N.G., 1968, BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: U.S. GEOL. SURVEY BULL. 1394-A, P. 54-62.
- 42) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-1109, 7 P.
- 43) KRIEGER, M.H., CORNWALL, H.R., BANKS, N.G., 1974, BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA, IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE USGS, 1972: U.S. GEOL. SURVEY, BULL. 1394-A, P. A54-A62.
- 44) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 45) LIVINGSTON, D.E., MAUGER, R.L., AND DAMON, P.E., 1968, GECHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 63, P. 30-36.
- 46) LOVERING, T.S., 1948, GEOTHERMAL GRADIENTS, RECENT CLIMATIC CHANGES, AND RATE OF SULFIDE OXIDATION IN THE SAN MANUEL DISTRICT, ARIZONA: ECON. GEOL., V. 43, P. 1-20.
- 47) LOVERING, T.S., L.C. HUFF, AND H. ALMOND (1950) DISPERSION OF COPPER FROM THE SAN MANUEL COPPER DEPOSIT, PINAL COUNTY, ARIZONA: ECON. GEOL. 45: 493-514.
- 48) LOWELL, J. DAVID, 1967, DISCOVERY AND EXPLORATION OF THE KALAMAZOO ORE BODY, SAN MANUEL DISTRICT, ARIZONA (ABS.): MIN. ENGR., V. 19, NO. 12, P. 41.
- 49) LOWELL, J. DAVID, 1968, DISCOVERY AND EXPLORATION OF THE KALAMAZOO ORE BODY, SAN MANUEL DISTRICT, ARIZONA (ABS.): ECON. GEOL., V. 63, NO. 1, P. 90.
- 50) MAHTAB, M.A., BOLSTAD, D.D., AND KENDORSKI, F.S., 1973, ANALYSIS OF THE GEOMETRY OF FRACTURES IN SAN MANUEL COPPER MINE, ARIZONA: U.S. BUR. MINES, REP. INVEST. R.I. 7715, 24 P.
- 51) MALOZEMOFF, P., 1968, THE EXCITING CHALLENGES IN MINING: MINING ENGR., V. 20, NO. 6, P. 57-60.
- 52) PELLETIER, J.D. (& CREASEY, S. CYRUS) ORE DEPOSITS (OF SAN MANUEL AREA, PINAL COUNTY, ARIZONA): USGS PROF. PAPER 471, P. 29-61, ILLUS., TABLES, GEOL. MAP (1965)
- 53) PELLETIER, J.D., 1957, GEOLOGY OF THE SAN MANUEL MINE: MINING ENGR., JULY, P. 760.
- 54) PETERSON, N.P. (SEE ALSO BUTLER, B.S., 15; KINKLE, A.R., JR.) 1. GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP, PINAL COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 171 P., MAPS (1938)
- 55) PETERSON, N.P., (1938B) GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA. ARIZ. BUR. MINES BULL. 144, GEOL. SERIES 11, 63 P.
- 56) PETERSON, N.P. 3. MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR.
- 57) PILLAR, C.L., 1954, PROGRESS ON THREE BIG SHAFTS REVEALS UP-TO-DATE SINKING PRACTICE: MINING ENGR., V. 6, NO. 7, P. 688-695.
- 58) SCHWARTZ, G.M., 1949, OXIDATION AND ENRICHMENT IN THE SAN MANUEL COPPER DEPOSIT, ARIZONA: ECON. GEOL., V. 44, P. 253-277
- 59) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 342-344, 346-352
- 60) SCHWARTZ, G.M. 9. GEOLOGY OF THE SAN MANUEL AREA, PINAL COUNTY, ARIZONA: USGS STRATEGIC MINER. INVEST. PRELIM. MAP 3-180 (1945)
- 61) SHAFIQUILLAH, M., DAMON, P.E., LYNCH, D.J., KUCK, P.H., AND REHRIG, W.A., 1978, MID-TERTIARY MAGMATISM IN SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK, 29TH FIELD CONF., LAND OF COCHISE, P. 231-241, P. 232, 236.
- 62) STEELE, H.J. AND RUBLY, G.R., 1948, SAN MANUEL PROSPECT: AIME TR., V. 178, P. 181-194
- 63) STEELE, H.J., AND RUBLY, G.R., 1947, SAN MANUEL (COPPER) PROSPECT (ARIZONA): AM. INST. MINING METALL. ENGR. TECH. PUB. 2255, MINING TECHNOLOGY, V. 11, NO. 5, 12 P.
- 64) TOBIE, R.L., 1971, AUTOMATED ROTARY CAR DUMPS AND ORE HOISTS AT THE SAN MANUEL MINE: IN SPECIAL MINING AND EXPLORATION ISSUE: SOC. MIN. ENG. AIME, TRANS., V. 250, NO. 4, P. 368-374.
- 65) USGS 2. LETTER FROM ACTING DIRECTOR, U.S. GEOLOGICAL SURVEY, TO ADMINISTRATOR, RECONSTRUCTION FINANCE CORP., GIVING AVAILABLE DATA ON GROUNDWATER IN THE VICINITY OF THE SAN MANUEL COPPER MINE, PINAL COUNTY, ARIZONA: GROUND-WATER BRANCH MINED. REP., 6 P. (1952)
- 66) LIVINGSTON, D.E., DAMON, P.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, 40 AR IN COGENETIC FEOLSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RESEARCH, V. 72, P. 1362-1375.
- 67) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL. V. 72, P. 639-644.
- 68) DAMON, P.E., ERICKSON, R.C., AND LIVINGSTON, D.E., 1963, K-AR DATING OF BASIN AND RANGE UPLIFT CATALINA MOUNTAINS, ARIZONA: NATL. ACAD. SCI. - NATL. RESEARCH COUNCIL PUB. 1075, P. 113-121.
- 69) CREASEY, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS ASSOCIATED WITH COPPER DEPOSITS,

SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA PROGRAM ANN. MEETINGS, P. 38. (ABS.).

70) ANTHONY, J.W., AND MCLEAN, W.J., 1976, JURBANITE, A NEW POST-MINE ALUMINUM SULFATE MINERAL FROM SAN MANUEL, ARIZONA: AM. MINERALOGIST, V. 61, P. 1-4.

RECORD 00052

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M899990

NAME AND LOCATION

DEPOSIT NAME..... ST. ANTHONY MINE

MINING DISTRICT/AREA/SUBDIST. MAMMOTH DISTRICT

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER 0000829

GENERAL REFERENCES

- 1) PETERSON, N.P., 1938, GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES, GEOL. SER. NO. 11, BULL. NO. 144, 53 P.
- 2) CREASEY, S.C., 1967, GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1218, 94 P., GEOL. MAP.
- 3) CREASEY, S.C., 1950, GEOLOGY OF THE ST. ANTHONY (MAMMOTH) AREA, PINAL COUNTY, ARIZONA: IN ARIZONA ZINC AND LEAD DEPOSITS, PT. 1. ARIZ. BUR. MINES, GEOL. SER. NO. 18, BULL. 156, P. 63-84.
- 4) GEOLOGY OF MAMMOTH MINE:
 - ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2, P. 1163-1190.
 - 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 21-23, 205 ETC.
 - 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 8) BIDEAUX, R.A., 1972, THE COLLECTOR: MINERAL. RECORD, V. 3, NO. 5, P. 198-201.
 - 9) BIDEAUX, R.A., IN PRESS, MINERALS OF THE MAMMOTH-ST. ANTHONY DEPOSIT AT TIGER, ARIZONA: MIN. RECORD.
 - 10) BLAKE, F.H. (1884) VANADINITE IN PINAL COUNTY, ARIZONA. AMER. JOUR. SCI. 28, 3RD SERIES: 145.
 - 11) CREASEY, S.C., 1965, GEOLOGY OF THE SAN MANUEL AREA, PINAL COUNTY, ARIZONA, WITH A SECTION ON ORE DEPOSITS, BY J.D. PELLETIER AND S.C. CREASEY: U.S. GEOL. SURV. PROF. PAPER 471, 64 P., GEOL. MAP.
 - 12) DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
 - 13) DEMPSEY, W.J. (AND HILL, M.E.) AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419 (1963)
 - 14) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 15) FAHEY, J.J. (1955) MURDOCHITE, A NEW COPPER LEAD OXIDE MINERAL. AMER. MIN. 40: 905-906.
 - 16) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
 - 17) GUILD, F.N. (1910) THE MINERALOGY OF ARIZONA. THE CHEMICAL PUBLISHING CO., EASTON, PA., 103 P.
 - 18) HARSHBARGER, J.W., 1970, GROUNDWATER SYSTEMS IN THE SAN PEDRO VALLEY, MAMMOTH AREA, SECTION 6: IN MINING AND ECOLOGY IN THE ARID ENVIRONMENT -- CONF., TUCSON, ARIZ. 1970 PROC. (PETERS, W.C., ED.): UNIV. ARIZ., COLLEGE OF MINES, TUCSON, ARIZ., SEC. 6-1-6-2.
 - 19) HILLEBRAND, JAMES, 1953, GEOLOGY AND ORE DEPOSITS OF THE VICINITY OF PUTNAM, WASH, PINAL COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS.
 - 20) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 21) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
 - 22) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY

- MAP GQ-1109, 7 P.
- 23)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE LOOKOUT MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP 670, 2 P.
- 24)MCKEE, T.N., 1972, ARIZONA'S FAMOUS SPECIMEN MINES: ARIZ. HIGHWAYS, V. 48, NO. 5, P. 8-9.
- 25)MCLEAN, W.J., BIDEAUX, R.A., AND THOMSEN, R.W., 1974, YEDLINITE, A NEW MINERAL FROM THE MAMMOTH MINE, TIGER, ARIZONA: AM. MINERAL., V. 59, NO. 11-12, P. 1157-1159.
- 26)NEWHOUSE, (1934) THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN AND CHROMIUM IN OXIDIZED LEAD DEPOSITS. AMER. MIN. 19: 209-220.
- 27)PALACHE, C.I. (1941B) DIABOLEITE FROM MAMMOTH MINE, TIGER, ARIZONA. AMER. MIN. 26: 605-612.
- 28)PANCZNER, W.D., 1976, THE MAMMOTH-ST. ANTHONY MINE, TIGER, ARIZONA; ITS HISTORY GEOLOGY, AND MINERALOGY: MIN. SOC. AMERICA-FRIENDS OF MINERALOGY SECOND BICENNIAL SYMPOSIUM FIELD TRIP, 9 P.
- 29)PETERSON, R. G., HAMILTON, J.C., AND MYERS, A.T., 1959, AN OCCURRENCE OF RHENIUM ASSOCIATED WITH URNIUTE IN COCONINO COUNTY, ARIZONA: ECON. GEOLOGY, V. 54, NO. 2, P. 254-267.
- 30)PETERSON, N.P. MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 124-127 (1938)
- 31)PETERSON, N.P. (1938A) GEOLOGY AND ORE DEPOSITS OF THE MAMMOTH MINING CAMP, PINAL COUNTY, ARIZONA, UNIV. ARIZONA PH.D. DISSERTATION, 171 P.
- 32)POGUE, J.E. (1913) ON CERUSSITE TWINS FROM THE MAMMOTH MINE, PINAL COUNTY, ARIZONA. AMER. JOUR. SCI. 35, 4TH SERIES: 90-92.
- 33)SHAFIQUILLAH, M., DAMON, P.E., LYNCH, D.J., KUCK, P.H., AND REHRIG, W.A., 1978, MID-TERTIARY MAGMATISM IN SOUTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC. GUIDEBOOK, 29TH FIELD CONF., LAND OF COCHISE, P. 231-241, P. 232, 236.
- 34)THOMAS, L.A., 1966, GEOLOGY OF THE SAN MANUEL ORE BODY: P. 133-142 IN TITLEY, S.R., AND HICKS, C.L., EDITORS (SEE 61).
- 35)WILLIAMS, S.A. (1966) THE SIGNIFICANCE OF HABIT AND MORPHOLOGY OF WULFENITE. AMER. MIN. 51: 1212-1217.
- 36)WILLIAMS, S.A., BIDEAUX, R.A., 1975, CREASEYITE, CU₂PB₂ (Fe,Al)₂Si₅O₁₇·6 H₂O: A NEW MINERAL FROM ARIZONA AND SONORA: MINERAL. MAG., V. 40, NO. 311, P. 227-231.
- 37)WILSON, E.O., J.B. CUNNINGHAM, AND G.M. BUTLER, 1934 (REVISED 1967), ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137
- 38)WOOD, M.M., MCLEAN, W.J., LAUGHON, R.B., 1975, THE CRYSTAL STRUCTURE AND COMPOSITION OF YEDLINITE: AM. MINERAL., V. 59, NO. 11-12, P. 1160-1165.
- 39)RICKARD, T.A., 1896, VEIN WALLS: AM. INST. MIN. ENG., TRANS., V. 26, P. 214, 233, 234.
- 40)HESS, F.L., 1924, MOLYBDENUM DEPOSITS -- A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14, 15.
- 41)STEWART, S.O., 1912, THE OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: MINING AND ENG. WORLD, V. 36, P. 952
- 42)BLAKE, W.P., 1901, REPORT OF THE GOVERNOR OF ARIZONA: ANNUAL REPORT OF THE DEPT. INTERIOR, 1901, P. 188-90.
- 43)NAETHING, F.S., AND MURPHY, P.R., 1934, PRIVATE REPORT FOR MAMMOTH-ST. ANTHONY, LTD.
- 44)VANDERWILT, J.W., 1935, ECONOMIC GEOLOGY OF THE MOHAWK-NEW YEAR MINE: PRIVATE REPORT FOR MOLYBDENUM GOLD MINING CO.
- 45)CREASEY, S.C. 9. (AND JACKSON, E.D., AND GULBRANDSEN, R.A.) RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-238 (1961)
- 46)CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 47)KRIEGER, M.H., CORNWALL, H.R., AND BANKS, M.G., 1968, BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: U.S. GEOL. SURVEY BULL. 1394-A, P. 54-62.
- 48)KRIEGER, M.H., 1973, MEGABRECCIAS (LARGE LANDSLIDE BLOCKS) INTERBEDDED IN MIOCENE PLAYA AND ALLUVIAL DEPOSITS, SOUTH OF RAY, ARIZONA (ABS.): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, V. 5, NO. 7, P. 699 - 700.
- 49)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 50)LIVINGSTON, D.E., MAUGER, R.L., AND DAMON, T.E., 1969, GEODCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 63, P. 30-36.
- 51)LADD, T.W., 1975, STRATIGRAPHY AND PETROLOGY OF THE QUITOURIS FORMATION NEAR MAMMOTH, PINAL COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.

RECORD 00053

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030576
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... ST. GEORGE MINE
SYNONYM NAME..... LEOPOLD

MINING DISTRICT/AREA/SUBDIST. COCHISE

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-05-44N 110-03-19W

UTM NORTHING UTM EASTING UTMZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 36
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4,945

POSITION FROM NEAREST PROMINENT LOCALITY: 6 KM NE OF THE KEYSTONE MINE; JUST SOUTH OF KEYSTONE (HAGERMAN) SHAFT

LOCATION COMMENTS: NW 1/4 OF SEC 36

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN W MO

MAIN COMMOD..... CU ZN
MINOR COMMOD.... W MO

MAIN ORE MINERALS:
CHALCOPYRITE, SPHALERITE, BORNITE

MINOR ORE MINERALS:
SCHEELITE, MOLYBDENITE, COPPER AND ZINC CARBONATES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: BANDS AND STREAKS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
OPEN PIT WITH INCLINES BELOW; DRILLED BY USBM (ABM FILES)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ABM FILES

PRODUCTION COMMENTS.... FROM PRIOR TO 1890 TO EARLY 1900'S 25 CARS AVERAGE 7.5% CU SHIPPED PRIOR TO 1903 (WILLCOX
STAR, JULY 3, 1903 IN COOPER AND SILVER, 1964, P. 174)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEVANIAN AND CAMBRIAN
HOST ROCK TYPES..... MARTIN FORMATION AND ABRIGO FORMATION

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (53 M.Y.) LIVINGSTON, ETAL, 1967)
IGNEOUS ROCK TYPES..... TEXAS CANYON QUARTZ MONZONITE IS IN AREA

AGE OF MINERALIZATION..... TERT (53 M.Y.)

PERTINENT MINERALOGY..... GARNET AND LIME SILICATES

IMPORTANT ORE CONTROL/LOCUS.. DRILLING SHOWED SOME DISSEMINATED ORE IN MIDDLE ABRIGO, SOME OXIDIZED ORE IN LOWER
MARTIN FM

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
THOROUGHLY OXIDIZED

COMMENTS (GEOLOGY AND MINERALOGY):
SCARCE SCHEELITE AND MOLYBDENITE IN GARNET AND LIME SILICATES

GENERAL REFERENCES

- 1) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA.
U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 174-175, 54, 137, 149, 150, 173, 174
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 59

RECORD 00056

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4999995

NAME AND LOCATION

DEPOSIT NAME..... TWIN BUTTE MINE

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT

EXPLORATION AND DEVELOPMENT

NATURE OF DISCOVERY..... A

YEAR OF FIRST PRODUCTION. 1970

GENERAL COMMENTS

REFERENCES FROM RECORD NUMBER W002686

GENERAL REFERENCES

- 1) BARTER, C.F., 1978 STRATIGRAPHY, ALTERATION, AND ORE CONTROLS IN THE MAIN ORE ZONE, TWIN BUTTES MINE, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROC. OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 115-116.
- 2) KELLY, J.L., 1977, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY, ARIZONA: AIME TRANS., V. 262, P. 110-116.
- 3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #35.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 5) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 93-87.
- 6) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 138.
- 7) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 8) KELLY, J.L., 1976, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY, ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 701.
- 9) KELLY, J.L., 1975, GEOLOGY OF THE TWIN BUTTES COPPER DEPOSIT, PIMA COUNTY ARIZONA (ABST.): MIN. ENG., V. 27, NO. 12, P. 70
- 10) ECKEL, F.B., (1930) GEOLOGY AND ORE DEPOSITS OF THE MINERAL HILL AREA, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 51 P.
- 11) GUILD, F.N. (1934) MICROSCOPIC RELATIONS OF MAGNETITE, HEMATITE, PYRITE AND CHALCOPYRITE, ECON. GEOL. 29: 107-130.
- 12) HOUSER, F.N., 1949, THE GEOLOGY OF THE CONTENTION MINE AREA, TWIN BUTTES, ARIZONA: UNIV. ARIZ., MS THESIS
- 13) PAYDIRT, MAY 27, 1970
- 14) SKILLINGS MINING REVIEW V. 59, #36.
- 15) TABULATION OF ORE, COPPER, AND MOLYBDENUM PRODUCTION FROM ARIZONA MINING OPERATIONS, 1974, STATE OF ARIZONA, DEPT. OF MINERAL RESOURCES.
- 16) MURPHY, J.M., "THE TWIN BUTTES RAILROAD," ARIZONIAN, THE JOURNAL OF ARIZONA HISTORY, VOL. V. NO. 1 AND 2.
- 17) KALT, W.D., JR., AWAKE THE COPPER GHOSTS., THE HISTORY OF BANNER MINING COMPANY AND THE TREASURE OF TWIN BUTTES, BANNER MINING CO., 1968.
- 18) KELLY, J.L., "GEOLOGICAL DEVELOPMENT AND GENERAL GEOLOGY OF THE TWIN BUTTES ORE BODY," AIME, ARIZONA SECTION, MINING GEOLOGY DIVISION, 1971 SPRING MEETING, APR. 1971, UNPUBLISHED.
- 19) KNAEBLE, J.B., "DEVELOPMENT OF THE TWIN BUTTES MINE FOR PRODUCTION," AIME PREPRINT 70A058, AIME ANNUAL

- MEETING, DENVER, COLO., FEB. 1970.
- 20) COOPER, J.R., "GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA," MISCELLANEOUS GEOLOGIC INVESTIGATIONS MAP 1-745, 1970, U.S. GEOLOGICAL SURVEY.
- 21) BAKER, R.C., "PRELIMINARY GEOLOGIC REPORT ON THE TWIN BUTTES MINES, PIMA COUNTY, ARIZONA," 1968, PRIVATE ANACONDA CO., REPORT.
- 22) MCALEER, J.F., AND BARTER, C.F., "FIRST PROGRESS REPORT, TWIN BUTTES AREA, PIMA COUNTY ARIZONA," JUN. 1973, PRIVATE ANACONDA CO., REPORT.
- 23) BARTER, C.F., "MESOZOIC STRATIGRAPHY OF THE TWIN BUTTES MINE, PIMA COUNTY, ARIZONA," APR. 1972, PRIVATE ANACONDA CO., REPORT.
- 24) BARTER, C.F., "SECOND PROGRESS REPORT, TWIN BUTTES PROJECT, PIMA COUNTY, ARIZONA," JUN. 1974, PRIVATE ANACONDA CO., REPORT.
- 25) MCCURRY, W.G., "SOME MINERALOGY AND ALTERATION FEATURES AT THE TWIN BUTTES MINE," AIME, ARIZONA SECTION, MINING GEOLOGY DIVISION, SPRING MEETING, MAY 1971, UNPUBLISHED.
- 26) CUMMINGS, J.B. 3. (AND ROMSLO, T.M.) INVESTIGATION OF THE TWIN BUTTES COPPER MINES, PIMA COUNTY, ARIZONA: USBM, RI 4732, 12 P. (1950)
- 27) WEAVER, R.R., 1971, UPLIFT AND GRAVITATIONAL ADJUSTMENT, RUBY STAR RANCH AREA, PIMA MINING DISTRICT, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 9, P. 197-211.
- 28) COOPER, JOHN R. 2. EKTACHROME AND EKTACHROME INFRARED PHOTOGRAPHY OF THE TWIN BUTTES AREA, ARIZONA (INTERAGENCY REPORT NASA-99): USGS OPEN-FILE REP. (1967)
- 29) LUTTON, R.J. 4. A LENSOIDAL RHYOLITE NEAR TWIN BUTTES, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 4, P. 43-49 (1961)
- 30) WHITCOMB, H.A. (1948) GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA. UNIV. ARIZONA M.S. THESIS, 83 P.
- 31) HOUSER, F.N. (1949) THE GEOLOGY OF THE CONTENTION MINE AREA, TWIN BUTTES, ARIZONA. UNIV. ARIZONA M.S. THESIS, 61 P.
- 32) WILSON, ELDRED D. 57. GEOLOGIC MAPS OF COPPER GLANCE, COPPER QUEEN, MINNIE, COPPER, BULLION, AND COPPER BUTTE MINE AREAS, TWIN BUTTES AREA, PIMA COUNTY: USBM, RI 4732, FIGS. 3A-3C (1950)
- 33) SEEGMILLER, B.L., 1974, HOW CABLE BOLT STABILIZATION MAY BENEFIT OPEN PIT OPERATIONS: MIN. ENG., V. 26, NO. 12, P. 29-34.
- 34) SEEGMILLER, BEN L., 1972, ROCK STABILITY ANALYSIS AT TWIN BUTTES, IN STABILITY OF ROCK SLOPES: SYMP. ROCK MECH., PROC., NO. 13, P. 511-536.

RECORD 00057

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030495
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... VENEZIA

MINING DISTRICT/AREA/SUBDIST. HASSAYAMPA DIST./BRADSHAW MTS.

COUNTRY CODE..... US

STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. UNION, ARIZ.

LATITUDE LONGITUDE
34-23-40N 112-25-02W

TWP..... 12N
RANGE.... 02W
SECTION.. 12
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: RIDGE EAST OF VENEZIA IN CROOKS CANYON 2 MILES SE OF MT TRITT
7 OF VENEZIA

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... CROOKS CANYON GRANODIORITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
MOLYBDENITE QUARTZ VEIN

GENERAL REFERENCES

- 1) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P., P. 24, 27, 114-126.
- 2) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-997.
- 3) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00058

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800113
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2

NAME AND LOCATION

DEPOSIT NAME..... WARREN DIST.

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY..... COPPER ORE WAS DISCOVERED IN THE WARREN MINING DISTRICT IN 1877 BY JACK DUNN, A MEMBER OF A GOVERNMENT SCOUTING PARTY, WHILE HE WAS SEARCHING FOR WATER IN MULE GULCH. THE FIRST MINING CLAIM WAS THE RUCKER, AND IT WAS LOCATED BY DUNN, LT. RUCKER, AND T.D. BYRNE ON AUGUST 2, 1877. THE HALERO CLAIM WAS LOCATED IN DECEMBER 1877 AND WAS LATER RELOCATED AS THE COPPER QUEEN, DESTINED TO BECOME ONE OF THE MAJOR PRODUCERS OF THE DISTRICT. (BRYANT AND METZ, 1977)

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

SULFIDE ORES IN THESE METAMORPHOSED WALLROCKS USUALLY OCCUR IN IRREGULAR BODIES, AS WIDELY SCATTERED GRAINS, OR AS HEAVILY DISSEMINATED GRAINS WHICH MAY REPLACE ONE PARTICULAR BED OR LAMINA IN THE ORIGINAL SEDIMENT. HOWEVER, SULFIDES ALSO OCCUR IN WELL-DEFINED VEINS, AND THE GANGUE MINERALS IN THESE INCLUDE QUARTZ AND CALCITE (COMMON), OR MINERALS SUCH AS BARITE, CHLORITE, AND MAGNETITE. SULFIDES, TOGETHER WITH MINERALS SUCH AS TREMOLITE, EPIDOTE, OR EVEN DIOPSIDE, MAY ALSO OCCUR IN VEINS THAT FORMED DURING THE PEAK OF METAMORPHISM. PYRITE IS COMMON EVERYWHERE, OFTEN AS GRANULAR MASSES OF GREAT SIZE. SIZEABLE MASSES OF OTHER SULFIDES HAVE BEEN DISCOVERED IN THE UNDERGROUND WORKINGS. VEINS OF ALABANDITE ARE OCCASIONALLY FOUND; BORNITE-CHALCOCITE INTERGROWTHS ARE COMMON, AS IS CHALCOPYRITE. VERY NICE PSEUDOHXAGONAL CHALCOCITE CRYSTALS HAVE BEEN FOUND IN THE COLE SHAFT. AS THE ABUNDANT PYRITE DISSOLVED, IMMENSE QUANTITIES OF ACID WERE PROVIDED WHICH FURTHERED DISSOLUTION NOT ONLY OF OTHER SULFIDES BUT OF ENCASING ROCKS, PARTICULARLY THE LIMESTONES.

WHERE ORE PODS OR VEINS OCCURRED IN LIMESTONE, THE ACIDS (CARRYING IRON AND COPPER) WERE EVENTUALLY NEUTRALIZED, BUT IN THE PROCESS SOME LEACHING OF LIMESTONE OCCURRED AND CAVERNS DEVELOPED. THE COPPER AND IRON REMAINING IN THESE "SPENT" ACIDS WERE DEPOSITED ALONG THE WALLS OF THESE CAVITIES, USUALLY AS THICK LAYERS OF IRON OXIDES (GOETHITE, HEMATITE) AND THEN AS CRUSTS OF COPPER CARBONATES OR OXIDES.

IN PODS OF SUPERGENE CLAYS IN SHALY LIMESTONES ONE OFTEN FINDS LARGE MASSES OR NUGGETS OF CRYSTALLINE CUPRITE AND NATIVE COPPER. CAVITIES IN THE CUPRITE PROVIDE GOOD HUNTING FOR SMALL BUT SPECTACULAR CRYSTALS OF RARER MINERALS SUCH AS CONNELLITE, BROCHANTITE, SPANGOLITE, ATACAMITE, AND CHLORARGYRITE. THESE MASSES ARE OFTEN THICKLY RIMMED WITH TENORITE, CHRYSOCOLLA, AND MALACHITE. IT WAS DOUBTLESS IN SIMILAR MATERIAL THAT PARAMELACONITE WAS FOUND.

AZURITE ALSO OCCURS IN CLAYEY SEAMS, OFTEN AS BALLS OR NODULES OF EXCEPTIONALLY LARGE (TO 4 1/2 INCHES) CURVED CRYSTALS EMBEDDED IN CLAY.

IN MANY PLACES THE ACID COPPER-BEARING WATERS WERE NOT COMPLETELY NEUTRALIZED, AND SULFATES SUCH AS BROCHANTITE FORMED.

OFTEN THE SULFATE-RICH WATERS WERE NOT THOROUGHLY NEUTRALIZED BECAUSE THEY REACHED CLAY-RICH SEAMS IN THE LIMESTONES; A VARIETY OF COPPER-ALUMINUM SULFATES OF WELL-CRYSTALLIZED MINERALS SUCH AS CHALCOALUMITE, CYANDTRICHITE, ANTLERITE, AND BROCHANTITE. THESE MINERALS OCCUR WITH BASALUMINATE, SOME UNIDENTIFIED ALUMINUM SULFATES, AND GIBBSITE.

IN AREAS WHERE PYRITE WAS ABUNDANT AND ACIDS FROM ITS DISSOLUTION WERE NOT NEUTRALIZED, ONE MAY FIND A VARIETY OF IRON-BEARING AND OTHER SULFATES. SOME OF THE MINERALS ARE FORMING IN OLD MINE WORKINGS; OTHERS ARE OLDER AND MORE STABLE SULFATES. WELL-CRYSTALLIZED VOLTAITE, ROEMERITE, RHODROCLASE, AND COQUIMBITE HAVE BEEN DESCRIBED IN THE PAST.

THESE MINERALS ALSO FORM STALACTITES OR STALAGMITES AND MAY BE ASSOCIATED WITH CHALCANTHITE. RECENTLY,

SPECTACULAR MASSES OF EPSOMITE CRYSTALS, IN PART ALTERED TO HEXAHYDRITE, HAVE BEEN FOUND. SOME TURQUOISE HAS BEEN RECOVERED FROM THE PORPHYRY AND NEARBY ROCKS. NANTHONY, WILLIAMS AND BIDEAUX, 1977)

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030587

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 171, P. 17-20
- 2) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) HUGUE, W.G. AND E.D. WILSON, 1950, BISBEE OR WARREN DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 17-20
- 5) HAYES, P.T. AND E.R. LANDIS, 1964, GEOLOGIC MAP OF THE SOUTHERN PART OF THE MULE MOUNTAINS, COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP I-418
- 6) BRYANT, D.G. AND R.A. METZ, 1966, GEOLOGY AND ORE DEPOSITS OF THE WARREN MINING DISTRICT, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, P. 189-203: UNIV. ARIZONA PRESS
- 7) BONILLAS, Y.S., J.B. TENNY, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 284-355
- 8) RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: BISBEE AND TOMBSTONE DISTRICTS: U.S. GEOL. SURVEY BULL. 710, P. 96-119
- 9) TRISCHKA, C., 1931, BISBEE OREBODIES REVIEWED: ENGR. MIN. JOUR., V. 131, NO. 11, P. 500-505
- 10) TRISCHKA, C., 1938, BISBEE DISTRICT IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 145, P. 37-41
- 11) RANSOME, F.L., 1904B, DESCRIPTION OF THE BISBEE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY FOLIO 112
- 12) RANSOME, F.L., 1904A, THE GEOLOGY AND ORE DEPOSITS OF THE BISBEE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 21, 168 P.
- 13) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
- 14) GILLULY, JAMES, COOPER, J.R., AND WILLIAMS, J.S., 1954 LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266, 49 P.
- 15) JOHNSON, W.P., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN. ARIZONA: ECON. GEOLOGY, V. 56, P. 916-940.
- 16) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 17) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN RIDGE, J.D., ED., ORE DEPOSITS OF THE UNITED STATES 1933-1967: AM. INST. MIN. MET. AND PET. ENG., N.Y., P. 1153-1190.
- 18) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 187, 98 P.
- 19) THE COPPER HANDBOOK, VOL. I THRU XI, 1900-1913, EDITED PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICH.
- 20) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22
- 21) BAIN, G.W., 1952, THE AGE OF THE "LOWER CRETACEOUS" FROM BISBEE, ARIZONA URANINITE: ECON. GEOL., V. 47, P. 305-315
- 22) BILLODEAU, W.L., 1978 THE GRAND CONGLOMERATE: A MID-MESOZOIC GROUP OF ISOLATED ALLUVIAL FAN COMPLEXES IN SOUTHEASTERN ARIZONA ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS, VOL. 10, NO. 3, P. 96.
- 23) BILLODEAU, W.L., 1977 SEDIMENTARY AND STRATIGRAPHIC EVIDENCE FOR MID-MESOZOIC NORMAL FAULTING ALONG MAJOR NORTHWEST-TRENDING FAULTS IN SOUTHEASTERN ARIZONA ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS VOL. 9, NO. 7, P. 898.
- 24) BONILLAS, Y.S. (AND TENNEY, J.B., AND FEUCHERE, LEON) GEOLOGY OF THE WARREN MINING DISTRICT: AIME BULL. 117, P. 1397-1465, MAPS (1916); (WITH DISCUSSION BY IRA B. JORALEMON, F.L. RANSOME, AND L.C. GRATON): TRANS., V. 55, P. 284-355, MAPS (1917)
- 25) CREASEY, S.C., AND DISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.

- 26) DOUGLAS, J.. 1899, THE COPPER QUEEN MINE: AIME TR., V. 29, P. 511-546 (HISTORICAL)
- 27) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 28) MERWIN, H.E., AND E. POSNJAK (1937) SULPHATE ENCRUSTATIONS IN THE COPPER QUEEN MINE, BISBEE, ARIZONA. AMER. MIN. 22: 567-571.
- 29) MITCHELL, G.J. (1920) VERTICAL EXTENT OF COPPER ORE MINERALS IN THE JUNCTION MINE, WARREN DISTRICT, ARIZONA. ENGR. MIN. JOUR. 109: 1411.
- 30) NYE, T. (1968) THE RELATIONSHIP OF STRUCTURE AND ALTERATION TO SOME ORE BODIES IN THE BISBEE (WARREN) DISTRICT, COCHISE COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 212 P.
- 31) PERRY, V.D., 1961, SIGNIFICANCE OF MINERALIZED BRECCIA PIPES: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 220, P. 216-226.
- 32) RANSOME, F.L. (1902) COPPER DEPOSITS OF BISBEE, ARIZONA. U.S. GEOL. SURVEY BULL. 213: 149-157.
- 33) RANSOME, F.L. (1903) THE COPPER DEPOSITS OF BISBEE, ARIZONA. ENGR. MIN. JOUR. 75: 444.
- 34) RANSOME, F.L., 1904, 8. THE GEOLOGY AND COPPER DEPOSITS OF BISBEE, ARIZONA: AIME TRANS., V. 34, P. 618-642, MAP (1904)
- 35) RANSOME, F.L., 1906, 9. GEOLOGY OF THE BISBEE DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 81, P. 1103 (1906)
- 36) RANSOME, F.L., 1914, 7. DESCRIPTION OF THE BISBEE QUADRANGLE, ARIZONA: USGS FOLIO 112, 17 P., MAPS (1904); REPRINT: 19 P., MAPS (1914)
- 37) RANSOME, F.L., 1932, GENERAL GEOLOGY AND SUMMARY OF ORE DEPOSITS, IN ORE DEPOSITS OF THE SOUTHWEST: 16TH INT. GEOL. CONG. GUIDEBOOK 14, P. 1-23.
- 38) ROVE, D.N., 1947, 2. SOME PHYSICAL CHARACTERISTICS OF CERTAIN FAVORABLE AND UNFAVORABLE ORE HORIZONS (BISBEE); PART 1: ECON. GEOL., V. 42, NO. 1, P. 57-77 (1947); PART 2: V. 42, NO. 2, P. 161-192 (1947)
- 39) SCHWARTZ, F.C. AND C.F. PARK, JR. (1932) A MICROSCOPIC STUDY OF ORES FROM THE CAMPBELL MINE, BISBEE, ARIZONA. ECON. GEOL. 27: 39-51.
- 40) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 344-345, 346-352
- 41) SUMNER, JOHN S. 3. (AND SCHNEPFE, ROBERT N.) UNDERGROUND GRAVITY SURVEYING AT BISBEE, ARIZONA: IN MIN. GEOPHYSICS, V. 1, CASE HIST.; TULSA, OKLA., SOC. EXPLOR. GEOPHYSICISTS, P. 203-251 (1966); (ABS.): GEOPHYS. ABS., NO. 247, ITEM 276 (1967)
- 42) TENNEY, J.B., 1927, THE BISBEE MINING DISTRICT: ENGR. AND MIN. JOUR., V. 123, NO. 21, P. 837-841
- 43) TENNEY, J.B. 8. THE BISBEE MINING DISTRICT: IN ORE DEPOSITS OF THE SOUTHWEST: 16TH INT. GEOL. CONG., GUIDEBOOK 14, P. 40-67, MAPS (1932)
- 44) TENNEY, J.B., 1935, BISBEE DISTRICT: IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 221-228
- 45) WILLIAMS, S.A.; KHIN, BASAM. 1971 CHALCOALUMITE FROM BISBEE, ARIZONA MINERAL. REC., VOL. 2, NO. 3, P. 126-129.
- 46) WILLIAMS, S.A.; MATTER, PHILLIP, III 1975 GRAFITE, A NEW BISBEE MINERAL MINERAL REC., V6, NO. 1, P. 32-34.
- 47) WISSER, E., 1927, OXIDATION SUBSIDENCE AT BISBEE, ARIZONA: ECON. GEOL., V. 22, P. 761-790

RECORD 00060

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030355
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... WHEELER WASH AREA
MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST/N. HUALAPAI MTS
COUNTRY CODE..... US
STATE CODE..... 04

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAR PEAK; HUALAPAI PEAK

LATITUDE LONGITUDE
35-06-33N 113-48-39W

UTM NORTHING UTM EASTING UTM ZONE NO
3888575. 243800. +12

TWP..... 20N 20N
RANGE.... 15W 15W
SECTION.. 13 23 24 14 22 25 26 27
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10 MI. E, 7 MI. S, 5 MI. SW OF KINGMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG AU MO CU HG PB W ZN

MAIN ORE MINERALS:
PYRITE, MOLYBDENITE CHALCOPYRITE

MINOR ORE MINERALS:
WOLFRAMITE SCHEELITE, GALENA, SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

(DISSEM.) PORPHYRY CU-MO; QUARTZ VEINS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT
STRIKE OF OREBODY.... NW

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

TELLURIDE CHIEF HAD UNDERGROUND WORKINGS ACCESSIBLE BY SHAFTS & ADITS WITH A 100 TON PER DAY MILL OPERATING AT ONE TIME. (VUICH, 1974). DRILL ROADS & DRILL PADS FOR 150 FT VALIDATION HOLES AND DIAMOND DRILL HOLES BETWEEN 800-1600 FT. DEEP HAVE BEEN DRILLED BETWEEN 1960-74, AS WELL AS GEDCHEMICAL & GEOPHYSICAL SURVEYS. (VUICH, 1974, P. 10)

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. VUICH 1974, P. 9

PRODUCTION COMMENTS.... THE STANDARD MINERALS (TELLURIDE CHIEF) PRODUCED AU, AG, CU, MO & W, AND THE CENTURY MINE ALSO HAD PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC & CRET
HOST ROCK TYPES..... QUARTZ DIORITE GNEISS & GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... MONZONITE GRANITE, APLITE DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... BIODITE IN COUNTRY ROCK DECREASES TOWARD ORE DEPOSIT (WICKES, 1917)

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS NOT AS PROMINENT, QUARTZ VEINLETS; GREATEST ALTERATION HAS HIGHER PERCENTAGE OF MOLYBDENITE (WICKES, 1917)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIATED ZONES OF VERTICAL FRACTURES AND PERPENDICULAR VERTICAL FAULTS (STRIKE SLIP) CONTAIN THE MOLYBDENITE (WICKES, 1917)

SIGNIFICANT ALTERATION:

HYDROTHERMAL ALTERATION INCLUDES A PYRITE HALO WITH LATERAL ZONING OF POTASSIC, SERICITIC, ARGILLIC, PROPYLLITIC

COMMENTS (GEOLOGY AND MINERALOGY):

INNERMOST ZONE IS MO-W VEINS, OUTWARD PROGRESSION IS TO CO-MO, PB-ZN-AG, AND AU

GENERAL REFERENCES

- 1) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 371, 197 P., P. 16.
- 2) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 3) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ. 63 P.
- 4) GENERAL GEOLOGY OF MAYNARD DISTRICT:
 ARIZ. DEPT. MINERAL RESOURCES 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES. PHOENIX.
 5) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 89-95
 6) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 235, #9.
 7) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P., P. 14, 25.
 8) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 9) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
 10) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 397, P. 29.
 11) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236, P. 196-198.
 12) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 13) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 14.
 14) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 GENERAL GEOLOGY OF HUALAPAI MTS:
 15) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
 16) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
 17) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
 18) HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
 19) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
 20) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 21) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 22) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
 23) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 24) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 25) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 26) LEMMON, D.M., AND THETO, D.L. 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
 27) MINING WORLD, V. 3, NO. 4, 1941.
 28) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 29) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 30) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, PP. 18-19.
 31) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
 32) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 33) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 34) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.

- 35) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 36) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 37) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 38) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 39) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
 - 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P., P. 11.
 - 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAH, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
 - 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
 - 43) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
 - 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
 - 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
 - 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEH, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
 - 47) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
 - 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
 - 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
 - 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D P. D50-D55.
 - 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
 - 52) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00063

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030423
RECORD TYPE..... X1
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... MONUMENT #2 MINE

MINING DISTRICT/AREA/SUBDIST. MONUMENT VALLEY

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... APACHE

QUAD SCALE
1: 0062500

QUAD NO OR NAME
DINNEHOTSO, ARIZ.-UTAH; SETSILTOO SPRINGS 2 NW, ARIZ.-UTAH 1:24,000

LATITUDE
36-55-58N

LONGITUDE
109-53-06W

TWP..... 41N
RANGE.... 23E
SECTION.. 29 32
MERIDIAN. G & AR.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 1/2 MILES S OF STATE LINE, 1 MILE W. OF COMB RIDGE

COMMODITY INFORMATION

COMMODITIES PRESENT..... U V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. V U

MAIN COMMOD..... V U

ANALYTICAL DATA(GENERAL)

U: V RATIO=1:5, LOW LIME

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT: CHANNEL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... CHANNEL IS AT LEAST 2 MILES LONG BY 3 MILES WIDE BY 50 FEET DEEP WITH INNER PALEOCHANNEL
ABOUT 700 FT WIDE AND SOME 30 FT DEEPER, ALIGNED TO N18 W.

MAX LENGTH..... 2 MILES

MAX WIDTH..... 700 FT

MAX THICKNESS..... 50 FT

STRIKE OF OREBODY.... N18W

COMMENTS(DESCRIPTION OF DEPOSIT):

CONSIDERABLE LOW GRADE ZONE SURROUNDS HIGH GRADE ZONE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

MINED ORIGINALLY FOR VANADIUM AND LATER BY UNDERGROUND AND OPEN PIT FOR URANIUM. CONCENTRATOR OPERATED TO UPGRADE
LOWGRADE MINERALIZATION. OPERATIONS CLOSED DOWN IN 1967 AND EQUIPMENT REMOVED (KEITH, 1970, P 214)

PRODUCTION

YES

LARGE PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	500		1942-1967	0.30 & 0.24% U3O8

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 214

PRODUCTION COMMENTS.... MOST PRODUCTIVE MINE IN ARIZONA

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 214

COMMENTS (RESERVES/POT RESOURCES).. DEPOSITS REPORTED ESSENTIALLY MINED OUT AND VERY LIMITED RESOURCES REMAIN
ALONG EDGES OF MINERALIZED ZONE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI PERM

HOST ROCK TYPES..... CHINLE FORMATION (SHINARUMP CONGLOMERATE AT BASE AND UNDERLYING DE CHELLY SANDSTONE

PERTINENT MINERALOGY..... ABUNDANT SILICIFIED AND CARBONIZED WOOD, SULFIDES INCLUDE BORNITE, GALENA, PYRITE,
SPHALERITE; OTHER MINERALS INCLUDE APATITE, CALCITE, CLAY MINERALS, GYPSUM, ILSEMANNITE, JAROSITE, LIMONITE,
OPAL, QUARTZ AND CHALCEDONY, AND WAD

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION OCCURS IN BANDS FILLING INTERSTICES IN SANDSTONE, COATING PEBBLES AND FRACTURES, AND CONCENTRATED IN ELONGATED, HORIZONTAL, FLATTENED CYLINDRICAL "RODS" UP TO 8 FT IN DIAMETER AND OVER 100 FT LONG.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

IN ECHELON STRIKE SLIP VERTICAL FAULTS ALONG CHANNEL

SIGNIFICANT ALTERATION:

UNDERLYING MOENKOPI FM ALTERED

COMMENTS (GEOLOGY AND MINERALOGY):

POWDERY BLUE ILCEMANNITE COATS AND IMPREGNATES FRIABLE CONGLOMERATE AND IS ASSOCIATED WITH CORVUSITE, NAVAJOITE, HEWETTITE, AND SOME URANINITE AS WELL AS GYPSUM, PARTLY ALTERED PYRITE, AND AN IRON SULFATE. IT APPEARS TO BE SECONDARY BUT NO PRIMARY MOLYBDENUM MINERAL HAS YET BEEN FOUND (JOHNSON, 1963)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PETRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELLIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-299.
- 2) WITKIN, J.J. AND R.E. THADEN (1963) GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA. U.S. GEOL. SURVEY BULL. 1103, 171 P.
- 3) JOHNSON, D.H., 1963, MINERALOGY AND PARAGENESIS AT THE MONUMENT NO. 2 AND CATO SELLS MINES, IN WITKIN, I.J., AND THADEN, R.E., GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA: U.S. GEOL. SURV. BULL. 1103, P. 113-135.
- 4) WITKIN, I.J. 8. URANIUM DEPOSITS AT BASE OF THE SHINARUMP CONGLOMERATE, MONUMENT VALLEY, ARIZONA: USGS BULL. 1030-C, P. 99-130 (1956)
- 5) FINNELL, T.L. 1. STRUCTURAL CONTROL OF URANIUM ORE AT MONUMENT NO. 2 MINE, APACHE COUNTY, ARIZONA: ECON. GEOL., V. 52, NO. 1, P. 25-35, ILLUS. (1957); (DISCUSSION BY MITCHAM, T.W.): ECON. GEOL., V. 52, NO. 5, P. 586-589, ILLUS. (1957)
- 6) BIRDSEYE, H.S. URANIUM DEPOSITS IN NORTHERN ARIZONA: N. MEX. GEOL. SOC., GUIDEBOOK 9TH FIELD CONF., P. 161-163, ILLUS. (1958)
- 7) GRUNDY, W.D. 2. (AND DERTELL, E.W.) URANIUM DEPOSITS IN THE WHITE CANYON AND MONUMENT VALLEY MINING DISTRICTS, SAN JUAN COUNTY, UTAH, AND NAVAJO AND APACHE COUNTIES, ARIZONA: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 9TH FIELD CONF., P. 197-207, ILLUS. (1958)
- 8) WITKIN, I.J. 19. THE URANIUM-VANADIUM ORE DEPOSIT AT THE MONUMENT NO. 1-MITTEN NO. 2 MINE, MONUMENT VALLEY, NAVAJO COUNTY, ARIZONA: USGS BULL. 1107-C, P. 219-242 (1961)
- 9) COOLEY, M.E., HARSHBARGER, J.W., AKERS, J.P., AND HARDT, W.F., 1969, REGIONAL HYDROGEOLOGY OF THE NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY PROF. PAPER 521-A, 61 P., GEOL. MAPS SCALE 1:125,000.
- 10) REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 11) BREED, C.S., AND BREED, W.J., EDS, 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.
- 12) STEWART, J.H., POOLE, F.G., WILSON, R.F., AND BREED, C.S., 1972, CHANGES IN NOMENCLATURE OF THE CHINLE FORMATION ON THE SOUTHERN PART OF THE COLORADO PLATEAU: 1950S-1970, IN BREED, C.S., AND BREED, W.J., EDS., INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, P. 74-103.
- 13) GREGORY, H.E. (1917) GEOLOGY OF THE NAVAJO COUNTRY--A RECONNAISSANCE OF PARTS OF ARIZONA, NEW MEXICO, AND UTAH, U.S.G.S. PROF. PAPER 93, 161 PP.
- 14) ISACHSEN, Y.W., AND EVENSEN, C.G. (1955) GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS ON THE COLORADO PLATEAU, U.S.G.S. PROF. PAPER 300, P. 278.
- 15) CHENOWETH, W.L., AND MALAN, R.C., 1975, THE URANIUM DEPOSITS OF NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, P. 139-149.
- 16) JAMES, H.L., ED., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOL. SOC.

GUIDEBOOK 24, 206 P.

17)O'SULLIVAN, R.B., AND GREEN, M.W., 1973, TRIASSIC ROCKS OF NORTHEAST ARIZONA AND ADJACENT AREAS: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH, P. 72-78.

18)CHESTER, J.W. GEOLOGY AND MINERALIZATION OF HUNT'S MESA, MONUMENT VALLEY, ARIZONA: USAEC, RMO-801,9 P., MAPS (1951)

4) EVENSEN, C.G. 2. (AND GRAY, I.B.) EVALUATION OF URANIUM ORE GUIDES, MONUMENT VALLEY, ARIZONA AND UTAH: ECON. GEOL., V. 53, NO. 6, P. 639-662, ILLUS. (1958)

5)HAYNES, D.O., AND HACKMAN, R.J., 1978, GEOLOGY, STRUCTURE AND URANIUM DEPOSITS OF THE MARBLE CANYON 1 DEGREE BY 2 DEGREE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. INVEST. SER., NO. 1-1003.

6)O'SULLIVAN, R.B. 2. (AND BEIKMAN, H.) GEOLOGY, STRUCTURE, AND URANIUM DEPOSITS OF THE SHIPROCK QUADRANGLE, NEW MEXICO AND ARIZONA: USGS MAP I-345 (1963)

7)FINCH, W.I. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)

RECORD 00064

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030566
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... ABRIL MINE
MINING DISTRICT/AREA/SUBDIST. MIDDLEPASS DIST/DRAOON MTS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 PEARCE, ARIZONA

LATITUDE LONGITUDE
31-54-30N 109-59-29W

UTM NORTHING UTM EASTING UTM ZONE NO
3530500.0 595350.5 +12

TWP..... 17S
RANGE.... 23E
SECTION.. 34
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 6,600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 KM ALMOST DUE NORTH OF MT. GLENN IN DRAGON MTS.

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN CU PB AG AU MO BE LI CD GA

MAIN COMMOD..... ZN CU
MINOR COMMOD.... PB MO AG AU

MAIN ORE MINERALS:
SPHALERITE, CHALCOPYRITE

MINOR ORE MINERALS:

GALENA, MOLYBDENITE, FERRIMOLYBDITE, SILVER VALUES

ANALYTICAL DATA(GENERAL)

0.004-0.02% BEO; 0.0% W

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... BARGIN MINES INC., SHATTUCK DEMN MNG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

TACTITE; REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

ADITS, DRIFTS, RAISES

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE ACC		1.614	TON	1945	WILSON, 1950, P. 23
2 ZN ACC		500	LB	1945	
3 ORE ACC		7.123	TONS	1946	
4 ZN ACC		1523	LBS	1946	
5 ORE ACC		9.99	TONS	1947	
6 ORE ACC		1.214	TONS	1948	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, ABM FILE PAGES

PRODUCTION COMMENTS.... 20,000 TONS PB-ZN ORE 1945

CU ACC 188.162 LBS 1947

ZN EST 2435.91 LBS 1947

PB ACC 12.725 LBS 1947

AG ACC 3.508 OZ 1947

AU ACC 0.026 OZ 1947

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISSISSIPPI

HOST ROCK TYPES..... ESCABROSA METAMORPHOSED LIMESTONE TO HORNFELS, MARBLE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT

IGNEOUS ROCK TYPES..... STRONGHOLD GRANITE

AGE OF MINERALIZATION..... 25.9 (MARVIN ETAL 1973); 22 M.Y. DAMON AND BIKERMAN, 1964)

IMPORTANT ORE CONTROL/LOCUS.. ORE BODIES ARE IRREGULAR REPLACEMENTS IN IMPURE LIMESTONE BEDS IN THE LOWER 70 FT OF THE ESCABROSA LIMESTONE METAMORPHOSED TO HORNFELS, MARBLE AND TACTITE ABOVE THE INTRUSIVE CONTACT OF THE STRONGHOLD GRANITE. ORE IS LOCALIZED BENEATH A ZONE OF BEDDING PLANE FAULTS AND ARE ASSOCIATED WITH NORTHEAST FRACTURES. (WILSON, 1950 P. 24). THE SKARNS AND RELATED MINERALIZATION ARE CLOSELY ASSOCIATED WITH THE INTRUSION OF LAMPKOPHYRE DIKES (PERRY, 1964).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FRACTURE FILLING; A N 30-45 W FAULT DIPPING 50-60 NE BRINGS QUARTZITE ON SW AGAINST LIMESTONE ON NE.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 197, 98 P., P. 68
- 2) WILSON, E.D., 1950, DRAGON MOUNTAINS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 10-29., P. 23-26
- 3) DAMON, P.E. AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC., DIGEST, V. 7 P. 63-78.
- 4) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 5) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES
- 6) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 8) NEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6826, P. 58.
- 9) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22
- 10) PERRY, D.V., 1964, GENESIS OF THE CONTACT ROCKS AT THE ABRIL MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 11) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 319, P. 97.
- 12) CEDERSTROM, D.J., 1946B, THE STRUCTURAL GEOLOGY OF THE DRAGON MOUNTAINS, ARIZONA: AM. JOUR. SCI., VOL. 244 P. 9, P. 601-621
- 13) CEDERSTROM, D.J., 1946A, GEOLOGY OF THE CENTRAL DRAGON MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS

RECORD 00065

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W016133
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... BISBEE AREA
SYNONYM NAME..... EUREKA AND NORTH BISBEE GROUP

MINING DISTRICT/AREA/SUBDIST. WARREN

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 BISBEE, ARIZONA

LATITUDE LONGITUDE
27-30-00N 109-55-00W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 22S
RANGE..... 23E
SECTION.. 26 27
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: TOWN OF BISBEE

MAIN COMMOD..... CU
MINOR COMMOD..... AU AG

MAIN ORE MINERALS:
OXIDIZED COPPER MINERALIZATION

MINOR ORE MINERALS:
MOLYBDENITE PYRITE POWELLITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... EUREKA MNG. CO., NORTH BISBEE DEVELOPMENT CO., BISBEE COALITION MNG. CO.

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. RARE MOLYBDENITE, AS FILMS ON PYRITIC ORE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

POWELLITE AT BISBEE QUEEN SHAFT E OF WARREN

GENERAL REFERENCES

- 1) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156
- 3) THE COPPER HANDBOOK, VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914: HOUGHTON, MICH.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) KEITH, STANTON R., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.
- 6) ROGUE, W.G. AND E.D. WILSON, 1950, BISBEE OR WARREN DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 17-29
- 7) HAYES, P.T. AND E.R. LANDIS, 1964, GEOLOGIC MAP OF THE SOUTHERN PART OF THE MULE MOUNTAINS, COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP I-418
- 8) BRYANT, D.G. AND R.A. MEIZ, 1966, GEOLOGY AND ORE DEPOSITS OF THE WARREN MINING DISTRICT, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, P. 189-203: UNIV. ARIZONA PRESS
- 9) BONILLAS, Y.S., J.B. TENNY, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 284-355
- 10) RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: BISBEE AND TOMBSTONE DISTRICTS: U.S. GEOL. SURVEY BULL. 710, P. 96-119
- 11) TRISCHKA, C., 1931, BISBEE OREBODIES REVIEWED: ENGR. MIN. JOUR., V. 131, NO. 11, P. 500-505
- 12) TRISCHKA, C., 1938, BISBEE DISTRICT IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 145, P. 32-41.
- 13) RANSOME, F.L., 1904B, DESCRIPTION OF THE BISBEE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY FOLIO 112
- 14) RANSOME, F.L., 1904A, THE GEOLOGY AND ORE DEPOSITS OF THE BISBEE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 21, 168 P.
- 15) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
- 16) GILLULY, JAMES, COOPER, J.R., AND WILLIAMS, J.S., 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266.
- 17) JOHNSON, W.P., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN. ARIZONA: ECON. GEOLOGY, V. 56, P. 916-940.
- 18) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, F.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 19) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN RIDGE, J.D., ED., ORE DEPOSITS OF THE UNITED STATES 1933-1967: AM. INST. MIN. MET. AND PET. ENG., N.Y., P. 1153-1190.
- 20) KEITH, STANTON R., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 187, 98 P.
- 21) THE COPPER HANDBOOK, VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914: HOUGHTON, MICH.
- 22) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22
- 23) BAIN, C.W., 1952, THE AGE OF THE "LOWER CRETACEOUS" FROM BISBEE, ARIZONA URANINITE: ECON. GEOL., V. 47, P.

305-345

- 24)HILDEAU, W.L. 1978 THE GRAND CONGLOMERATE: A MID-MESOZOIC GROUP OF ISOLATED ALLUVIAL FAN COMPLEXES IN SOUTHEASTERN ARIZONA ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS, VOL. 10, NO. 3, P. 96.
- 25)HILDEAU, W.L. 1977 SEDIMENTARY AND STRATIGRAPHIC EVIDENCE FOR MID-MESOZOIC NORMAL FAULTING ALONG MAJOR NORTHWEST-TRENDING FAULTS IN SOUTHEASTERN ARIZONA ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS VOL. 9, NO. 7, P. 898.
- 26)BONTILLAS, Y.S. (AND TENNEY, J.B., AND FEUCHERE, LEON) GEOLOGY OF THE WARREN MINING DISTRICT: AIME BULL. 117, P. 1397-1465, MAPS (1916); (WITH DISCUSSION BY IRA B. JORALEMON, F.L. RANSOME, AND L.C. GRATON): TRANS., V. 55, P. 284-355, MAPS (1917)
- 27)CREASEY, S.C., AND DISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 28)DOUGLAS, J., 1899, THE COPPER QUEEN MINE: A.I.M.E. TR., V. 29, P. 511-546 (HISTORICAL)
- 29)MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 30)HERWIN, H.E., AND E. POSNJAK (1937) SULPHATE ENCRUSTATIONS IN THE COPPER QUEEN MINE, BISBEE, ARIZONA. AMER. MIN. 22: 567-571.
- 31)MITCHELL, G.J. (1920) VERTICAL EXTENT OF COPPER ORE MINERALS IN THE JUNCTION MINE, WARREN DISTRICT, ARIZONA. ENGR. MIN. JOUR. 109: 1411.
- 32)NYE, T. (1968) THE RELATIONSHIP OF STRUCTURE AND ALTERATION TO SOME ORE BODIES IN THE BISBEE (WARREN) DISTRICT, COCHISE COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 212 P.
- 33)PERRY, V.D., 1961, SIGNIFICANCE OF MINERALIZED BRECCIA PIPES: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 220, P. 216-226.
- 34)RANSOME, F.L. (1902) COPPER DEPOSITS OF BISBEE, ARIZONA. U.S. GEOL. SURVEY BULL. 213: 149-17.
- 35)RANSOME, F.L. (1903) THE COPPER DEPOSITS OF BISBEE, ARIZONA. ENGR. MIN. JOUR. 75: 444.
- 36)RANSOME, F.L., 1904, 8. THE GEOLOGY AND COPPER DEPOSITS OF BISBEE, ARIZONA: AIME TRANS., V. 34, P. 618-642, MAP (1904)
- 37)RANSOME, F.L., 1906, 9. GEOLOGY OF THE BISBEE DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 81, P. 1103 (1906)
- 38)RANSOME, F.L., 1914, 7. DESCRIPTION OF THE BISBEE QUADRANGLE, ARIZONA: USGS FOLIO 112, 17 P., MAPS (1904); REPRINT: 19 P., MAPS (1914)
- 39)RANSOME, F.L., 1932, GENERAL GEOLOGY AND SUMMARY OF ORE DEPOSITS, IN ORE DEPOSITS OF THE SOUTHWEST: 16TH INT. GEOL. CONG. GUIDEBOOK 14, P. 1-23.
- 40)ROVE, D.N., 1947, 2. SOME PHYSICAL CHARACTERISTICS OF CERTAIN FAVORABLE AND UNFAVORABLE ORE HORIZONS (BISBEE); PART 1: ECON. GEOL., V. 42, NO. 1, P. 57-77 (1947); PART 2: V. 42, NO. 2, P. 161-192 (1947)
- 41)SCHWARTZ, F.C. AND C.F. PARK, JR. (1932) A MICROSCOPIC STUDY OF ORES FROM THE CAMPBELL MINE, BISBEE, ARIZONA. ECON. GEOL. 27: 39-51.
- 42)SCHWARTZ, G.M., 1917, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 344-345, 346-352
- 43)SUMNER, JOHN S. 3. (AND SCHNEPFE, ROBERT N.) UNDERGROUND GRAVITY SURVEYING AT BISBEE, ARIZONA: IN MIN. GEOPHYSICS, V. 1, CASE HIST.; TULSA, OKLA., SOC. EXPLOR. GEOPHYSICISTS, P. 243-251 (1966); (ABS.): GEOPHYS. ABS., NO. 247, ITEM 276 (1967)
- 44)TENNEY, J.B., 1927, THE BISBEE MINING DISTRICT: ENGR. AND MIN. JOUR., V. 123, NO. 21, P. 837-841
- 45)TENNEY, J.B. 8. THE BISBEE MINING DISTRICT: IN ORE DEPOSITS OF THE SOUTHWEST; 16TH INT. GEOL. CONG., GUIDEBOOK 14, P. 40-67, MAPS (1932)
- 46)TENNEY, J.B., 1935, BISBEE DISTRICT: IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 221-228
- 47)WILLIAMS, S.A., KHIN, BASAW. 1971 CHALCOALUMITE FROM BISBEE, ARIZONA MINERAL REC., VOL. 2, NO. 3, P. 126-129.
- 48)WILLIAMS, S.A., MATTER, PHILLIP, III, 1975 GRAEMITE, A NEW BISBEE MINERAL MINERAL, REC., V. 6, NO. 1, P. 32-34.
- 49)WISSER, E., 1927, OXIDATION SUBSIDENCE AT BISBEE, ARIZONA: ECON. GEOL., V. 22, P. 761-790

RECORD 00066

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030558
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, J.C.
 DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... CALIFORNIA DISTRICT
 MINING DISTRICT/AREA/SUBDIST. CALIFORNIA DIST/CHIRICAHUA MTS
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
 1: 0062500 CHIRICAHUA PEAK AND PROTAL, AZ

LATITUDE LONGITUDE
 31-59-08N 109-17-20W

TWP..... 15S 17S
 RANGE.... 29E 31E
 MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: FROM APACHE PASS ON N. TO TEX CANYON ON S.

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU CU AG AU W BI CE MN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
 MINOR PRODUCTS.. ZN CU AG AU

MAIN COMMOD..... PB ZN CU AG AU
 MINOR COMMOD..... W BI CE MN MO

MAIN ORE MINERALS:

GALENA, SPHALERITE, CHALCOPYRITE

MINOR ORE MINERALS:

CERUSSITE, SCHEELITE, WULFENITE, ANGLESITE, PYRITE, SILVER CHLORIDES AND ALABANDITE, SMITHSONITE, MAGNETITE,

AZURITE, MALACHITE, CHRYSOCOLLA, COPPER, PSILOMELANE, PYROLUSITE, ARSENOPYRITE, SCHEELITE, POWELLITE, GOLD
VALUES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, PYROMETASOMATIC REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SCATTERED MINES AND PROSPECTS, MOSTLY WITH LIMITED WORKINGS FROM TUNNELS, ADITS, AND RELATIVELY SHALLOW
SHAFTS.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OREBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	38	TONS		1880-1970	
16 ORE AND CONC.	2068	TONS		1902-1954	DREWES, 1973, P. 5
17 AU ACC	0.29	OZ		1902-1954	
18 AG ACC	1.17	OZ		1902-1954	
19 PB ACC	4.035	TONS		1902-1954	
20 ZN ACC	0.582	TONS		1902-1954	
21 CU ACC	0.176	TONS		1902-1954	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 51; DREWES, 1973, P. 5

PRODUCTION COMMENTS.... BASE METAL SULFIDES AND MINOR TUNGSTEN ORE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ, CRET
HOST ROCK TYPES..... LIMESTONE AND QUARTZITE

AGE OF ASSOC. IGNEOUS ROCKS.. MID TERT.
IGNEOUS ROCK TYPES..... MONZONITE TO DIORITE DIKES FROM JHUS CANYON STOCK

IMPORTANT ORE CONTROL/LOCUS.. SILICIFIED FAULT ZONES, REPLACEMENT PIPES AND LENSES ALONG QUARTZ DIKES AND
PYROMETAMORPHOSED PALEOZOIC LIMESTONES AND QUARTZITES

GENERAL REFERENCES

- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255

P., P. 121, 156, 205.

- 6) BAUGER, S.S., 1911, THE CHIRICAHUA MOUNTAINS: ENGR. MIN. JOUR., V. 91, P. 663
- 7) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 8 P., P. 51-55.
- 8) BRITTAIN R.L. GEOLOGY AND ORE DEPOSITS OF THE WESTERN PORTION OF THE HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 97 P. (1954)
- 9) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
- 10) COLL, A., 1910, THE CALIFORNIA DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 503
- 11) COOPER, JOHN R. 5. RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213 (1960)
- 12) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 13) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK COMPANY NEW YORK
- 14) RAYDON, G.T. GEOLOGY OF THE NORTHEASTERN CHIRICAHUA MOUNTAINS, ARIZONA: UNIV. CALIF. MA THESIS (1952)
- 15) SABINS, F.F., 1955, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF VANAR QUADRANGLES, ARIZONA: YALE UNIV., PHD THESIS
- 16) SABINS, F.F., 1957A, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF THE VANAR QUADRANGLES, ARIZONA: GEOL. SOC. AMERICA BULL., V. 68, P. 1315-1342
- 17) SABINS, F.F., 1957B, STRATIGRAPHIC RELATIONS IN THE CHIRICAHUA AND DOS CABEZAS MOUNTAINS, ARIZONA: AM. ASSOC. PETROLEUM GEOLOGISTS BULL., V. 41, P. 466-510
- 18) PAPKE, KEITH G. GEOLOGY AND ORE DEPOSITS OF THE EASTERN PORTION HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 99 P., MAPS (1952)
- 19) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 P., P. 227-233.
- 20) DREWES, H. WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY, ARIZONA: USGS BULL. 1385-A, 53 P.
- 21) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 182-205, P. 189.
- 22) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.
- 23) EATON, G.P., 1970, ALTERED (PYRITIZED) ROCKS IN SAN SIMON VALLEY, SOUTHEASTERN ARIZONA: GEOLOGICAL SURVEY RESEARCH 1970, CHAPTER A, U.S. GEOL. SURVEY, PROF. PAPER 700-A, P. A 37
- 24) ENLWS, H.E. 4. WELDED TUFFS OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AM. BULL., V. 66, NO. 10, P. 1215-1246, MAP (1955)
- 25) ENLWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)
- 26) FERNANDEZ, L.A., JR., AND ENLWS, H.E., 1966, PETROGRAPHY OF THE FARAWAY RANCH FORMATION, CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. GUIDEBOOK III, P. 209-214.
- 28) MARJANIEMI, D.K., 1969, GEOLOGIC HISTORY OF AN ASHFLOW SEQUENCE AND ITS SOURCE AREA IN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 176 P.
- 29) PAIGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 380, P. 299-211
- 30) SAUER, CARL BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6, P. 339-414 (1930)

RECORD 00067

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030588
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... CAMPBELL MINE
SYNONYM NAME..... CAMPBELL ORE BODY

MINING DISTRICT/AREA/SUBDIST. WARREN DIST/BISBEE AREA/MULE MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 BISBEE, ARIZONA

LATITUDE LONGITUDE
31-25-28N 109-53-23W

UTM NORTHING UTM EASTING UTM ZONE NO
3477000.0 596050.0 +12

TWP..... 23S
RANGE.... 24E
SECTION.. 15
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BISBEE

MAIN ORE MINERALS:
OXIDIZED COPPER (MALACHITE AND AZURITE)

MINOR ORE MINERALS:
WULFENITE, MINOR LEAD AND ZINC CERUSSITE, SMITHSONITE, NEMITITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... CALOMET AND ARIZONA MNG. CO., PHELPS DOGGE CORP.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973 P. 85

PRODUCTION COMMENTS.... SEVERAL HUNDRED THOUSAND TONS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB, DEV MISS
HOST ROCK TYPES..... ABRIGO LIMESTONE, MARTIN FORMATION, ESCABROSA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. (18 MY CREASEYS KISTLER 1962)
IGNEOUS ROCK TYPES..... PORPHYRY DIKES AND SILLS

AGE OF MINERALIZATION..... JUR (N/80 MY)

IMPORTANT ORE CONTROL/LOCUS.. WULFENITE ASSOC. WITH COPPER, MALACHITE, CERUSSITE, SMITHSONITE, AZURITE, AND
MERMITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
WULFENITE AS SMALL CRYSTALS BETWEEN 1700 AND 2500 LEVELS; K5, N70, N75, N80, N85 -- SEE DISTRICT SUMMARY)

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 2) BRYANT, D.G. AND R.A. METZ, 1966, GEOLOGY AND ORE DEPOSITS OF THE WARREN MINING DISTRICT, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, P. 189-203: UNIV. ARIZONA PRESS
- 3) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
- 4) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) TRISCHKA, C., 1938, BISBEE DISTRICT IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 145, P. 32-41
- 7) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.

RECORD 00068

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030570
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... COCHISE DISTRICT
SYNONYM NAME..... JOHNSON CAMP

MINING DISTRICT/AREA/SUBDIST. COCHISE DISTRICT/LITTLE DRAGON MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZ.

LATITUDE LONGITUDE
32-06- N 110-04- W

TWP..... 15S 16S
RANGE.... 22E 23E
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR JOHNSON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN W PB AG AU BI F

MAIN COMMOD..... CU ZN W
MINOR COMMOD.... AG AU BE F PB

MAIN ORE MINERALS:

CHALCOPYRITE SPHALERITE

MINOR ORE MINERALS:

POWELLITE HUEBNERITE, SCHEELITE FLUORITE, AZURITE MALACHITE, SMITHSONITE BORNITE, GALENA, CUPROTUNGSTITE,
SILVERVALUES, CHRYSOCOLLA; MOLYBDENITE, MAGNETITE, GOLD VALUES, CHALCOCITE, CERUSSITE, ANGLESITE,
TETRADYMIT, BERYL, WULFENITE HEMIMORPHITE, AURICHALCITE, TENORITE, WOLFRAMITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

ORES PRODUCED FROM THE DISTRICT FROM 1902-1942 INCLUSIVE AVERAGED ABOUT 4.3% COPPER, 0.9 OZ AG/TON, AND AN UNKNOWN AMOUNT OF ZINC. MOST OF ORES PRODUCED SINCE 1942 CARRIED LESS COPPER BUT UP TO 10% OR MORE ZINC. HEART OF OREBODY IS HIGH IN COPPER AND FRINGES ARE HIGH IN ZINC. ORES OF THE REPUBLIC, MAMMOTH, AND COPPER CHIEF MINES CONTAIN AN AVERAGE OF 0.02% PB, 0.002 OZ AU/TON, A LITTLE TUNGSTEN ABOUT 0.1% WO₃, AND A TRACE OF MOLYBDENUM. (COOPER, 1950, P. 38-39.)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... FIRST LOCATIONS MADE IN EARLY 1870'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC, REPLACEMENT, QUARTZ VEINS.

FORM/SHAPE OF DEPOSIT: TABULAR, VEINS OR CHIMNEYS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL TO LARGE MINES AND PROSPECTS. CYPRESS JOHNSON INITIALLY MINED METASOMATIC MASSIVE SULFIDE DEPOSITS UNDER GROUND. CURRENTLY A SECONDARY COPPER OXIDE DEPOSIT IS BEING OPEN-PIT MINED (CLAYTON, 1979)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	1600	TONS	1880-1972		
16 CU EST	33000	LBS	1880-1947		COOPER 1950
17 ZN EST	15301	LBS	1880-1947		
18 AG EST	358	OZ	1880-1947		
19 PB EST	30	LBS	1880-1947		

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 55

PRODUCTION COMMENTS.... PRODUCTION PEAK IN 1880'S CAME FROM RELATIVELY HIGH-GRADE OXIDIZED ORES AND LATER PEAKS DURING WORLD WAR I AND AFTER 1944 CAME FROM LOWER GRADE SULFIDE ORES (COOPER, 1950, P. 30)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ
HOST ROCK TYPES..... LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y., LIVINGSTON ET AL 1967)
IGNEOUS ROCK TYPES..... TEXAS CANYON QUARTZ MONZONITE, APLITE AND LAMPORPHYRE.

AGE OF MINERALIZATION..... TERT. (53 M.Y., LIVINGSTON AND OTHERS, 1967)

PERTINENT MINERALOGY..... QUARTZ CALCITE JAROSITE; SKARNS=GARNET, MOLLASTONITE, DIOPSIDE, EPIDOTE, TRINOLITE

IMPORTANT ORE CONTROL/LOCUS.. ORE OCCURS AT INTERSECTIONS OF MINERALIZED FRACTURES AND FAVORABLE BEDS. MOST PRODUCTIVE BEDS ARE IN MIDDLE MEMBER OF ABRIGO FORMATION, WHICH IS INTERBEDDED LIMESTONE, SHALE AND SANDSTONE AND WHICH IS LESS SENSITIVE TO METAMORPHISM AND SILICIFICATION THAN OTHER BEDS. SH LIMESTONES OF NACO GROUP ARE ALSO FAVORABLE.

MINERALIZING FRACTURES OFTEN CONTAIN VEIN QUARTZ WITH ORE MINERALS, FLUORITE, AND POTASH FELDSPAR AND INDICATE THE FRACTURE SHOULD BE FOLLOWED TO ITS INTERSECTION WITH THE FAVORABLE BEDS.

THE LARGEST ORE BODIES OCCUR NEARLY PARALLEL TO BUT SOME DISTANCE AWAY FROM RELATIVELY LARGE FAULTS. (COOPER, 1950, P. 37-38). PERMEABILITY IS IMPORTANT (COOPER AND HUFF, 1951)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

PRE-MINERALIZATION FAULTS INCLUDE: N5-30 E FAULTS AND FRACTURES DIPPING 60-80 SE; N60-90 E FAULTS DIP 30-60; N10-45 W DIP 65 SW AND NE

SIGNIFICANT ALTERATION:

PYROMETASOMATIC ALTERATION; WIDER ARGILLIC ALTERATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THERMAL METASORPHISM, FOLLOWED BY BRECCIATION, FOLLOWED BY ORE MINERALS DEPOSITION AND METASOMATISM, FOLLOWED BY MINOR OXIDATION OF ORES.

COMMENTS (GEOLOGY AND MINERALOGY):

POWELLITE PSEUDOMORPHS AFTER MOLYBDENITE

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 2) BLAKE, W.P., 1899, HUEBNERITE IN ARIZONA: AIME TRANS., V. 28, P. 543-546
- 3) COOPER, JR., 1959, SOME GEOLOGIC FEATURES OF THE DRAGON QUADRANGLE, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK II SOUTHERN ARIZ., P. 139-145
- 4) ENLWS, H.E., 1939, GEOLOGY AND ORE DEPOSITS OF THE LITTLE DRAGON MOUNTAINS: UNIV. ARIZ., PHD THESIS
- 5) HESS, F.L. AND E.S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725
- 6) GILLULY, J., J.R. COOPER, AND J.S. WILLIAMS, 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266
- 7) BAKER, A. BRO., 1953, 1954, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: MIN. ENGR., V. 5, NO. 12, P. 1272-1277; AIME TRANS., V. 196, P. 1272-1277
- 8) HEINEMAN, R.E.S. (1927) THE GEOLOGY AND ORE DEPOSITS OF THE JOHNSON MINING DISTRICT, ARIZONA. UNIV. ARIZONA M.S. THESIS, 45 P.
- 9) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 10) COOPER, J.R. (1957) METAMORPHISM AND VOLUME LOSSES IN CARBONATE ROCKS NEAR JOHNSON CAMP, COCHISE COUNTY, ARIZONA. GEOL. SOC. AMER. BULL. 68: 577-610.
- 11) KELLOGG, L.D., 1906, SKETCH OF THE GEOLOGY AND ORE DEPOSITS OF THE COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZONA: ECON. GEOL., V. 1, P. 651-659
- 12) SCOTT, W.A., 19168, MINING OPERATIONS AT JOHNSON, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 141-143
- 13) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 14) RANSOME F.L., (1919) THE COPPER DEPOSITS OF RAY AND MIAMI, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 115, 192 P.
- 15) ROMSLO, T.M., 1949, INVESTIGATION OF KEYSTONE AND ST. GEORGE COPPER-ZINC DEPOSITS, COCHISE COUNTY, ARIZONA: U.S. BUR. MINES RI 4504, 21 P.
- 16) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. WOOD: PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK
- 17) COOPER, J.R. AND L.C. HUFF, 1951, GEOLOGICAL INVESTIGATIONS AND GEOCHEMICAL PROSPECTING EXPERIMENT AT

JOHNSON, ARIZONA: ECON. GEOL., V. 46, P. 731-756

18) COOPER, J.R., 1950, JOHNSON CAMP AREA, COCHISE COUNTY, ARIZONA, IN ARIZONA ZINC AND LEAD DEPOSITS, PART I: ARIZONA BUR. MINES BULL. 156, P. 30-39.

19) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

20) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.

21) CLAYTON, R.L., 1978, ALTERATION AND MINERALIZATION OF THE CYPRUS JOHNSON DEPOSIT, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 17-24.

22) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650

23) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58.

24) KING, 1969, P. 236, #27

25) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318

26) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P.

27) BAKER, ARTHUR, 3D, 1952, PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: PH.D. THESIS, STANFORD UNIVERSITY, 101 P.

28) BAKER, ARTHUR, 3D, 1953, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: AM. INST. MINING METALL. ENGINEERS TRANS., TECH. PAPER 36841; MINING ENG., V. 5, P. 1272-1277.

29) COOPER, J.R., 1957, METAMORPHISM AND VOLUME LOSSES IN CARBONATE ROCKS NEAR JOHNSON CAMP, COCHISE COUNTY, ARIZONA: GEOL. SOC. AMERICA BULL., V. 68, P. 577-610.

30) LIVINGSTON, D.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, ARGON 40 IN CO-GENETIC FELDSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RES., V. 72, P. 1361-1375.

31) KANTOR, J.A., 1975, SUBSURFACE STRUCTURE AND ALTERATION ON THE FLANKS OF THE LITTLE DRAGON MOUNTAINS, COCHISE COUNTY, ARIZONA: PRESENTATION AT BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SYMPOSIUM SPONSORED BY NEW MEXICO AND ARIZONA GEOL. SOCIETIES, SILVER CITY, NEW MEXICO.

RECORD 00069

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030582
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... DEFIANCE MINE
SYNONYM NAME..... COSTELLO GROUP

MINING DISTRICT/AREA/SUBDIST. TURQUOISE DIST, GLEESON

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GLEESON, ARIZ.

LATITUDE LONGITUDE
31-44-37N 109-49-19W

TWP..... 19S
RANGE.... 25E
SECTION.. 32
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR TOWN GLEESON ON GLEESON RIDGE 400 FT NW OF SILVER BELL SHAFT

LOCATION COMMENTS: NW 1/4 OF SEC 32

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU AU ZN MO

MAIN COMMOD..... PB AG ZN
MINOR COMMOD.... CU AU MO

MAIN ORE MINERALS:
CERUSSITE, ANGLESITE, MALACHITE

MINOR ORE MINERALS:

WULFENITE AZURITE, MELACONITE, AURICHALCITE, SMITHSONITE, CALAMINE, PYROLUSITE CERARGYRITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT ALONG FAULT FISSURES

FORM/SHAPE OF DEPOSIT: SCATTERED

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

TUNNEL AND STOPING (IN 1924 TUNNEL WAS 125 FT LONG) TUNNEL

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	10	TONS	1900-1958	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 81

PRODUCTION COMMENTS.... 1923-24 300 TONS 8-14% PB, 4-7 OZ AG, ZN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN - PERMIAN

HOST ROCK TYPES..... NACO LIMESTONE GROUP (HORQUILLA AND ESCABROSA)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (75 M.Y., MARVIN AND OTHERS, 1978, RECALCULATED FROM 72.8 M.Y., HAYES, 1970, AND MARVIN AND OTHERS, 1973)

IGNEOUS ROCK TYPES..... SUGARLOAF QUARTZ, LATITE PORPHYRY. NUMEROUS NARROW TERTIARY DIKES AND SMALL IRREGULAR MASSES OF HORNBLende ANDESITE PORPHYRY, LAMPROPHYRE AND APLITE INTRUDE THE GLEESON QUARTZ MONZONITE (178-181 M.Y. OLD, ANDERSON, 1968, P. 1167; DREWES, 1976) IN THE WESTERN PART OF THE COURTLAND GLEESON AREA (MCRAE, 1966) THE APLITE DIKES ARE RELATED TO THE SUGARLOAF QUARTZ LATITE DIKES.

AGE OF MINERALIZATION..... CRET. (75 M.Y., MARVIN AND OTHERS, 1978) MCRAE (1966) SUGGESTS TWO PERIODS OF MINERALIZATION- ONE PRE-CRETACEOUS (PROBABLY NEVADAN) AND ONE DURING TERTIARY AFTER EMPLACEMENT OF SUGARLOAF QUARTZ LATITE.

PERTINENT MINERALOGY..... HEMATITE, LIMONITE, JAROSITE, CALCITE, ARAGONITE, KAOLIN

IMPORTANT ORE CONTROL/LOCUS.. NACO LIMESTONE IN CONTACT WITH QUARTZ MONZONITE. PROMINENT FAULT-FISSURE ZONE. VERY IRREGULAR OREBODIES AS REPLACEMENTS ALONG FRACTURES AND FAULT. ORE OXIDIZED. SCATTERED ORE BUNCHES ALONG FAULT. ORE BODIES OCCURRING IN LIMESTONES AS REPLACEMENTS ALONG FRACTURES AND FAULTS ARE LARGEST AND RICHEST WHERE FRACTURES INTERSECT, CHANGE DIP OR TURN AND WHERE FISSURING OCCURRED PARALLEL TO BEDDING.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

COMPLICATED FAULTING IN GLEESON RIDGE INCLUDES N TO NNW TRENDING GLEESON RIDGE OVER THRUST, NUMEROUS BEDDING PLANE (N30W, 45 E DIPPING) FAULTS, AND CROSS FAULTS OF NEARLY VERTICAL DIPS. THE THICK, BRECCIATED, LIMONITIC AND SILICIFIED FAULT ZONES ARE MINERALIZED (WILSON, 1927, MACRAE, 1966)

SIGNIFICANT ALTERATIONS:

NEARLY ALL ORE AND ASSOCIATED MINERAL ARE OXIDIZED AND OCCUR ABOVE THE WATER TABLE. LEAD ORES SEEM TO HAVE BEEN OXIDIZED IN PLACE; SILVER MAY HAVE BEEN TRANSPORTED SLIGHTLY.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDATION OF PYRITE YIELDED SULPHURIC ACID WHICH DISSOLVED THE COPPER MINERALS AND REDEPOSITED THEM AS MALACHITE AND AZURITE BY CALCIUM CARBONATE OF LIMESTONE AND AS PROBABLE MELACONITE ALONG WITH OXIDES OF MANGANESE. THE OXIDIZED MASSES ARE PULVERULENT, OFTEN SILICEOUS, BROWN, YELLOW, OR DARK MASSES OF LIMONITES AND BLACKS COLOR OF MANGANESE AND COPPER.

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS AS CRYSTALS LINING SOLUTION CAVITIES OR SCATTERED THROUGH MASSES OF OXIDIZED LEAD ORE AND MANGANITIC MATERIAL. SILVER PROBABLY OCCURS AS CERARGYRITE DISSEMINATED WITHIN ANGLESITE OR CERUSSITE AND ELSEWHERE. THE SMALL AMOUNT OF GOLD PRESENT MAY BE CONTAINED BOTH IN THE SILVER AND FINELY DISSEMINATED IN SILICEOUS LIMONITE. ZINC MINERALS USUALLY OCCUR A FEW FEET BELOW OR AWAY FROM, RATHER THAN WITH, THE LEAD MINERALS IN A GIVEN STOPE. (WILSON, 1927, P. 50-51)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.
- 2) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, P. 152-157, MAP.
- 3) BIDEAUX, R.A., S.A. WILLIAMS, AND R.W. THOMSEN (1960) SOME NEW OCCURRENCES OF MINERALS OF ARIZONA. ARIZ. GEOL. SOC. DIGEST, 3: 53-56.
- 4) WILSON, E.O., 1927, GEOLOGY AND ORE DEPOSITS OF THE COURTLAND-GLEESON REGION, ARIZONA: ARIZ. BUR. MINES BULL. 123, P. 75-76.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 171, 156, 205.
- 7) RANSOME, F.L., 1912, ACTIVITIES IN THE TURQUOISE COPPER DISTRICT, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 1359-1361
- 8) RANSOME, F.L., 1913, THE TURQUOISE COPPER MINING DISTRICT, ARIZONA: U.S. GEOL. SURVEY BULL. 530, P. 125-234
- 9) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318
- 10) DUMBLE, E.L., NOTES ON THE GEOLOGY OF SOUTHEASTERN ARIZONA: AMERICAN INST. OF MIN. ENGR., TRANS., VOL. 31, PP. 696-715. 1902.
- 11) PICKARD, B.O., MINING IN THE GLEESON DISTRICT OF ARIZONA: MINING SCIENCE, VOL. 67, NO. 1722, PP. 52-53. 1913.
- 12) DARTON, N.H., A RESUME OF ARIZONA GEOLOGY: ARIZ. BUREAU OF MINES BULL. 119, GEOL. SERIES 3, PP. 293-296. 1925.
- 13) MEINZER, D.E., AND KELTON, F.C., GEOLOGY AND WATER RESOURCES OF SULPHUR SPRING VALLEY, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 320. 1913.
- 14) CRAWFORD, W.P. AND F. JOHNSON, 1937, TURQUOISE DEPOSITS OF COURTLAND, ARIZONA: ECON. GEOL., V. 32, P. 511-523
- 15) PLATT, J.M., 1909, THE TURQUOISE MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 87, P. 213
- 16) DINSMORE, C.A., 1910, COURTLAND, ARIZONA, AND ITS MINING POSSIBILITIES: MIN. WORLD, V. 32, P. 747-749
- 17) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.M. THESIS, UNIV. ALASKA.
- 18) MCRAE, D.M., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY, ARIZONA: SOC. MINING ENGINEERS TRANS., V. 235, NO. 2, P. 133-138.

RECORD 00070

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030571
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... DONNA ANNA WORKINGS
MINING DISTRICT/AREA/SUBDIST. COCHISE DIST./LITTLE DRAGON MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-05-41N 110-04-57W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 26 27
MERIDIAN. G & SR

ALTITUDE.. 5,150 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.8 KM SW REPUBLIC MINE; 1/2 TO 1 1/4 MI SOUTHWEST OF JOHNSON

LOCATION COMMENTS: SW 1/4 OF 26; SE 1/4 OF 27

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU PB AG MN MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. W

MAIN COMMOD..... W
MINOR COMMOD..... CU PB AG MN MO

MAIN ORE MINERALS:
LUEBNERITE

MINOR ORE MINERALS:
SCHEELITE, POWELLITE, PYRITE, GALENA, CHALCOPYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... CLAIM PATENTED IN 1892

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... IRREGULAR
MAX LENGTH..... 800 FT
MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... N50-85 E
DIP OF OREBODY..... STEEP S
COMMENTS(DESCRIPTION OF DEPOSIT):
ONE MINERALIZED FISSURE 3500 FT LONG

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 20 FT

COMMENTS(DESCRIP. OF WORKINGS):
OPEN CUTS AND SHALLOW UNDERGROUND MARKINGS; LARGEST IS OPEN CUT 20 FT DEEP WITH A SHORT DRIFT AT BOTTOM

PRODUCTION

YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, P. 56

PRODUCTION COMMENTS.... SMALL PRODUCTION OF TUNGSTEN ORE, LARGELY FROM PLACER OPERATION PRIOR TO 1919

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... PINAL SCHIST (SERICITE SCHIST AND METAGRAYWACHE)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y.
IGNEOUS ROCK TYPES..... 4000 FT FROM TEXAS CONYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT. (53 M.Y. LIVINGSTON ETAL, 1967)

PERTINENT MINERALOGY..... COARSE QUARTZ AND IRON AND MANGANESE OXIDES

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 56
- 2) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 187-188.

RECORD 00071

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030562
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... DOS CABEZAS DIST.
MINING DISTRICT/AREA/SUBDIST. DOS CABEZAS DIST./S. DOS CABEZAS MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOS CABEZAS, ARIZ.

LATITUDE LONGITUDE
32-10-30N 109-37-00W

TWP..... 13S 15S
RANGE..... 26E 28E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5050 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NORTH OF TOWN OF DOS CABEZAS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU PB ZN AG W MN BE FE U MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU AU

MAIN COMMOD..... CU AU PB ZN AG
MINOR COMMOD.... W MN BE FE U MO

MAIN ORE MINERALS:
GALENA, PYRITE, CHALCOPYRITE, SPHALERITE

MINOR ORE MINERALS:

BARNITE, SCHEELITE, MAGNETITE GOLD

ANALYTICAL DATA(GENERAL)

0.5 OZ AU/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, CONTACT METAMORPHIC, PLACER

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS MINES AND PROSPECTS, MOSTLY RELATIVELY SMALL

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	100	TONS	1880-1970	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 60

PRODUCTION COMMENTS.... SMALL PLACER OPERATIONS PRODUCED LARGE BUT UNRECORDED AMOUNTS OF GOLD UP THROUGH EARLY 1930'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ AND CRET., PRECAMB
HOST ROCK TYPES..... LIMESTONE AND QUARTZITES

AGE OF ASSOC. IGNEOUS ROCKS.. EARLY TERT.
IGNEOUS ROCK TYPES..... MASCOT, SILVER CAMP COWBOY AND MAVERICK STOCKS, RHYOLITE PORPHYRY AND DIABASE DIKES

PERTINENT MINERALOGY..... QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
THRUST FAULTS

SIGNIFICANT ALTERATION:
OXIDIZED; SILICIFICATION

COMMENTS (GEOLOGY AND MINERALOGY):

BASE METAL SULFIDES IN FISSURE VEINS; MAGNETITE PYRITE AND CHALCOPYRITE IN PYROMETASEMATIC; GOLD PLACERS AT MOUTHS OF CANYONS

GENERAL REFERENCES

- 4) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 117-121.
- 5) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 7) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. NEED: PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK
- 8) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 9) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P., P. 60-63.
- 10) COOPER, JOHN R. S. RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213 (1960)
- 11) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P., P. 224-227.
- 12) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI5650
- 13) COLL, A., 1910, THE CALIFORNIA DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 503
- 14) ARIZ. DEPT. OF MIN. RES. FILE DATA, ARIZONA DEPARTMENT OF MINERAL RESOURCES MISCELLANEOUS UNPUBLISHED REPORTS AND FILE RECORDS
- 15) CLEMONS, R.F., AND JAMES, H.L., 1978, SUPPLEMENTAL ROAD LOG NO. 4; WILLCOX TO BOWIE VIA DOS CABEZAS AND APACHE PASS WITH HISTORICAL NOTES ON DOS CABEZAS, APACHE PASS, COCHISE, THE BUTTERFIELD OVERLAND MAIL AND FORT BOWIE: NEW MEXICO GEOL. SOC., LAND OF COCHISE, 29TH GUIDEBOOK, P. 125-138.
- 16) COOPER, J.R. 1960B, RECONNAISSANCE MAP OF THE WILLCOX, FISHER HILLS, COCHISE, AND DOS CABEZAS QUADRANGLES, COCHISE AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDY MAP, MF-231.
- 17) ERICKSON, R.C., 1968, GEOLOGY AND GEOCHRONOLOGY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 192-198.
- 18) ERICKSON, R.C., 1969, PETROLOGY AND GEOCHEMISTRY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 441 P.
- 19) SARLE, C.J. SKETCH OF THE GEOLOGY OF THE DOS CABEZAS MOUNTAINS OF SOUTHEASTERN ARIZONA (ABST.): SCIENCE, NEW SER., V. 55, P. 544 (1922)
- 20) SHIELDS, J.C. JR., 1940, GEOLOGY AND ORE DEPOSITS OF THE DIVES AND GOLD RIDGE GROUPS, DOS CABEZAS: UNIV. ARIZ., MS THESIS

RECORD 00072

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030563
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WOODDE, N (WILT, J.C.)
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... ELNJA MINE
MINING DISTRICT/AREA/SUBDIST. DOS CABEZAS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOS CABEZAS, ARIZONA

LATITUDE LONGITUDE
32-14-52N 109-35-40W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 14S
RANGE..... 27E
SECTION.. 09
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 6,200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.8 KM NE VASM 8353 NORTH OF MASCOT MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU

MAIN COMMOD..... CU AU AG
MINOR COMMOD.... MD

MAIN ORE MINERALS:

MAGNETITE, CHALCOPYRITE, PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... PART OF CENTRAL COPPER CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

METASOMATIC REPLACEMENT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 350 FT

MAX WIDTH..... 100 FT

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 436 FT

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... LIMESTONE

IGNEOUS ROCK TYPES..... GRANITE; DIABASE DIKES; QUARTZ PORPHYRY

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENUM IS NOT MENTIONED IN ANY PUBLISHED SOURCE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 61
- 2) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. NEED; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK 1925, P. 278; 1926 P. 239
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 5) ARIZ. DEPT. OF MIN. RES. FILE DATA, ARIZONA DEPARTMENT OF MINERAL RESOURCES MISCELLANEOUS UNPUBLISHED REPORTS AND FILE RECORDS
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 8) DALE, V.P., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 9) CLEMONS, R.E., AND JAMES, H.L., 1978, SUPPLEMENTAL ROAD LOG NO. 4: WILLCOX TO BOWIE VIA DOS CABEZAS AND APACHE PASS WITH HISTORICAL NOTES ON DOS CABEZAS, APACHE PASS, COCHISE, THE BUTTERFIELD OVERLAND MAIL AND FORT BOWIE: NEW MEXICO GEOL. SOC., LAND OF COCHISE, 29TH GUIDEBOOK, P. 125-138.
- 10) COOPER, J.R., 19608, RECONNAISSANCE MAP OF THE WILLCOX, FISHER HILLS, COCHISE, AND DOS CABEZAS QUADRANGLES, COCHISE AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDY MAP, MF-231.
- 11) ERICKSON, R.C., 1968, GEOLOGY AND GEOCHRONOLOGY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 192-198.
- 12) ERICKSON, R.C., 1969, PETROLOGY AND GEOCHEMISTRY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: UNPUB. PHD. THESIS, UNIV. ARIZONA, 441 P.
- 13) SARLE, C.J., SKETCH OF THE GEOLOGY OF THE DOS CABEZAS MOUNTAINS OF SOUTHEASTERN ARIZONA (ABST.): SCIENCE, NEW SER., V. 55, P. 544 (1922)

14)SHIELDS, J.C. JR., 1940, GEOLOGY AND ORE DEPOSITS OF THE DIVES AND GOLD RIDGE GROUPS, DDS CABEZAS: UNIV.
ARIZ., MS THESIS

RECORD 00073

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030584
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... EMERALD AND SILVER PLUME MINE GROUPS
SYNONYM NAME..... EAST SIDE, EAST SIDE #2

MINING DISTRICT/AREA/SUBDIST. TOMBSTONE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 TOMBSTONE, ARIZONA

LATITUDE LONGITUDE
31-41-10N 110-04-15W

UTM NORTHING UTM EASTING UTM ZONE NO
3500860.0 587100.0 +12

TWP..... 20S
RANGE.... 22E
SECTION.. 23
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4875 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.52 KM NE PEAK OF AJAX HILL (TOMB. HILLS)

LOCATION COMMENTS: NW

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG AU CU MO

MAIN COMMOD..... PB ZN AG AU
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
GALENA

MINOR ORE MINERALS:
WULFENITE, HORN SILVER, CHALCOCITE, MALACHITE AND AZURITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FAULT BRECCIA
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 1100 FT
MAX WIDTH..... 10 FT
STRIKE OF OREBODY.... N20E
DIP OF OREBODY..... 76 W

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 880 FT

COMMENTS(DESCRIP. OF WORKINGS):
EXTENSIVE SHAFT WORKINGS; EMERALD SHAFT IS 900 FT ON INCLINE TO DEPTH OF 880 FT; SILVER PLUME SHAFT IS NEAR THE SOUTHERN END OF THE EMERALD WORKINGS AND WAS SUNK TO 780 FT DEPTH. BUTLER ETAL 1938

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	40		TONS	IN 1880'S	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 75

PRODUCTION COMMENTS.... SMALLER AMOUNTS PRODUCED UP TO 1928.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMBRIAN
HOST ROCK TYPES..... ABRIGO LIMESTONE AND BOLEA QUARTZITE

IMPORTANT ORE CONTROL/LOCUS.. ORE IS WIDER AND BETTER GRADE IN ABRIGO LIMESTONE; IN WIDEST PARTS OF FISSURE

LOCAL GEOLOGY

**SIGNIFICANT LOCAL STRUCTURES:
FISSURE ZONE - CRUSHED MATERIAL**

**COMMENTS (GEOLOGY AND MINERALOGY):
CONSIDERABLE WULFENITE WAS PRESENT IN OXIDIZED MATERIAL ESPECIALLY IN OPEN SPACES**

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 75
- 2) BUTLER, B.S., E.D. WILSON, ET AL. (1938) SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12: 136 P., P. 44, 71-72, 107, PLATE III, IV.
- 3) CHURCH, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AIME TRANS., V. 33, P. 3-37, P. 6, 29
- 4) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI5650
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00074

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 9030585
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... EMPIRE MINE

MINING DISTRICT/AREA/SUBDIST. TOMSTONE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 TOMSTONE, ARIZONA

LATITUDE LONGITUDE
31-42-23N 110-03-11W

UTM NORTHING UTM EASTING UTM ZONE NO
3500225.0 588940.0 412

TWP..... 20S
RANGE.... 22E
SECTION.. 11 EC
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4610 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 78 KM SE BM 4540

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB CU F ZN MO

MAIN COMMOD..... AG PB F
MINOR COMMOD.... CU ZN MO

MAIN ORE MINERALS:
OXIDIZED BASE METAL SULFIDES

MINOR ORE MINERALS:
WULFENITE, HORN SILVER CERUSSITE ANGLESITE PYRITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... TOMBSTONE HILL AND MNG. CO., TOMBSTONE CONSOLIDATED MINES CO., BUNKER HILL MINES CO.,
TOMBSTONE DEVELOPMENT CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURES, REPLACEMENT
FORM/SHAPE OF DEPOSIT: MANTOS, PIPES AND BEDDED

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 2000 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT MINE

PRODUCTION

YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRUN.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	10		TONS	DATE 1880'S	

SOURCE OF INFORMATION (PRODUCTION).. ABM FILES

PRODUCTION COMMENTS.... CONSIDERABLE BUT OUTPUT COMBINED WITH THAT FROM ADJOINING MINES.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
HOST ROCK TYPES..... BISBEE GROUP LIMESTONE UNDER METAMORPHOSED SHALE, SANDSTONE AND QUARTZITE

IMPORTANT ORE CONTROL/LOCUS.. EMPIRE DIKE AND ANTICLINAL ROLL IN BISBEE GROUP SHALE, SANDSTONE AND QUARTZITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NORTHEAST FISSURES, BRECCIATED LIMESTONE, MANTO TYPE DEPOSITS ON FOLDS

GENERAL REFERENCES

1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255

P., P. 121, 156, 205.

- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.
- 3) CHURCH, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AIME TRANS., V. 33, P. 3-37
- 4) BUTLER, B.S., E.D. WILSON, AND C.A. RASOR, 1938, GEOLOGY AND ORE DEPOSITS OF THE TOMBSTONE DISTRICT, ARIZONA: ARIZ. BUR. MINES BULL. 143
- 5) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5653

RECORD 00075

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030583
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... GOLD CAMP MINES AREA
SYNONYM NAME..... GOLDEN CROWN, NO ACCOUNT GROUP

MINING DISTRICT/AREA/SUBDIST. TURQUOISE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAY MOUNTAIN, ARIZONA

LATITUDE LONGITUDE
31-41-31N 109-53-16W

UTM NORTHING UTM EASTING UTM ZONE NO
3500485.0 595400.0 +12

TWP..... 20S
RANGE.... 24E
SECTION.. 15 16
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4895

POSITION FROM NEAREST PROMINENT LOCALITY: 4.15 KM NW VABM 5306 (HAY MT.)

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB AU AG MO

MAIN COMMOD..... CU PB AU AG
MINOR COMMOD.... MO

MAIN ORE MINERALS:

OXIDIZED CU, PB MINERALIZATION

MINOR ORE MINERALS:
GOLD AND LEAD AND MOLYBDENUM VLAUES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS
FORM/SHAPE OF DEPOSIT: SPOTTY, IRREGULAR

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
A FEW SHALLOW SHAFTS AND TUNNELS

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE EST	0.03	TONS	1931	GOLDEN CROWN	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	0.144	TONS	1937-1938, 1940-41		

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 82

PRODUCTION COMMENTS.... SPORADIC, SMALL ORE PRODUCTION IN EARLY 1900'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI-JUR.
HOST ROCK TYPES..... GLEESON QUARTZ MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. TRI-JUR. (178 M.Y. 181 M.Y. ANDERSON 1968 P. 116 DREWES, 1976)
IGNEOUS ROCK TYPES..... GLEESON QUARTZ MONZONITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
OXIDIZED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 92
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, PHOENIX NEWSPAPER AUGUST 15, 1939.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN RIDGE, J.D., ED., ORE DEPOSITS OF THE UNITED STATES 1933-1967: AM. INST. MIN. MET. AND PET. ENG., N.W., P. 1153-1190.
- 5) CREASEY, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS ASSOCIATED WITH COPPER DEPOSITS, SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA PROGRAM ANN. MEETINGS, P. 38. (ABS.).
- 6) DREWES, H., 1976, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 151-167.

RECORD 00076

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030560
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... HILLTOP EXTENSION
SYNONYM NAME..... LILY AND WHALE GROUPS

MINING DISTRICT/AREA/SUBDIST. CALIFORNIA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 CHIRICAHUA PEAK, ARIZ.

LATITUDE LONGITUDE
32-59-59N 109-16-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3541500. 662900. +12

TWP..... 16S
RANGE..... 30E
SECTION.. 28 34
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5360 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.8 KM NW VABM 7730 (CHIR. MTNS)

LOCATION COMMENTS: SE 1/4 OF SEC 28, SW 1/4 OF SEC 34

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU ZN AU MO

MAIN COMMOD..... PB AG MO
MINOR COMMOD..... CU ZN AU

MAIN ORE MINERALS:
BASE METAL SULFIDES AND CARBONATES

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
570 FT TUNNEL - DEVELOPING SINCE 1917 (ABM FILES)

PRODUCTION

YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ABM FILES

PRODUCTION COMMENTS.... IRREGULAR SHIPMENTS - 1923, 1926-28 - SOME CARRIED 60% PB, 50 OZ AG

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC
HOST ROCK TYPES..... LIMESTONES
IGNEOUS ROCK TYPES..... INTRUSIVES

IMPORTANT ORE CONTROL/LOCUS.. BASE SULFIDES IN QUARTZ VEINS AND CONTACT METAMORPHIC DEPOSITS IN PALEOZOIC
LIMESTONES CUT BY INTRUSIVES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187. 98 P., P. 52
- 2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 3) U.S. GEOLOGICAL, 1900-1923, MINERAL RESOURCES OF THE UNITED STATES (ANNUAL VOLUMES FOR THE YEARS INDICATED), 1926-28
 - 4) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W. H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y., 1931
- 4) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
 - 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
 - 6) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 P., P. 227-233.
 - 7) DREWES, H., WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY, ARIZONA: USGS BULL. 1385-A, 53 P.
 - 8) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 182-205, P. 189.
 - 9) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.
 - 10) EATON, G.P., 1970, ALTERED (PYRITIZED) ROCKS IN SAN SIMON VALLEY, SOUTHEASTERN ARIZONA: GEOLOGICAL SURVEY RESEARCH 1970, CHAPTER A, U.S. GEOL. SURVEY, PROF. PAPER 700-A, P. A 37
 - 11) ENLWS, H.E. 4. WELDED TUFFS OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AM. BULL., V. 66, NO. 10, P. 1215-1246, MAP (1955)
 - 12) ENLWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)

- 13) FERNANDEZ, L.A., JR., AND ENLWS, H.F., 1966, PETROGRAPHY OF THE FARAWAY RANCH FORMATION, CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AMERICA BULL., V. 77, P. 1017-1030.
- 14) MARJANIEMI, D., 1968, TERTIARY VOLCANISM IN THE NORTHERN CHIRICAHUA MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 209-214.
- 15) MARJANIEMI, D.K., 1969, GEOLOGIC HISTORY OF AN ASHFLOW SEQUENCE AND ITS SOURCE AREA IN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 176 P.
- 16) PALGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 380, P. 299-311
- 17) SAUER, CARL, BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6 P. 339-414 (1930)

RECORD 00077

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030559
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... HILLTOP MINE
SYNONYM NAME..... DUNN SHAFT, BLACKSMITH SHAFT, KASPER TUNNEL, REHM ADIT, GRAY

MINING DISTRICT/AREA/SUBDIST. CALIFORNIA/CHIRICAHUA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 CHIRICAHUA PEAK, ARIZ.

LATITUDE LONGITUDE
31-59-08N 109-17-20W

UTM NORTHING UTM EASTING UTM ZONE NO
3539930. 661650. +12

TWP..... 17S 16S
RANGE.... 30E 30E
SECTION.. 05 04 03 32 33 34
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6,400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.35 KM NW VABM 7730; 6 MILES NW OF PARADISE, NEAR HAND'S PASS

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU MO AG AU W

MAIN ORE MINERALS:

GALENA, CERUSSITE, SPHALERITE, CHALCOPYRITE

MINOR ORE MINERALS:

MULFENITE, SCHEELITE, PYRITE, ANGLESITE, SMITHSONITE, MAGNETITE, AZURITE, CHRYSOCOLLA, COPPER, MALACHITE,
PSILOMELANE, PYROLUSITE, ARSENOPYRITE, SOME SILVER AND GOLD IN ANALYSES

ANALYTICAL DATA(GENERAL)

2-5 OZ AG/T, 10-25% PB, 5-15% ZN, 0.1-5.61% CU, 10-12% FE, 2-10% MN.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... HIDDEN TREASURE CLAIM, LOCATED JAN. 14, 1881, WAS EARLIEST CLAIM IN DISTRICT DISCOVERY
SHAFT IS DUNN SHAFT, LOCATED IN 1880'S, ABOVE PRESENT BLACKSMITH SHAFTPRESENT/LAST OWNER..... AMERICAN ZINC, LEAD AND SMELTG CO. HILLTOP SILVER LEAD MINES CO., HILLTOP METALS MNG.
CO., PIEDMONT MINES INC., AMERICAN ZINC, LEAD, AND SMELTING CO., QUEEN MNG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN, PYROMETASOMATIC REPLACEMENT

FORM/SHAPE OF DEPOSIT: REPEATED LENSES, SHOOTS POCKETS AND CHIMNEYS

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 30-110 FT

MAX WIDTH..... 2-50 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

LOCALLY PIPES OR CHIMNEYS OF MASSIVE SULFIDES, 1- 6 FT IN DIAMETER, FOLLOW FRACTURES INTO LIMESTONE WALLROCK FOR
DISTANCES OF 50 FEET FROM THE DIKES (DREWES, 1973, P. 37).

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 1500 FT

LENGTH OF WORKINGS..... 20000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE WORKINGS, OPEN CUTS, SHORT ADITS. KASPER TUNNEL THROUGH MT. 3,000 FT WITH 6,000 FT DRIFTING, CROSS
CUTS, RAISES AND SINKING; GRAY TUNNEL FROM E SIDE 2,000 FT WITH 3,000 FT WORKINGS; RHENI TUNNEL 3,700 FT WITH
3,000 FT WORKINGS (ABM FILE DATA)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PB EST	5000	LBS		1924-1928	(HGH EXTEN)
16 AG EST	78	OZ		1924-1928	(HGH. EXT)

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE DATA, TENNEY, P. 229

PRODUCTION COMMENTS.... SOME SHIPMENTS BY BURRO AND WAGON IN EARLY 1880'S. SUSPENDED IN LATE 1880'S BY APACHES.
AREA ACTIVE AGAIN DURING 1902-1906 WHEN SEVERAL CARLOADS WERE SHIPPED TO EL PASO. DURING 1911-18, 1924-27, AND
1938-54 ABOUT 5,000-10,000 SHORT TONS OF ORE WAS SHIPPED FROM THE HILLTOP MINE (DREWES, 1973, P. 37)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
 HOST ROCK TYPES..... LIMESTONE AND QUARTZITE

AGE OF ASSOC. IGNEOUS ROCKS.. MID-TERI.
 IGNEOUS ROCK TYPES..... PORPHYRY FELSITE DIKES (MONZONITIC TO DIORITIC, STOCK IN JHUS CANYON IS 1 1/2
 MILES, TO SE

PERTINENT MINERALOGY..... GARNET, EPIDOTE, CHLORITE, CALCITE, AND CLINOZOISITE (BRITTAIN) QUARTZ,
 WOLLASTONITE, GYPSUM, TREMOLITE, LIMONITE

IMPORTANT ORE CONTROL/LOCUS.. ORE CONTROLLED BY BRECCIATION ALONG FAULTS AND FISSURES IN QUARTZITE AND SOME
 LIMESTONE AND QUARTZITE REPLACEMENT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 MAIN MINERALIZATION RELATED TO NE-SW FAULTS

SIGNIFICANT ALTERATION:
 OXIDATION OF ORES PARTICULARLY IN VEINS AND CHIMNEYS QUARTZITE

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL CRYSTALS OF WULFENITE ARE USUALLY ASSOCIATED WITH MANGANESE OXIDES AND IRON OXIDES IN VUGS.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 52.
- 2) PAPKE, KEITH G. GEOLOGY AND ORE DEPOSITS OF THE EASTERN PORTION HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 99 P., MAPS (1952)
- 3) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 P., P. 227-233., P. 229.
- 4) DREWES, H., WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY, ARIZONA: USGS BULL. 1385-A, 53 P., P. 37.
- 5) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 182-205, P. 189.
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., 205.
- 8) BADGER, S.S., 1911, THE CHIRICAHUA MOUNTAINS: ENGR. MIN. JOUR., V. 91, P. 663
- 9) BRITTAIN, R.L., 1954, GEOLOGY AND ORE DEPOSITS OF THE WESTERN PORTION OF THE HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 97 P.
- 10) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
- 11) COLL, A., 1910, THE CALIFORNIA DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 503
- 12) COOPER, JOHN R. 5. RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213 (1960)
- 13) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650, P. 17-18.
- 14) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. NEED; PUBLISHED BY THE MINES HANDBOOK COMPANY NEW YORK
- 15) RAYDON, G.T. GEOLOGY OF THE NORTHEASTERN CHIRICAHUA MOUNTAINS, ARIZONA: UNIV. CALIF., MA THESIS (1952)
- 16) SABINS, F.F., 1955, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF VANAR QUADRANGLES, ARIZONA: YALE UNIV., PHD THESIS
- 17) SABINS, F.F., 1957A, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF THE VANAR QUADRANGLES, ARIZONA: GEOL. SOC. AMERICA BULL., V. 68, P. 1315-1342

- 18)CHAKARUN, J.D., 1973, GEOLOGY MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.
- 19)EATON, G.P., 1970, ALTERED (PYRITIZED) ROCKS IN SAN SIMON VALLEY, SOUTHEASTERN ARIZONA: GEOLOGICAL SURVEY RESEARCH 1970, CHAPTER A. U.S. GEOL. SURVEY, PROF. PAPER 700-A, P. A 37
- 20)ENLWS, H.E. 4. WELDED TUFFS OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AM. BULL., V. 66, NO. 10, P. 1215-1246. MAP (1955)
- 21) ENLWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)
- 22)FERNANDEZ, L.A., JR., AND ENLWS H.E., 1966, PETROGRAPHY OF THE FARAWAY RANCH FORMATION, CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AMERICA BULL., V. 77, P. 1017-1030.
- 23)MARJANIEMI, D., 1968, TERTIARY VOLCANISM IN THE NORTHERN CHIRICAHUA MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 209-214.
- 24)MARJANIEMI, D.K., 1969, GEOLOGIC HISTORY OF AN ASHFLOW SEQUENCE AND ITS SOURCE AREA IN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 176 P.
- 25)PAIGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 380, P. 299-211
- 26)SAUER, CARL BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6, P. 339-414 (1930)

RECORD 00078

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030572
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... JOHNSON CAMP
SYNONYM NAME..... CLIMAX SHAFT; JOHNSON MINE, CYPRESS JOHNSON DEPOSIT

MINING DISTRICT/AREA/SUBDIST. COCHISE DIST, DRAGONS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-06-34N 110-03-50W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 23
MERIDIAN. G & SR

ALTITUDE.. 4,950 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 KM N BM 4947

LOCATION COMMENTS: SE 1/4 OF SEC 23

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG BE MO ZN

MAIN COMMOD..... CU AG
MINOR COMMOD.... BE MO

MAIN ORE MINERALS:

CHRYSOCOLLA, MALACHITE, AZURITE, TENORITE ?

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOPYRITE, CHALCOCITE, SPHALERITE, PYRITE; ENRICHALCITE, CHALCOTRICHITE, BORNITE, SCHEELITE, POWELLITE

ANALYTICAL DATA(GENERAL)

0.1 - 0.4% CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

PRESENT/LAST OWNER..... JOHNSON COPPER DEVELOPMENT CO., CORONADO COPPER AND ZINC CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SECONDARY ENRICHMENT, PYROMETASOMATIC REPLACEMENT

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT WORKINGS ORIGINALLY; OPEN PIT

PRODUCTION

YES

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE ACC		1709.804	TONS	1975	GREELEY, 1978
2 CATTRODE CU	A66	43.024	LBS	1975	
3 ORE ACC		1311.59	TONS	1976	
4 CATTRODE CU	A60	59.608	LBS	1976	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		.207	TONS	1901-1930	
18 ORE ACC		6848.753	TONS	1956-1978	
19 CU ACC			LBS	1956-1978	
20 PB ACC		4.200	LBS	1956-1978	
21 ZN ACC		27946.90	LBS	1956-1978	
22 AG ACC		13.250	OZS	1956-1978	
23 AU ACC		.022	OZS	1956-1978	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, P. 57

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 OXIDE CU	EST	19900	TONS	1974	0.5% ACID SOLUBLE CU
2 MIXED CU ORE	EST	80000	TONS	1974	

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1979, P. 84

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB, MISS., PENN
 HOST ROCK TYPES..... ABRIGO FM, ESCABROSA LS, HORQUILLA LS.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y. LIVINGSTON ETAL 1967)
 IGNEOUS ROCK TYPES..... TEXAS CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT (53 M.Y. LIVINGSTON ETAL, 1967)

PERTINENT MINERALOGY..... SKARN, QUARTZ, VEINS; SKARN-GARNET, DIOPSIDE, QUARTZ AND CALCITE; LIMONITE, HEMATITE, JAROSITE; MN OXIDES

IMPORTANT ORE CONTROL/LOCUS.. METASOMATIC MASSIVE REPLACEMENT DEPOSITS ARE IN MIDDLE MEMBER OF ABRIGO FM. SECONDARY COPPER OXIDE DEPOSIT NOW BEING MINED IS STRATIGRAPHICALLY CONFINED (BY THE UNDERLYING IMPERVIOUS BOLSA QUARTZITE) TO THE LOWER MEMBER OF THE ABRIGO FORMATION. WHERE EAST SIDE OF TEXAS CANYON QUARTZ MONZONITE STOCK PROTRUDES INTO SEDIMENTARY ROCKS, ORE IS FOUND IN LINE WITH ITS PROTRUSIONS. (CLAYTON, 1978)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 MASSIVE FRACTURE SYSTEM; NORTHEASTERS BEST DEVELOPED; EASTERS; NORTHWESTERS RARE

SIGNIFICANT ALTERATION:
 THE BDTITE QUARTZ MONZONITE WITH 2-5 M LONG POTASSIC FELDSPAR PHENOCRYSTS HAS AN ALTERED PHASE ON ITS NORTHEAST SIDE THAT IS CHARACTERIZED BY MULTIPLE QUARTZ VEINING. QUARTZ VEINS HAVE A VERY THIN ALTERATION ZONE OF MUSCOVITE, SILICA AND PYRITE AND A WIDE OUTER ZONE OF ARGILLIC ALTERATION. ABUNDANT MONTMARILLONITE AND LESSER KAOLINITE ARE CHIEF SECONDARY ARGILLACEOUS PRODUCTS OF THE OXIDE ZONE. (CLAYTON, 1978)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
 METAMORPHISM OF IMPURE CARBONATES TO SILICATES; FRACTURING; THEN METASOMATISM WITH ADDITION OF POTASSIUM, BASE METALS, ETC. BY QUARTZ VEINS; 30% ENRICHMENT BY SUPERGENE PROCESSES.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 57.
- 2) CLAYTON, R.L., 1978 ALTERATION AND MINERALIZATION OF THE CYPRUS JOHNSON DEPOSIT, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 17-24.
- 3) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 4) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58.
- 5) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318, P. 101
- 6) COOPER, J.R. AND L.T. SILVER (1954) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY,

ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 163-181.

7)BAKER, ARTHUR. 3D. 1952, PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: PH.D. THESIS, STANFORD UNIVERSITY, 101 P.

8)BAKER, ARTHUR. 3D. 1953, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: AM. INST. MINING METALL. ENGINEERS TRANS., TECH. PAPER 36841; MINING ENG., V. 5, P. 1272-1277.

9)COOPER, J.R., 1957, METAMORPHISM AND VOLUME LOSSES IN CARBONATE ROCKS NEAR JOHNSON CAMP, COCHISE COUNTY, ARIZONA: GEOL. SOC. AMERICA BULL., V. 68, P. 577-610.

10)LIVINGSTON, D.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, ARGON 40 IN CO-GENETIC FELDSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RES., V. 72, P. 1361-1375.

11)KANTOR, J.A., 1975, SUBSURFACE STRUCTURE AND ALTERATION ON THE FLANKS OF THE LITTLE DRAGON MOUNTAINS, COCHISE COUNTY, ARIZONA: PRESENTATION AT BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SYMPOSIUM SPONSORED BY NEW MEXICO AND ARIZONA GEOL. SOCIETIES, SILVER CITY, NEW MEXICO.

RECORD 00079

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030573
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... KEYSTONE MINE
SYNONYM NAME..... HAGERMAN MINE, BANNON GROUP

MINING DISTRICT/AREA/SUBDIST. COCHISE DIST/L.DRAGOON MTSS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGOON, ARIZ.

LATITUDE LONGITUDE
32-05-33N 110-03-34W

UTM NORTHING UTM EASTING UTM12ONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 36 NW
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.1 KM SW REPUBLIC MINE; 1 MI SE OF JOHNSON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN MO W AU AG

MAIN COMMOD..... CU ZN AG
MINOR COMMOD.... MO AU W

MAIN ORE MINERALS:
CHALCOPYRITE, SPHALERITE, PYRITE, BORNITE

MINOR ORE MINERALS:
MOLYBDENITE, SCHEELITE, GOLD, SILVER

ANALYTICAL DATA(GENERAL)
0.6-1.2% CU; 1 FT BED 4.1% MO, 7 FT OF 1.02% MO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 690 FT

COMMENTS(DESCRIP. OF WORKINGS):
DRILLING BY USBM; VERTICAL SHAFT 650 FT; LEVELS AT 60, 200, 325, 487 AND 565 FT BELOW SURFACE (COOPER AND SILVER, 1964, P. 173)

PRODUCTION
YES
SMALL PRODUCTION

PRODUCTION COMMENTS.... 1,100 TONS 5% CU 1926-1937; KEITH- TOTAL OF ABOUT 2,250 TONS OF ORE PRODUCED
INTERMITTENTLY FROM 1917 TO 1958

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV. MISS CAMB
HOST ROCK TYPES..... LIMESTONE MARTIN LS, ESCABROSA LS, ABRIGO FM

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y.)

AGE OF MINERALIZATION..... TERT. (53 M.Y., LIVINGSTON ETAL 1967)

PERTINENT MINERALOGY..... GARNETIZATION, LIME SILICATES

IMPORTANT ORE CONTROL/LOCUS.. MOSTLY FROM ESCABROSA AND MARTIN FORMATION BELOW ABRIGO (500-600 LEVELS) NEAR FAULT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
N63 E NORMAL FAULT DIPS 36 SE

COMMENTS (GEOLOGY AND MINERALOGY):
SPOTTY MOLYBDENITE IN CAMBRIAN ABRIGO LIMESTONE

GENERAL REFERENCES

- 1) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 173-4
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 57
- 3) ROMSLO, T.M., 1949, INVESTIGATION OF KEYSTONE AND ST. GEORGE COPPER-ZINC DEPOSITS, COCHISE COUNTY, ARIZONA: U.S. BUR. MINES RI 4504, P. 18-2
- 4) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 7) DEPT. MIN. RES., 1941, PRODUCTION POSSIBILITIES OF THE MARGINAL COPPER MINES IN ARIZONA, P. 31.
- 8) THE MINES HANDBOOK VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.

RECORD 00080

RIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030561
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... KING AINSWORTH
SYNONYM NAME..... COCHISE MINE, OREGON GROUP; OLD COCHISE CONSOL. COPPER CO. CLAIMS, AINSWORTH COPPER
CO. 1925, KING COPPER CO, COCHISE COPPER CO, CORONADO COPPER CORP. 1929, PORTAL MINES DEVEL. CO., ARIZONA
CONSOLIDATED METAL PRODUCERS CORP.

MINING DISTRICT/AREA/SUBDIST. CALIFORNIA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 PORTAL, ARIZONA

LATITUDE LONGITUDE
31-58-36N 109-11-04W

UTM NORTHING UTM EASTING UTM ZONE NO
3539150. 671525. +12

TWP..... 17S
RANGE.... 31E
SECTION.. 04 05
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4960 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.3 KM NW VABM 5254; PORTAL

LOCATION COMMENTS: FROM E 1/2 OF THE LINE BETWEEN SECTION 29 AND 33 TO THE SW 1/4 OF SECTION 34

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB CU AG AU MO W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB ZN W

MINOR PRODUCTS.. AU AG CU

MAIN COMMOD..... PB ZN W
MINOR COMMOD..... CU AU AG MOMAIN ORE MINERALS:
GALENA, CHALCOPYRITEMINOR ORE MINERALS:
SCHEELITE, POWELLITE (?)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... HILLTOP EXTENSION MNG. CO., ARIZONA MONTE CRISTO MNG. CO., CALVMET DIVIDE MNG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT; FISSURE VEINS

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 200 FT
LENGTH OF WORKINGS..... 2,500 FT

COMMENTS(DESCRIP. OF WORKINGS):

200 FT SHAFT, 3000 +/- FT WORKINGS; AINSWORTH SHAFT 310 FT, KING SHAFT 210 FT, TREASURY TUNNEL 300 FT, TOTAL WORKINGS 2500 FT

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST .5		TONS	1890-1948	

SOURCE OF INFORMATION (PRODUCTION).. AB4 FILE GAPS

PRODUCTION COMMENTS.... 1890'S 501 TONS, 403 OZ AU, 800 OZ AG, 2400 LBS CU, 60,000 LBS PB, 100,000 LBS IN MILL PREVIOUSLY; 1904 1907 1918 1927-29, 1948; RFC LOAN, 1942

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... ? & CAMBREA
HOST ROCK TYPES..... LIMESTONE; QUARTZITE AND SILICATED AND MARBLEIZED LIMESTONE
IGNEOUS ROCK TYPES..... GRANITE

PERTINENT MINERALOGY..... EPIDOTE, CALCITE, MNO, FEO

IMPORTANT ORE CONTROL/LOCUS.. REPLACEMENT IN LIMESTONE; CAMBRIAN QUARTZITE AND SILICATED AND MARBLEIZED LIMESTONE, ALSO FISSURE VEINS, HIGH GRADE PB

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):

SCHHEELITE SHOWS A MARBLED YELLOW FLUORESCENCE INDICATING A HIGH MOLYBDENUM CONTENT (DALE, ET AL 1960, P. 16)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 187, 98 P., P. 53
- 2) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650, P. 15-16
- 3) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W. H. WEED; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK, 1926, 1931
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) U.S. GEOLOGICAL SURVEY, 1900-1923, MINERAL RESOURCES OF THE UNITED STATES (ANNUAL VOLUMES FOR THE YEARS INDICATED), 1906, 1907, 1908, 1927, 1929
- 6) U.S. BUREAU OF MINES, 1932-1970, MINERALS YEARBOOK (ANNUAL VOLUMES FOR THE YEARS INDICATED) 1948
- 7) ATOMIC ENERGY COMM., 1953, PRELIM. RECON. REPT A-P-47
- 8) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 P., P. 227-233.
- 9) DREWES, H., WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY, ARIZONA: USGS BULL. 1385-A, 53 P.
- 6) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 182-205, P. 189.
- 7) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.
- 8) EATON, G.P., 1970, ALTERED (PYRITIZED) ROCKS IN SAN SIMON VALLEY, SOUTHEASTERN ARIZONA: GEOLOGICAL SURVEY RESEARCH 1970, CHAPTER A, U.S. GEOL. SURVEY, PROF. PAPER 700-A, P. A 37
- 9) ENLWS, H.E. 4. WELDED TUFFS OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AM. BULL., V. 66, NO. 10, P. 1215-1246, MAP (1955)
- 10) ENLWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)
- 11) FERNANDEZ, L.A., JR., AND ENLWS, H.E., 1966, PETROGRAPHY OF THE FARAWAY RANCH FORMATION, CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AMERICA BULL., V. 77, P. 1017-1030.
- 12) MARJANIEMI, O., 1968, TERTIARY VOLCANISM IN THE NORTHERN CHIRICAHUA MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 209-214.
- 13) MARJANIEMI, D.K., 1969, GEOLOGIC HISTORY OF AN ASHFLOW SEQUENCE AND ITS SOURCE AREA IN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 176 P.
- 14) PALGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 380, P. 299-311
- 15) SAUER, CARL BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6, P. 339-414 (1930)

RECORD 00081

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030574
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... MAMMOTH MINE
SYNONYM NAME..... CONNECTED WITH MOORE SHAFT

MINING DISTRICT/AREA/SUBDIST. COCHISE DIST/L. DRAGON MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-06-35N 110-04-37W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 23
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5,200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.7 KM SE JOHNSON PEAK (LITTLE DRAGON)

LOCATION COMMENTS: SW 1/4 OF SEC 23

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN AG PB MO BI BE

MAIN COMMOD..... CU ZN AG
MINOR COMMOD..... PB MO BI BE

MAIN ORE MINERALS:

CHALCOPYRITE AND SPHALERITE

MINOR ORE MINERALS:

BORNITE, CHALCOCITE, COVELLITE, MOLYBDENITE, PYRITE, AZURITE, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... BEGAN PRODUCING IN 1882

PRESENT/LAST OWNER..... BLACK PRINCE COPPER CO., ARIZONA CONSOLIDATED MNG. CO., ARIZONA UNITED MNG. CP., COBRIZA
MINES DEVELOPMENT CO., MASON COPPER CO., UNITED DEVELOPMENT CO., CORNADO COPPER AND ZINC CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC

FORM/SHAPE OF DEPOSIT: CHIMNEY AND MANTO

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

SURFACE ORE BODIES WERE 2-10 FT THICK AND TABULAR; OLD MANTO ORE BODY, MINED IN WORLD WAR I, WAS A CHIMNEY 300
FT LONG, 25-60 FT WIDE AND 10-25 FT HIGH; THE 467 ORE BODY, MINED IN 1945-1948, WAS CHIMNEY 400 FT LONG, 25-45
FT. WIDE, AND 25 FT. HIGH. (COOPER AND SILVER, 1964, P. 163)

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 600 FT

LENGTH OF WORKINGS..... 650 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE SHAFT WORKINGS; PARTLY CAVED INCLINES AND UNDERHAND STOPES FOLLOWING DOWN DIP OF FAVORABLE BEDS.

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1	BLACK COPPER	260000	60 LBS	1882	REPUBLIC AND MAMMOTH MINE

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	200	TONS	1880-1970	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973 P. 58

PRODUCTION COMMENTS.... INTERMITTENT PRODUCTION FROM 1882 UNTIL 1949; PRODUCTION REPORTED TOGETHER WITH REPUBLIC
MINE AS HAD SAME OWNER, BUT PRODUCTION FROM MAMMOTH IS VERY MUCH LESS THAN FROM REPUBLIC BUT PROBABLY EXCEEDS THAT
FROM INTERVENING. COPPER CHIEF (COOPER AND SILVER 1904, P. 169)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB.
 HOST ROCK TYPES..... ABRIGO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y. LIVINGSTON ETAL, 1967)
 IGNEOUS ROCK TYPES..... TEXAC CANYON QUARTZ MONZONITE IS IN DISTRICT

AGE OF MINERALIZATION..... TERT. (53 M.Y.)

PERTINENT MINERALOGY..... QUARTZ CALCITE; WOLLASTONITE, DIOPSIDE SERICITE AND LIMONITE; GARNET MOST ABUNDANT

IMPORTANT ORE CONTROL/LOCUS.. TOP OF MIDDLE MEMBER OF ABRIGO FORMATION

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 FAULTED AND FRACTURED

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE OCCURS IN THIN FLAKES OR SCALES (FOLIATED PARALLEL TO BASAL CLEARAGE) DISSEMINATED THROUGH THE OTHER SULFIDES EXCEPT PYRITE.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 58
- 2) COOPER, J.R., AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 169
- 3) BAKER, ARTHUR, 3D, 1952, PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: PH.D. THESIS, STANFORD UNIVERSITY, 101 P.
- 4) BAKER, A. 3RD, 1953, 1954, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: MIN. ENGR., V. 5, NO. 12, P. 1272-1277; AIME TRANS., V. 196, P. 1272-1277, P. 1272-1273
- 5) COOPER, J.R., 1950, JOHNSON CAMP AREA, COCHISE COUNTY, ARIZONA IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 30-39, P. 30-36
- 6) HEINEMAN, R.E.S. (1927) THE GEOLOGY AND ORE DEPOSITS OF THE JOHNSON MINING DISTRICT, ARIZONA. UNIV. ARIZONA M.S. THESIS, 45 P., P. 39
- 7) KELLOGG, L.D., 1906, SKETCH OF THE GEOLOGY AND ORE DEPOSITS OF THE COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZONA: ECON. GEOL., V. 1, P. 651-659
- 8) LIVINGSTON, D.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, ARGON 40 IN CO-GENETIC FELDSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RES., V. 72, P. 1361-1375.
- 9) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 10) WARNER, L.A., HOLSER, W.T., WILMARTH, V.R., AND CAMERON, E.N., 1959, OCCURRENCES OF NON-PEGMATITIC BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROF. PAPER 318, P. 97, 99, 101
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00082

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030567
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... MIDDLEMARCH MINE
SYNONYM NAME..... MISSOURI

MINING DISTRICT/AREA/SUBDIST. MIDDLE PASS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 PEARCE

LATITUDE LONGITUDE
31-52-41N 109-56-54W

UTM NORTHING UTM EASTING UTM ZONE NO
3527450.0 599495.5 12

TWP..... 18S
RANGE..... 23E
SECTION.. 12
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5485 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 100 METERS WEST OF MIDDLEMARCH CANYON

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN CU AG AU PB MO W

MAIN COMMOD..... CU ZN AG AU
MINOR COMMOD..... PB MO W

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, SPHALERITE

MINOR ORE MINERALS:

GALENA PYRRHOTITE SPARSE SCHEELITE, WITH POWELLITE COMPONENT SILVER OCCURS IN GALENA, GOLD IS IN COPPER

ANALYTICAL DATA(GENERAL)

CHALCOCITE, COVELLITE, AZURITE, MALACHITE, CHALCANTHITE, TRACE WULFENITE, CHALCOMENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CONTACT METAMORPHIC

PRODUCTION

YES

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... LOW PALEOZ, CRET.

HOST ROCK TYPES..... CARBONATES AND GLANCE CONGLOMERATE (LIMESTONE CLASTS) OF BISBEE GROUP

IGNEOUS ROCK TYPES..... TERT. (25.9 M.Y., MARVIN ETAL, 1973; 22 M.Y., DAMON AND BIKERMAN, 1964)

PERTINENT MINERALOGY..... GROSSULARITE, WOLLASTONITE, ANDRADITE, EPIDOTE, CHLORITE; QUARTZ AND CALCITE

IMPORTANT ORE CONTROL/LOCUS.. ORE IS CONTROLLED BY FAVORABLE CARBONATE LITHOLOGY, AND BY PROXIMITY TO FAULTS AND
INTRUSION OF TERTIARY STRONGHOLD GRANITE WHICH ALTERED THE LIMESTONES TO SKARNS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE MIDDLEMARCH PIT OCCUPIES THE HINGE ZONE OF AN OPEN, UPRIGHT, NORTHWEST-TRENDING FOLD. THE WESTERN LIMB IS CUT OFF BY A SOUTHWEST-DIPPING, HIGH-ANGLE, REVERSE FAULT, THE RED ANT FAULT, WHICH JUXTAPOSES PRECAMBRIAN COCHISE PEAK QUARTZ MONZONITE AGAINST BISBEE GROUP (SOUSA, 1979, P. 36)

SIGNIFICANT ALTERATION:

PYROMETASOMATIC ALTERATION (SKARNS) ARE RELATED TO FAULTS. LIMESTONE, SANDY LIMESTONE AND LIMESTONE PEBBLE CONGLOMERATE ALTER TO MARBLE WITH SAME WOLLASTONITE AND GROSSULARITE (GARNET). EPIDOTE AND PHLOGOPITE-CHLORITE ALTERATION OCCURS AT THE CONTROLLING FAULTS. INTENSITIES OF ALTERATION VARY WITH DISTANCE FROM FAULT (SOUSA, 1979, P. 49-54)

COMMENTS (GEOLOGY AND MINERALOGY):

OLD NEWSPAPER CLIPPINGS AND MINE REPORTS OF THE EARLY 1900S GIVE THE IMPRESSION THAT HIGHER COPPER AND SILVER VALUES AND LOWER ZINC VALUES WERE ENCOUNTERED AS THE MIDDLEMARCH MINE WORKINGS WERE DEEPENED TOWARD THE CONTACT WITH THE STRONGHOLD GRANITE. REGIONALLY THE CENTRAL DRAGON MOUNTAINS ARE ANOMALOUS IN ZINC, WITH THE HIGHEST COPPER VALUES OCCURRING IN A N60-70 W TRENDING DEFORMATION ZONE WITH APPARENT LEFT-LATERAL DISPLACEMENT (KEITH, PERSONAL COMMUNICATION) (SOUSA, 1979, P. 76)

GENERAL REFERENCES

- 1) SOUSA, FRANCIS X., 1979, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ., 107 P.
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 68.
- 3) KEITH, S.B., AND BARRET, L.F., 1976, TECTONICS OF THE CENTRAL DRAGON MOUNTAINS: A NEW LOOK: ARIZ. GEOL. SOC. DIGEST 110, P. 169-204.
 - 4) DREWES, H., 1975, LARAMIDE TECTONICS FROM PARADISE TO HELL'S GATE, SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 10, P.
 - 5) GILLULY, J., 1941, THRUST FAULTING IN THE DRAGON MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. BULL., V. 52, NO. 12, P. 1949.
 - 6) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, 169 P.
 - 7) GILLULY, J., COOPER, J.R., AND WILLIAMS, J.S., 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266, 49 P.
 - 8) JONES, R.W., 1961, A STRUCTURAL SYNTHESIS OF PART OF SOUTHEAST ARIZONA: UNPUB. PH.D. DISSERTATION, UNIVERSITY OF CHICAGO, 198 P.
 - 9) JONES, R.W., 1963, STRUCTURAL EVOLUTION OF PART OF SOUTHEAST ARIZONA, IN BACKBONE OF THE AMERICAS--TECTONIC HISTORY FROM POLE TO POLE: AM. ASSOC. PETROLEUM GEOLOGISTS MEM. NO. 2, P. 140-151.
 - 10) JONES, R.W., 1966, DIFFERENTIAL VERTICAL UPLIFT--A MAJOR FACTOR IN THE STRUCTURAL EVOLUTION OF SOUTHEAST ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 8, P. 97-124.
 - 11) CEDERSTROM, D.J., 1946B, THE STRUCTURAL GEOLOGY OF THE DRAGON MOUNTAINS, ARIZONA: AM. JOUR. SCI., VOL. 244, P. 9., P. 601-621.
 - 12) CEDERSTROM, D.J., 1946A, GEOLOGY OF THE CENTRAL DRAGON MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, P. 87-88
 - 13) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 14) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIOMETRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
 - 15) DAMON, P.E., AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC., DIGEST, V. 7 P. 63-76.
- 4) WILSON, E.D., 1951, DRAGON MOUNTAINS IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 10-29
 - 5) TENNEY, J.B., 1927-9, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT ARIZONA BUREAU OF MINES, 401 P., P. 218-219

RECORD 00083

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M00123
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... MIDDLE PASS DISTRICT
MINING DISTRICT/AREA/SUBDIST. MIDDLE PASS DIST/S. DRAGON MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 PEARCE, ARIZ.

LATITUDE LONGITUDE
31-52-00N 109-57-10W

TWP..... 17S 18S
RANGE..... 23E 24E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: MIDDLE PASS THROUGH S. DRAGON MTS

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB CU AG AU W FE MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. ZN PB CU
MINOR PRODUCTS.. W BA

MAIN COMMOD..... ZN PB CU

MAIN ORE MINERALS:

SPHALERITE, CHALCOPYRITE, GALENA

MINOR ORE MINERALS:

BORNITE, ARGENTITE, MALACHITE, AZURITE, CERUSSITE, ANGLESITE, HEMIMORPHITE, SCHEELITE, POWELLITE, WULFENITE,
VANADINITE, SILVER MOLYBDENITE, FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC, FAULT GANGE

FORM/SHAPE OF DEPOSIT: MANTOS, CHIMNEYS, VEINS

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SCATTERED MINES AND PROSPECTS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	76	TONS	1900-	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 67

PRODUCTION COMMENTS.... BASE METAL SULFIDE ORE AND SMALL TONNAGE OF TUNGSTEN CONCENTRATES AND BARITE PRODUCED
INTERMITTENTLY.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ.

HOST ROCK TYPES..... LIMESTONES, QUARTZITES

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (25.9 MARVIN ET AL, 1973; 22 M.Y., DAMON AND BIKERMAN, 1964)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... CONTACT SILICATES (GARNET, HEDENBERGITE, EPIDOTE) HEMATITE AND CALCITE

IMPORTANT ORE CONTROL/LOCUS.. BENEATH LOW ANGLE LFAULTS IN NE FISSURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

COMPLEX FOLDING FAULTING

GENERAL REFERENCES

- 1) KEITH, S.B., AND BARRETT, L.F., 1976, TECTONICS OF THE CENTRAL DRAGON MOUNTAINS: A NEW LOOK: ARIZ. GEOL. SOC. DIGEST 110, P. 169-204.
- 2) SOUSA, FRANCIS X., 1979, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 3) DREWES, H., 1975, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 10, P. 151-168.
- 4) GILLULY, J., 1941, THRUST FAULTING IN THE DRAGON MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. BULL., V. 52, NO. 12, P. 1949.
- 5) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, 169 P.
- 6) GILLULY, J., COOPER, J.R., AND WILLIAMS, J.S., 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266, 49 P.
- 7) JONES, R.W., 1961, A STRUCTURAL SYNTHESIS OF PART OF SOUTHEAST ARIZONA: UNPUB. PH.D. DISSERTATION, UNIVERSITY OF CHICAGO, 198P.
- 8) JONES, R.W., 1963, STRUCTURAL EVOLUTION OF PART OF SOUTHEAST ARIZONA, IN BACKBONE OF THE AMERICAS--TECTONIC HISTORY FROM POLE TO POLE: AM. ASSOC. PETROLEUM GEOLOGISTS MEM. NO. 2, P. 140-151.
- 9) JONES, R.W., 1966, DIFFERENTIAL VERTICAL UPLIFT--A MAJOR FACTOR IN THE STRUCTURAL EVOLUTION OF SOUTHEAST ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 8, P. 97-124.
- 10) WILSON, F.D., CUNNINGHAM J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 11) SOUSA, FRANCIS X., 1979-80?, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.,
- 12) RUSHING, J.A., 1978, CONTACT METAMORPHISM AND METASOMATISM OF PALEOZOIC ROCKS NEAR STRONGHOLD CANYON, DRAGON MOUNTAINS, ARIZONA: M.S. THESIS (UNPUBLISHED), UNIV. OF ARIZONA.
- 4) PERRY, D.V., 1964, GENESIS OF THE CONTACT ROCKS AT THE ABRIL MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6) DAMON, P.E., AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6) DAMON, P.E., AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6) DAMON, P.E., AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6) DAMON, P.E., AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC., DIGEST, V. 7 P. 63-78.
- 7) WILSON, F.D., 1951, DRAGON MOUNTAINS IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 10-29.
- 8) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES
- 9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 10) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISES
- 10) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISES
- 10) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1980, MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 10) MARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
- 11) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 93 P., P. 67-69.

- 12)DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 13)NEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58.
- 14)COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22
- 15)WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318
- 16)CEDERSTROM, D.J., 1946B, THE STRUCTURAL GEOLOGY OF THE DRAGON MOUNTAINS, ARIZONA: AM. JOUR. SCI. VOL. 244, P. 9., P. 601-621.
- 17)CEDERSTROM, D.J., 1946A, GEOLOGY OF THE CENTRAL DRAGON MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS

RECORD 00084

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030575
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... MOORE MINE

MINING DISTRICT/AREA/SUBDIST. COCHISE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-06-40N 110-04-29W

UTM NORTHING UTM EASTING UTMZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 23
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.8 KM SE JOHNSON PEAK (LITTLE DRAGON) 1000 FT EAST OF MAMMOTH MINE

LOCATION COMMENTS: SW 1/4 OF SEC 23

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN AG AU W MO BI

MAIN COMMOD..... CU ZN AG
MINOR COMMOD.... AU W BI MO

MAIN ORE MINERALS:

CU CARBONATES, CHALCOPYRITE, SPHALERITE, PYRITE, BORNITE

MINOR ORE MINERALS:
SCHEELITE, MOLYBDENITE, MAGNETITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... ORE BODY A OF MOORE MINE DISCOVERED IN 1947 BY EXPLORATORY DIAMOND DRILLING FROM SURFACE
PRESENT/LAST OWNER..... CORONADO COPPER AND ZINC CO., STRONG AND HARRIS, MCFARLAND AND HULLINGER, STAUFFER MNG.
CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC REPLACEMENT

FORM/SHAPE OF DEPOSIT: MANTOS AND CHIMNEYS AND LENSES

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 60-70 FT DIAMETER CHIMNEYS
MAX LENGTH..... 600 FT
MAX WIDTH..... 175 FT
MAX THICKNESS..... 70 FT
PLUNGE OF OREBODY.... N10W

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 800 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT CONNECTS TO MAMMOTH WORKINGS EXTENSIVE WORKINGS, 400, 500 AND 600 LEVELS.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	500		TONS	1951-1969	2 1/2% CU, 6.5% ZN

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973 P. 58; COOPER AND SILVER, 1964, P. 163

PRODUCTION COMMENTS.... SHUT DOWN IN 1957 BECAUSE OF FALL IN METAL PRICES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMP. DEV.

HOST ROCK TYPES..... ABRIGO LIMESTONE, MARTIN FORMATION

PERTINENT MINERALOGY..... LIME SILICATES, FELDSPAR, CHLORITE AND QUARTZ GANGUE

IMPORTANT ORE CONTROL/LOCUS.. FAULTS, FISSURES AND FOLDS IN LIMESTONES NEAR THE TOP OF THE MIDDLE MEMBER OF THE

ABRIGO FM IN AN IRRATICALLY GARNETIZED LIMESTONE (PERMEABLE) BENEATH AN IMPERMEABLE WHITE TACTITE. SOME SULFIDE ORE WAS TAKEN FROM WHITE TACTITE OF THE UPPER MEMBER OF THE ABRIGO AND SOME OXIDE ORE HAS COME FROM HE MARTIN FORMATIONS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FLEXURES IN THE BEDS ARE IMPORTANT IN LOCALIZING ORE; THEY ARE RELATED TO NORTH-TRENDING FOLDS, DRAG ON FAULTS, AND CHANGES IN DIPS OF BEDS INDEPENDENT OF ONE ANOTHER (NOT A SINGLE PLUNGING FOLD). COPPER CHIEF #9 FAULT AND EAST 90 FAULTS ARE IMPORTANT. COMPLEX BLOCK FAULTING OF EASTER, NORTHEASTERS AND NORTHWESTERS. (SEE COOPER AND SILVER, 1964, P. 163-4)

SIGNIFICANT ALTERATION:

ALTERATION CONSISTED MAINLY OF THERMAL METAMORPHISM; SOME OF THE RICRYSTALLIZATION CREATED OPEN SPACES IN THE ERRATICALLY GARNETIZED LIMESTONES. LATER ALTERATION CONSISTED OF ORE FLUIDS. OXIDATION OF SULFIDES CREATED MINOR AMOUNTS OF OXIDE ORE.

GENERAL REFERENCES

- 1) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 7, 50, 137, 148-152, 161, 163-165
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 58
- 3) BAKER, A. BRO. 1953, 1954, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: MIN. ENGR., V. 5, NO. 12, P. 1272-1277; AIME TRANS., V. 196, P. 1272-1277
 - 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 5) COOPER, J.R., 1950, JOHNSON CAMP AREA, COCHISE COUNTY, ARIZONA IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 30-39
 - 6) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PINA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650

RECORD 00085

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030581
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... MYSTERY MINE
SYNONYM NAME..... MYSTERY WORKINGS OR TUNNEL

MINING DISTRICT/AREA/SUBDIST. TURQUOISE DIST, GLEESON

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GLEESON, ARIZ.

LATITUDE LONGITUDE
31-44-39N 109-49-06W

THP..... 19S
RANGE.... 25E
SECTION.. 29 32
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5120 FT

POSITION FROM NEAREST PROMINENT LOCALITY: EAST SIDE OF GLEESON RIDGE 1/2 MILE W OF RAILROAD AT A POINT NEAR THE
NORTH END CENTER OF THE QUEEN OF THE HILL CLAIM

LOCATION COMMENTS: SE 1/4 OF SEC 29, NE 1/4 OF SEC 32

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG CU MO

MAIN COMMOD..... PB ZN AG
MINOR COMMOD.... CU MO

MAIN ORE MINERALS:
OXIDIZED PB, ZN

MINOR ORE MINERALS:
WULFENITE, CU MINERALIZATION PYRITE CHALCOPYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4.
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... LOCATED IN ABOUT 1877
BY WHOM..... LOCATED BY MR. J. MCMANN
PRESENT/LAST OWNER..... LATER OWNED BY MRS. P. WARNEKROSS, OWNED IN 1927 BY MYSTERY MINING CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA
MAX THICKNESS..... 50 FT

DESCRIPTION OF WORKINGS

UNDERGROUND
LENGTH OF WORKINGS..... 785 FT

COMMENTS(DESCRIP. OF WORKINGS):
TUNNEL WORKINGS

PRODUCTION

YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE ACC		1.098	TONS	1924	
2 ORE ACC		6.041	TONS	1925	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		9.3	TONS	1924-1930	
16 ORE EST		0.094	TONS	1942	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 84

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN - PERM.
HOST ROCK TYPES..... NACO GROUP LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (75 M.Y., MARVIN AND OTHERS, 1979, RECALCULATED FROM 72.8 M.Y., HAYES, 1970,

AND MARVIN AND OTHERS, 1973)
 IGNEOUS ROCK TYPES..... SUGARLOAF QUARTZ LATITE PORPHYRY. NUMEROUS NARROW TERTIARY DIKES AND SMALL
 IRREGULAR MASSES OF HORNBLENDE ANDESITE PORPHYR, LAMPROPHYRE AND APLITE INTRUDE THE GLEESON QUARTZ MONZONITE
 (178-181 M.Y. OLD, ANDERSON, 1968, P. 1167, DREWES, 1976) IN THE WESTERN PART OF THE COURTLAND GLEESON AREA
 (MCRAE, 1966) THE APLITE DIKES ARE RELATED TO THE SUGARLOAF QUARTZ LATITE DIKES.

AGE OF MINERALIZATION..... CRET. (75 M.Y., MARVIN AND OTHERS, 1978) MCRAE (1966) SUGGESTS TWO PERIODS OF
 MINERALIZATION - ONE PRE-CRETACEOUS (PROBABLY NEVADAN) AND ONE DURING TERTIARY AFTER EMPLACEMENT OF SUGARLOAF
 QUARTZ LATITE.

PERTINENT MINERALOGY..... HEMATITE, LIMONITE, JAROSITE, CALCITE, ARAGONITE, AND KAOLIN.

IMPORTANT ORE CONTROL/LOCUS.. ORE BODIES OCCURRING IN LIMESTONES AS REPLACEMENTS ALONG FRACTURES AND FAULTS ARE
 LARGEST AND RICHEST WHERE FRACTURES INTERSECT, CHANGE DIP OR TURN AND WHERE FISSURING OCCURRED PARALLEL TO
 BEDDING.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

COMPLICATED FAULTING IN GLEESON RIDGE INCLUDES N TO NNW TRENDING GLEESON RIDGE OVER THRUST, NUMEROUS BEDDING
 PLANE (N30W, 45 E DIPPING) FAULTS, AND CROSS FAULTS OF NEARLY VERTICAL DIPS. THE THICK, BRECCIATED, LIMONITIC
 AND SILICIFIED FAULT ZONES ARE MINERALIZED (WILSON, 1927, MCRAE, 1966)

SIGNIFICANT ALTERATION:

NEARLY ALL ORE AND ASSOCIATED MINERAL ARE OXIDIZED AND OCCUR ABOVE THE WATER TABLE. LEAD ORES SEEM TO HAVE
 BEEN OXIDIZED IN PLACE; SILVER MAY HAVE BEEN TRANSPORTED SLIGHTLY.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDATION OF PYRITE YIELDED SULPHURIC ACID WHICH DISSOLVED THE COPPER MINERALS AND REDEPOSITED THEM AS
 MALACHITE AND AZURITE BY CALCIUM CARBONATE OF LIMESTONE AND AS PROBABLE MELACONITE ALONG WITH OXIDES OF
 MANGANESE. THE OXIDIZED MASSES ARE PULVERULENT, OFTEN SILICEDUS, BROWN, YELLOW, OR DARK MASSES OF LIMONITES
 AND BLACKS COLOR OF MANGANESE AND COPPER.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 84
- 2) WILSON, E.D., 1927, GEOLOGY AND ORE DEPOSITS OF THE COURTLAND-GLEESON REGION, ARIZONA: ARIZ. BUR. MINES BULL.
 123, P. 77-78.
- 3) BIDEAUX, R.A., S.A. WILLIAMS, AND R.W. THOMSEN (1960) SOME NEW OCCURRENCES OF MINERALS OF ARIZONA. ARIZ. GEOL.
 SOC. DIGEST, 3: 53-56.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255
 P., P. 121, 156, 205.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA:
 E.M. THESIS, UNIV. ALASKA.
- 7) MCRAE, D.M., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY,
 ARIZONA: SOC. MINING ENGINEERS TRANS., V. 235, NO. 2, P. 133-138.

RECORD 00086

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030568
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, J.C.
 DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... PEARCE DISTRICT
 SYNONYM NAME..... COMMONWEALTH IS PRINCIPLE MINE

MINING DISTRICT/AREA/SUBDIST. PEARCE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
 1: 0062500 PEARCE, ARIZ.

LATITUDE LONGITUDE
 31-54-02N 109-48-52W

UTM NORTHING UTM EASTING UTM ZONE NO
 3529050. 612180. +12

TWP..... 17S 18S
 RANGE..... 25E 25E
 SECTION.. 35 34 33 05 06 01
 MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SURROUNDING PEARCE, ARIZONA

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG F CU U AS MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG
 MINOR PRODUCTS.. F

MAIN COMMOD..... AU AG F

MINOR COMMOD.... CU U AS MO

MAIN ORE MINERALS:

GOLD AND SILVER HALIDES AND CHLORIDES, FLUORITE

MINOR ORE MINERALS:

OXIDIZED COPPER SULFIDES, URANOPHANE OR AUTUNITE; WULFENITE CERARGYRITE, EMBOLITE, CHRYSOCOLLA, NATIVE SILVER
ARGENTITE, ALUNITE, PYRITE, RHODOCHROSITE, IODYRITE, CHALCOCITE, GALENA, CHALCOPYRITE, PROUSTITE,
TETRAHEDRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT VEINS AND BRECCIA ZONES

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	1300	TONS		1895-1940	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973 P. 69

PRODUCTION COMMENTS.... FLUORITE PRODUCED IN 1971

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. AND CRET.
HOST ROCK TYPES..... RHYOLITE AND ANDESITE; BISBEE GROUPAGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... RHYOLITE AND ANDESITE (PEARCE VOLCANICS)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... IN QUARTZ CALCITE VEINS

IMPORTANT ORE CONTROL/LOCUS.. IN BRECCIA ZONES AND IN NARROW REPLACEMENT BEDS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FOLDED AND FAULTED

GENERAL REFERENCES

- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) KEITH, STANTON H., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 69
- 7) SCOTT, W.A., 1916A, COMMONWEALTH MINE AND MILL AT PEARCE, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 187-188
- 8) SMITH, LEWIS A., 1927, THE GEOLOGY OF THE COMMONWEALTH MINE: UNIVERSITY OF ARIZONA, MS THESIS, 73 P.
- 9) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES
- 10) ENDLICH, F.M. (1897) THE PEARCE MINING DISTRICT. ENGR. MINING JOUR. 63: NO. 23.
- 11) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650

RECORD 00087

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030569
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... PEARCE MINE
SYNONYM NAME..... COMMONWEALTH MINE COMMONWEALTH MINE INCLUDES THE EISENHART VEIN, NORTH VEIN, RINAUD
VEIN, SMITH VEIN, FOOTBALL VEIN, MAIN VEIN, EXTENSION VEIN; RITTER VEIN, DISCOVERY STOPE, BROCKMAN VEIN, HARTERY
VEIN (SMITH 1927)

MINING DISTRICT/AREA/SUBDIST. PEARCE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 PEARCE, ARIZ.

LATITUDE LONGITUDE
31-54-02N 109-48-52W

UTM NORTHING UTM EASTING UTM ZONE NO
3529850. 612180. +12

TWP..... 18S
RANGE.... 25E
SECTION.. 05
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4580 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE EAST OF PEARCE, ARIZONA

LOCATION COMMENTS: NE 1/4 SEC 5

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG AU MO

MAIN COMMOD..... AU AG

MINOR COMMOD.... MO

MAIN ORE MINERALS:

CERARGYRITE EMBOLITE SILVER AND GOLD HALIDES

MINOR ORE MINERALS:

PYRITE WULFENITE, SULFO-SALTS, FREE GOLD, CHRYSOCOLLA, NATIVE SILVER, ARGENTITE, ALUNITE,
RHODOCHROMITE, IODYRITE, CHALCOCITE, GALENA, CHALCOPYRITE, PROUSTITE TETRAHEDRITE, TRACES OF MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... COMMONWEALTH MNG. AND MLLNG. CO, MONTANA TONOPAH MNG. AND MLLNG. CO., COMMONWEALTH
DEVELOPMENT CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, BRECCIA ZONES

FORM/SHAPE OF DEPOSIT: TABULAR, STRINGERS, AND MASSIVE

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

350 FT WIDE AND 4000 FT LONG

DESCRIPTION OF WORKINGS

UNDERGROUND

PRODUCTION

YES

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	1000	TONS		1895-1942	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 69

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
 HOST ROCK TYPES..... RHYOLITE AND ANDESITE (PEARCE VOLCANICS)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
 IGNEOUS ROCK TYPES..... RHYOLITE AND ANDESITE (PEARCE VOLCANICS)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... VUGGY QUARTZ-CALCITE VEINS; FRACTURES FILLED WITH QUARTZ, SIDERITE, MANGANIFEROUS
 CALCITE, ALUNITE, SERICITE AND KAOLIN LIMONITE, HEMATITE AND JAROSITE, GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. FRACTURE ZONES WHERE OXIDIZED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURE VEINS AND FAULT BRECCIA ZONES

SIGNIFICANT ALTERATION:
PROPYLITIC ALTERATION AND SILICIFICATION; OXIDATION ENRICHED ORE; ALTERATION MORE INTENSE IN AND NEAR VEIN FRACTURES

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
INTRUSION OF DIKES FRACTURED AND SILICIFIED EARLIER ROCKS; OXIDATION CREATED DRES

COMMENTS (GEOLOGY AND MINERALOGY):
MULFENITE LINING CAVITIES WITH EMBOLITE

GENERAL REFERENCES

- 1) SMITH, LEWIS, A., 1927, THE GEOLOGY OF THE COMMONWEALTH MINE: UNIVERSITY OF ARIZONA, MS THESIS, 73 P.
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 69
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 4) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) SCOTT, W.A., 1916A, COMMONWEALTH MINE AND MILL AT PEARCE, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 187-188
- 6) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES
- 7) ENDLICH, F.M. (1897) THE PEARCE MINING DISTRICT. ENGR. MINING JOUR. 63: NO. 23.
- 8) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 9) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZONA BUREAU OF MINES, 401 P., P. 214-217.
- 10) HOWELL, K.K., 1977, GEOLOGY AND ALTERATION OF THE COMMONWEALTH MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ., 225 P.

RECORD 00088

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... D000757
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 04
BY..... WILT, J.C.

NAME AND LOCATION

DEPOSIT NAME..... REPUBLIC MINE
MINING DISTRICT/AREA/SUBDIST. COCHISE LIST (JOHNSON)/LITTLE DRAGON MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-05-24N 110-03-35W

UTM NORTHING UTM EASTING UTM1ZONE NO

TWP..... 15S
RANGE.... 22E
SECTION.. 36
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5,650 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5.5 MI. NNW FROM DRAGON AND 2 MI. NE FROM THE PRIMOS MINE.

LOCATION COMMENTS: NW 1/4 OF SEC 36

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN AG PB AU BI BE MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU ZN

MAIN COMMOD..... CU ZN AG
MINOR COMMOD..... PB AU BI BE

MAIN ORE MINERALS:
CHALCOPYRITE, SPHALERITE

MINOR ORE MINERALS:
MOLYBDENITE, GALENA, BORNITE, SCHEELITE, MAGNETITE, PYRITE

ANALYTICAL DATA(GENERAL)
4-4.5% CU, 0.50-0.75 OZ AG/T, UNKNOWN (PRE 1940) 1.5-3% CU, 5-10% ZN, 0.3 OZ AG/T TO 0.12 W (POST 1940)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... BLACK PRINCE COPPER CO., ARIZONA CONSOLIDATED MNG. CO., ARIZONA UNITED MNG. CO., ARIZONA
UNITED DEVELOPMENT CO., CORONADO COPPER AND ZINC CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC, TACTITE

FORM/SHAPE OF DEPOSIT: MANTOS AND CHIMNEYS

SIZE/DIRECTIONAL DATA

DEPTH TO TOP	300	FT
MAX LENGTH.....	1500	FT
MAX WIDTH.....	400	FT
MAX THICKNESS.....	40	FT
PLUNGE OF OREBODY...	1 DEGREE - 25 DEGREES	
DIRECTION OF PLUNGE..	560 DEGREES-85 DEGREES E	

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 400 FT

LENGTH OF WORKINGS..... 21,000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE SHAFT WORKINGS TO 1600 LEVEL

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	600	TONS	1880-1952	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 59; COOPER AND SILVER

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB.

HOST ROCK TYPES..... ABRIGO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53 M.Y. LIVINGSTON ETAL 1967)
 IGNEOUS ROCK TYPES..... TEXAS CANYON QUARTZ MONZONITE IS NEARBY

AGE OF MINERALIZATION..... TERT (53 M.Y.)

PERTINENT MINERALOGY..... GARNET LIME SILICATES, ORTHOCLASE, CHLORITE, CALCITE, QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. ORE IS IN MIDDLE MEMBER OF ABRIGO FORMATION AT CONTACT OF GARNETITE AND MARBLE, AT INTERSECTIONS OF NORTHEASTERN FAULTS WITH FAVORABLE BEDS, ESPECIALLY IN THE FOOTWALL SIDE, AT FAULT INTERSECTIONS OF EASTERN AND FAULTS, AND ALONG AXIS OF SHALLOW ANTICLINAL FLEXURE IN BEDS. FAVORABLE BED IS IN ERRATICALLY GARNETIZED (PERMEABLE) LIMESTONE (ALTERNATING WITH SHALE) BELOW A WHITE TACTITE (A SILICATED SILICEOUS DOLOMITE) WHICH IS IMPERMEABLE AND A UNIFORM COMPETENT STRUCTURAL UNIT. (COOPER AND SILVER, 1964, P. 149, 165-8).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTED AND FISSURED; NORTHEASTER AND EASTER FAULTS - REPUBLIC FAULT

SIGNIFICANT ALTERATION:

GARNETITIZED, SILICATED AND MARMOLIZED

GENERAL REFERENCES

- 1) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 165-168, 6,7,38,49-50,95, 111-112, 132, 135, 148-152, 161, 163, 173.
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 8 P., P. 59
- 3) BAKER, ARTHUR, 3D, 1952, PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: PH.D. THESIS, STANFORD UNIVERSITY, 101 P.
 - 4) BAKER, A. 3RD, 1953, 1954, LOCALIZATION OF PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: MIN. ENGR., V. 5, NO. 12, P. 1272-1277; AIME TRANS., V. 196, P. 1272-1277, P. 1272-1273
 - 5) COOPER, J.R., 1950, JOHNSON CAMP AREA, COCHISE COUNTY, ARIZONA IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 30-39, P. 30-36
 - 6) HFINEMAN, R.E.S. (1927) THE GEOLOGY AND ORE DEPOSITS OF THE JOHNSON MINING DISTRICT, ARIZONA. UNIV. ARIZONA M.S. THESIS, 45 P., P. 39
 - 7) KELLOGG, L.D., 1906, SKETCH OF THE GEOLOGY AND ORE DEPOSITS OF THE COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZONA: ECON. GEOL., V. 1, P. 651-659
 - 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 9) LIVINGSTON, D.E., MAUGER, R.L., BENNETT, R., AND LAUGHLIN, A.W., 1967, ARGON 40 IN CO-GENETIC FELDSPAR-MICA MINERAL ASSEMBLAGES: JOUR. GEOPHYS. RES., V. 72, P. 1361-1375.
 - 10) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
 - 11) WARNER, L.A., HOLSER, W.T., WILMARTH, V.R., AND CAMERON, E.N., 1959, OCCURRENCES OF NON-PEGMATITIC BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROF. PAPER 318, P. 97, 99, 101
 - 12) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
 - 5) BLAKE, W.P., 1899, HUEBNERITE IN ARIZONA: AIME TRANS., V. 28, P. 543-546
 - 6) CLAYTON, R.L., 1978, ALTERATION AND MINERALIZATION OF THE CYPRUS JOHNSON DEPOSIT, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 17-24.
 - 7) COOPER, J.R. (1957) METAMORPHISM AND VOLUME LOSSES IN CARBONATE ROCKS NEAR JOHNSON CAMP, COCHISE COUNTY, ARIZONA. GEOL. SOC. AMER. BULL. 68: 577-610.
 - 8) COOPER, JR., 1959, SOME GEOLOGIC FEATURES OF THE DRAGON QUADRANGLE, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK 11 S

SOUTHERN ARIZ., P. 139-145

9)COOPER, J.R. AND L.C. HUFF, 1951, GEOLOGICAL INVESTIGATIONS AND GEOCHEMICAL PROSPECTING EXPERIMENT AT JOHNSON, ARIZONA: ECON. GEOL. V. 46, P. 731-756

10)DALE, V.B., L.A. STENART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650

11)ENLWS, H.E., 1939, GEOLOGY AND ORE DEPOSITS OF THE LITTLE DRAGON MOUNTAINS: UNIV. ARIZ., PHD THESIS

12)HESS, F.L. AND E.S. LARSON, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725

13)GILLULY, J., R. R. COOPER, AND J.S. WILLIAMS, 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266

14)KENTOR, J.A., 1975, SUBSURFACE STRUCTURE AND ALTERATION ON THE FLANKS OF THE LITTLE DRAGON MOUNTAINS, COCHISE COUNTY, ARIZONA: PRESENTATION AT BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SYMPOSIUM SPONSORED BY NEW MEXICO AND ARIZONA GEOL. SOCIETIES, SILVER CITY, NEW MEXICO.

15)MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58.

16)ROMSLO, T.M., 1949, INVESTIGATION OF KEYSTONE AND ST. GEORGE COPPER-ZINC DEPOSITS, COCHISE COUNTY, ARIZONA: U.S. BUR. MINES RI 4504, 21 P.

17)SCOTT, W.A., 19168, MINING OPERATIONS AT JOHNSON, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 141-143

18)THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. NEED; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK

19)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 41-45

RECORD 00099

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030580
RECORD TYPE..... A1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... SILVER BELL MINE
SYMBOL NAME..... COSTELLO GROUP

MINING DISTRICT/AREA/SUBDIST. TURQUOISE DIST./GLEESON

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GLEESON, ARIZ.

LATITUDE LONGITUDE
31-44-34N 109-49-17W

TWP..... 19S
RANGE..... 25E
SECTION.. 32
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE NE OF GLEESON ON WEST SLOPE OF GLEESON RIDGE

LOCATION COMMENTS: NE OF SEC 32

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG AU CU ZN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB

MAIN COMMOD..... PB AG ZN
MINOR COMMOD..... AU CU MO

MAIN ORE MINERALS:
CERARGYRITE DISSEMINATED IN ANGLESITE AND CERUSSITE.

MINOR ORE MINERALS:
WULFENITE, MALACHITE, AZURITE, MELACONITE (?), AURICHALCITE, SMITHSONITE, CALAMINE, PYROLUSITE, MINOR PYRITE,
CHALCOPYRITE, GALENA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED IN 1927 BY MRS MARY COSTELLO OF LOS ANGELES

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT

FORM/SHAPE OF DEPOSIT: IRREGULAR MANTOS, STRINGERS

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 270 FT

LENGTH OF WORKINGS..... 525 FT.

COMMENTS(DESCRIP. OF WORKINGS):

271 FT SHAFT INCLINED, 525 FT DRIFTS, RAISES, WINZES, STOPES (ABM FILE PAGE) SHAFT WORKINGS CONNECT TO MYSTERY
MINE. SHAFT SUNK IN 1890 AND WORKINGS DRIVEN BETWEEN 1893-1896

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE	REMARKS
15 ORE	EST	6.57	TONS	1922-1930, 1938-1941		

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE PAGE

PRODUCTION COMMENTS.... 1880 - RICH PB-AG ORE, 1893-1896 MAJOR ACTIVITY, 1922-1924 150 TO 400 TONS A MONTH FROM
DUMPS (10 OZ AG, \$1.50 AU, 10% PB, CU, 3% MN); 1925-26 920 TONS)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM - PENN

HOST ROCK TYPES..... NACO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (75 M.Y.)

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY DIKE. SUGARLOAF QUARTZ LATITE PORPHYRY. NUMEROUS NARROW
TERTIARY DIKES AND SMALL IRREGULAR MASSES OF HORNBLende ANDESITE PORPHYRY, LAMPROPHYRE AND APLITE INTRUDE THE
GLEESON QUARTZ MONZONITE (178-181 M.Y. OLD, ANDERSON, 1968, P. 1167; DREWES, 1976) IN THE WESTERN PART OF THE
COURTLAND GLEESON AREA (MCRAE, 1966) THE APLITE DIKES ARE RELATED TO THE SUGARLOAF QUARTZ LATITE DIKES

AGE OF MINERALIZATION..... CRET. (75 M.Y.)

PERTINENT MINERALOGY..... HEMATITE, LIMONITE, JAROSITE, CALCITE, ARAGONITE, AND KAOLIN.

IMPORTANT ORE CONTROL/LOCUS.. IN NACO LIMESTONE IN CONTACT WITH QUARTZ MONZONITE AND QTZ MONZ. DIKE. MANTOS ORE BODIES OCCURRING IN LIMESTONES AS REPLACEMENTS ALONG FRACTURES AND FAULTS ARE LARGEST AND RICHEST WHERE FRACTURES INTERSECT, CHANGE DIP OR TURN AND WHERE FISSURING OCCURRED PARALLEL TO BEDDING.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

PROMINENT FAULT FROM TOM SCOTT MINE; FAULTS STRIKE N50-80E AND DIP 40-80 AND CUT BY ANOTHER FAULT SYSTEM AT RIGHT ANGLES AND COMPLICATED FAULTING IN GLEESON RIDGE INCLUDES N TO NNW TRENDING GLEESON RIDGE OVERTHRUST, NUMEROUS BEDDING PLANE (N30W, 45 E DIPPING) FAULTS, AND CROSS FAULTS OF NEARLY VERTICAL DIPS. THE THICK, BRECCIATED, LIMONITIC AND SILICIFIED FAULT ZONE ARE MINERALIZED (WILSON, 1927, MACRAE, 1966)

SIGNIFICANT ALTERATION:

OXIDIZED, SOLUTION CAVITIES IN LIMESTONE AND NEARLY ALL ORE AND ASSOCIATED MINERALS ARE OXIDIZED AND OCCUR ABOVE THE WATER TABLE. LEAD ORES SEEM TO HAVE BEEN OXIDIZED IN PLACE; SILVER MAY HAVE BEEN TRANSPORTED SLIGHTLY.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDATION OF PYRITE YIELDED SULPHURIC ACID WHICH DISSOLVED THE COPPER MINERALS AND REDEPOSITED THEM AS MALACHITE AND AZURITE BY CALCIUM CARBONATE OF LIMESTONE AND AS PROBABLE MELACONITE ALONG WITH OXIDES OF MANGANESE. THE OXIDIZED MASSES ARE PULVERULENT, OFTEN SILICEOUS, BROWN, YELLOW, OR DARK MASSES OF LIMONITES AND BLACKS COLORS OF MANGANESE AND COPPER.

COMMENTS (GEOLOGY AND MINERALOGY):

MULFENITE OCCURS AS CRYSTALS LINING SOLUTION CAVITIES OR SCATTERED THROUGH MASSES OF OXIDIZED LEAD ORE AND MANGANITIC MATERIAL. SILVER PROBABLY OCCURS AS CERARGYRITE DISSEMINATED WITHIN ANGLESITE OR CERUSSITE AND ELSEWHERE. THE SMALL AMOUNT OF GOLD PRESENT MAY BE CONTAINED BOTH IN THE SILVER AND FINELY DISSEMINATED IN SILICEOUS LIMONITE. ZINC MINERALS USUALLY OCCUR A FEW FEET BELOW OR AWAY FROM, RATHER THAN WITH, THE LEAD MINERALS IN A GIVEN STOPE. (WILSON, 1927, P. 50-51)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 84.
- 2) WILSON, E.D., 1927, GEOLOGY AND ORE DEPOSITS OF THE COURTLAND-GLEESON REGION, ARIZONA: ARIZ. BUR. MINES BULL. 123, P. 74-75.
- 3) RANSOME, F.L., 1912, ACTIVITIES IN THE TURQUOISE COPPER DISTRICT, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 1359-1361
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.M. THESIS, UNIV. ALASKA.
- 7) MACRAE, D.M., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY, ARIZONA: SOC. MINING ENGINEERS TRANS., V. 235, NO. 2, P. 133-138.

RECORD 00090

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030564
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
 DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... SILVERBELL

MINING DISTRICT/AREA/SUBDIST. DOS CABEZAS DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
 1: COCHISE HEAD

TWP..... 14S
 RANGE.... 29E
 SECTION.. 29 30 C
 MERIDIAN. G&SR

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU MO ZN MN

MAIN ORE MINERALS:

MINOR ORE MINERALS:

GALENA SCHEELITE CHALCOPYRITE PYRITE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... E-W
 DIP OF OREBODY..... 80-85 DEGREES S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS-PENN
 HOST ROCK TYPES..... LIMESTONE ESCABROSA-HORQUHALLA

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN LS HOST

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

NO LLASTONIZATION IN ESCABROSA (1 1/2 MI LONG LAYER 10°)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SPARSE TREMOLITE

GENERAL REFERENCES

1) DOUG SILVER, UNPUBLISHED DATA SEE UA MS THESIS 1980-81

RECORD 00091

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030577
 RECORD TYPE..... K1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
 DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... STANDARD PROSPECT

MINING DISTRICT/AREA/SUBDIST. COCHISE DIST. (JOHNSON)/LITTLE DRAGON MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
 1: 0062500 DRAGON ,ARIZONA

LATITUDE LONGITUDE
 32-03-58N 110-02-26E

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 16S
 RANGE.... 23E
 SECTION.. 06
 MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4700 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.7 KM SE BM 4921; 2 MILES SE OF KEYSTONE MINE

LOCATION COMMENTS: SW 1/4 OF SEC 6)

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN CU W BE MO

MAIN COMMOD.....

MINOR COMMOD..... ZN CU W BE MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
SPHALERITE, CHALCOPYRITE, BORNITE, CHALCOCITE, POWELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... OWNED IN 1955 BY MRS THOMAS ADAMS OF DRAGON

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: MANTOS

SIZE/DIRECTIONAL DATA
DEPTH TO TOP UNDER ALLUVIUM

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS AND DIAMOND DRILL HOLES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMBRIAN
HOST ROCK TYPES..... ABRIGO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (53 M.Y., LIVINGSTON
IGNEOUS ROCK TYPES..... TEXAS CANYON QUARTZ MONZONITE IS IN AREA.

AGE OF MINERALIZATION..... TERT (53 M.Y.)

PERTINENT MINERALOGY..... CRYSTALIZED LIMESTONE, GARNET, LIME SILICATES, ORTHOCLSE, QUARTZ, ZOISITE, EPIDOTE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 167, 98 P., P. 59
- 2) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 79, 95, 111, 179.
- 3) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318, P. 98
- 4)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 6)DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI5650

RECORD 00092

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M001252
RECORD TYPE..... K2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 01
BY..... WILT, J.C.

NAME AND LOCATION

DEPOSIT NAME..... SWISSHELM DISTRICT
MINING DISTRICT/AREA/SUBDIST. SWISSHELM DISTRICT/SWISSHELM MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 SWISSHELM MTN., A-1Z.

TWP..... 20S
RANGE.... 27E
SECTION.. 12 01
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5520 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES SOUTH OF RUCKER CANYON ROAD AND WHITEWATER DAM

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG CU AU V MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG AU
MINOR PRODUCTS.. ZN CU

MAIN COMMOD..... PB ZN AG
MINOR COMMOD..... CU AU

MAIN ORE MINERALS:
GALENA, CERUSSITE

MINOR ORE MINERALS:
PYRITE, VANADINITE OXIDIZED ZINC AND MINOR COPPER, OXIDIZED BASE METAL SULFIDES, SCHEELITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS ADIT AND SHAFT WORKINGS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST 49		TONS	1937-1953	
16 PB	ACC 9271.217	LBS		1918-1949	GALBRAITH AND LORING, 1951
17 AG	ACC 244.78	OZ		1918-1949	
18 AU	ACC 2.887	OZ		1918-1949	
19 ZN	ACC 197.5	LBS		1918-1949	
20 CU	ACC 49.318	LBS		1926-1949	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 70

PRODUCTION COMMENTS.... PRODUCTION OF LEAD, SILVER AND GOLD AT INTERVALS FROM 1885 TO 1918 BUT FIGURES ARE NOT AVAILABLE (GALBRAITH AND LORING, 1951, P. 32)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN PERM
 HOST ROCK TYPES..... NACQ GROUP LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY

PERTINENT MINERALOGY..... QUARTZ AND CALCITE

IMPORTANT ORE CONTROL/LOCUS.. MOST PRODUCTIVE BEDS ARE IMMEDIATELY ABOVE THE DIORITE PORPHYRY AND WERE APPARENTLY LOCALIZED BY THE INTERSECTIONS OF NORTHWESTERLY AND NORTHEASTERLY TENSION FRACTURES WITH THE FAVORABLY FRACTURED AND BRECCIATED LIMESTONE BEDS. (GALBRAITH AND LORING, 1951, P. 32)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FOLDED AND FAULTED; TABULAR DIORITE PORPHYRY INTRUDES ALONG A STRONG NW STRIKING 10-15 DEGREES E DIPPING THRUST FAULT

GENERAL REFERENCES

- 3) SWISSHELM DIST.
 - GALBRAITH, F.W. AND W.B. LORING, 1951, SWISSHELM DISTRICTS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 30-36
 - 4) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 70-71.
 - 5) DIERY, H.D., 1964, PETROGRAPHY AND PETROGENETIC HISTORY OF A QUARTZ MONZONITE INTRUSIVE, SWISSHELM MOUNTAINS, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ., 100 P.
 - 6) LORING, W.B., 1947, GEOLOGY AND ORE DEPOSITS OF THE MOUNTAIN QUEEN AREA, NORTHERN SWISSHELM MOUNTAINS, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
 - 7) COOPER, JOHN R., 1960, RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213
 - 8) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5560, P. 58.
 - 9) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 P., P. 227-233., P. 230-231. (SWISSHELM)
- 4) NEARBY CHIRICAHUA MTS:
 - DREWES, H., WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY, ARIZONA: USGS BULL. 1385-A, 53 P.
 - 5) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 190, P. 182-205, P. 189.
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
 - 7) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 8) BRITAIN, R.L. GEOLOGY AND ORE DEPOSITS OF THE WESTERN PORTION OF THE HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 97 P. (1954)
 - 9) BADGER, S.S., 1911, THE CHIRICAHUA MOUNTAINS: ENGR. MIN. JOUR., V. 91, P. 663
 - 10) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
 - 11) COLL, A., 1910, THE CALIFORNIA DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 503
 - 12) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.
 - 13) EATON, G.P., 1970, ALTERED (PYRITIZED) ROCKS IN SAN SIMON VALLEY, SOUTHEASTERN ARIZONA: GEOLOGICAL SURVEY RESEARCH 1970: CHAPTER A, U.S. GEOL. SURVEY, PROF. PAPER 700-A, P. A 37
 - 14) PAPKE, KEITH G. GEOLOGY AND ORE DEPOSITS OF THE EASTERN PORTION HILLTOP MINE AREA, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 99 P., MAPS (1952)
 - 15) ENLWS, H.E. 4. WELDED TUFFS OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AM. BULL., V. 66, NO. 10, P. 1215-1246, MAP (1955)
 - 16) ENLWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)
 - 17) FERNANDEZ, L.A., JR., AND ENLWS, H.E., 1966, PETROGRAPHY OF THE FARAWAY RANCH FORMATION, CHIRICAHUA NATIONAL MONUMENT, ARIZONA: GEOL. SOC. AMERICA BULL., V. 77, P. 1017-1030.
 - 18) MARJANIEMI, D., 1968, TERTIARY VOLCANISM IN THE NORTHERN CHIRICAHUA MOUNTAINS, COCHISE COUNTY, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 209-214.
 - 19) MARJANIEMI, D.K., 1969, GEOLOGIC HISTORY OF AN ASHFLOW SEQUENCE AND ITS SOURCE AREA IN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZONA, 176 P.
 - 20) PAIGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 380, P. 299-211
 - 21) THE MINES HANDBOOK, VOL. XV-SVII, 1922-1926 BY W.H. WEED: PUBLISHED BY THE MINES HANDBOOK COMPANY NEW YORK
 - 22) RAYDON, G.T. GEOLOGY OF THE NORTHEASTERN CHIRICAHUA MOUNTAINS, ARIZONA: UNIV. CALIF., MA THESIS (1952)
 - 23) SAUER, CARL BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOL., V. 3, NO. 6, P. 339-414 (1930)
 - 24) SABINS, F.F., 1955, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF VANAR QUADRANGLES, ARIZONA: YALE UNIV.,

PHD THESIS

25)SABINS, F.F., 1957B, STRATIGRAPHIC RELATIONS IN THE CHIRICAHUA AND DOS CABEZAS MOUNTAINS, ARIZONA: AM.
ASSOC. PETROLEUM GEOLOGISTS BULL., V. 41, P. 466-510

26)SABINS, F.F., 1957A, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF THE VANAR QUADRANGLES, ARIZONA: GEOL.
SOC. AMERICA BULL., V. 68, P. 1315-1342

RECORD 00093

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030579
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... TOM SCOTT MINE
MINING DISTRICT/AREA/SUBDIST. TURQUOISE DIST/GLEESON
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GLEESON, ARIZ.

LATITUDE LONGITUDE
31-44-24N 109-49-15W

TWP..... 19S
RANGE.... 25E
SECTION.. 32
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5350 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON WEST SLOPE OF GLEESON RIDGE

LOCATION COMMENTS: CENTER OF SEC 32

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AG AU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE, MALACHITE, AZURITE, MELACONITE (?), AURICHALCITE, SMITHSONITE, CALAMINE, PYROLUSITE, MINOR PYRITE,
CHALCOPYRITE, GALENA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA FILLED SOLUTION CAVITIES
FORM/SHAPE OF DEPOSIT: STRINGERS

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS..... 2600 FT

COMMENTS(DESCRIP. OF WORKINGS):
TUNNEL WORKINGS

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 PB-AG ORE	EST		TONS	1925	

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	.44	TONS	1929-1933	
16 ORE	ACC	.89	TONS	1943-1947	
17 ORE	ACC	.17	TONS	1954	
18 ORE	EST	2.5	TONS	WORLD WAR I	20 OZ AG/T, 7 1/2% PB, 3 1/2% CU, \$2.25 AU/T OZ, WILSON, P. 73

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 84

PRODUCTION COMMENTS.... A FEW THOUSAND TONS OF ORE PRODUCED IN 1880'S AND EARLY 1900'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN-PERM
HOST ROCK TYPES..... NACD GROUP LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (75 M.Y. MARVIN ET AL 1979) CRET. (75 M.Y., MARVIN AND OTHERS, 1978, RECALCULATED FROM 72.8 M.Y., HAYES, 1970, AND MARVIN AND OTHERS, 1973)
IGNEOUS ROCK TYPES..... SUGARLOAF QUARTZ LATITE PORPHYRY. NUMEROUS NARROW TERTIARY DIKES AND SMALL IRREGULAR MASSES OF HORNBLende ANDESITE PORPHYRY, LAMPROPHYRE AND APLITE INTRUDE THE GLEESON QUARTZ MONZONITE (178-181 M.Y. OLD, ANDERSON, 1968, P. 1167; DREWES, 1976) IN THE WESTERN PART OF THE COURTLAND GLEESON AREA (MCRAE, 1966) THE APLITE DIKES ARE RELATED TO THE SUGARLOAF QUARTZ LATITE DIKES.

AGE OF MINERALIZATION..... CRET. (AFTER 75 M.Y., MARVIN AND OTHERS, 1978) MCRAE (1966) SUGGESTS TWO PERIODS OF MINERALIZATION-ONE PRE-CRETACEOUS (PROBABLY NEVADAN) AND ONE DURING TERTIARY AFTER EMPLACEMENT OF SUGARLOAF QUARTZ LATITE.

PERTINENT MINERALOGY..... HEMATITE, LIMONITE, JAROSITE, CALCITE, ARAGONITE, AND KAOLIN.

IMPORTANT ORE CONTROL/LOCUS.. ORE BODIES OCCURRING IN LIMESTONES AS REPLACEMENTS ALONG FRACTURES AND FAULTS ARE LARGEST AND RICHEST WHERE FRACTURES INTERSECT, CHANGE DIP OR TURN AND WHERE FISSURING OCCURRED PARALLEL TO BEDDING.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

COMPLICATED FAULTING IN GLEESON RIDGE INCLUDES N TO NNW TRENDING GLEESON RIDGE OVER THRUST, NUMEROUS BEDDING PLANE (N30W, 45 E DIPPING) FAULTS, AND CROSS FAULTS OF NEARBY ULTS, AND CROSS FAULTS OF NEARLY VERTICAL DIPS. THE THICK, BRECCIATED, LIMONITIC AND SILICIFIED FAULT ZONES ARE MINERALIZED (WILSON, 1927; MACRAE, 1966)

SIGNIFICANT ALTERATION:

NEARLY ALL ORE AND ASSOCIATED MINERALS ARE OXIDIZED AND OCCUR ABOVE THE WATER TABLE. LEAD ORES SEEM TO HAVE BEEN OXIDIZED IN PLACE; SILVER MAY HAVE BEEN TRANSPORTED SLIGHTLY.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDATION OF PYRITE YIELDED SULPHURIC ACID WHICH DISSOLVED THE COPPER MINERALS AND REDEPOSITED THEM AS MALACHITE AND AZURITE BY CALCIUM CARBONATE OF LIMESTONE AND AS PROBABLE MELACONITE ALONG WITH OXIDES OF MANGANESE. THE OXIDIZED MASSES ARE PULVERULENT, OFTEN SILICEOUS, BROWN, YELLOW, OR DARK MASSES OF LIMONITES AND BLACKS COLORS OF MANGANESE AND COPPER.

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS AS CRYSTALS LINING SOLUTION CAVITIES OR SCATTERED THROUGH MASSES OF OXIDIZED LEAD ORE AND MANGANITIC MATERIAL. SILVER PROBABLY OCCURS AS CERARGYRITE DISSEMINATED WITHIN ANGLESITE OR CERUSSITE AND ELSEWHERE. THE SMALL AMOUNT OF GOLD PRESENT MAY BE CONTAINED BOTH IN THE SILVER AND FINELY DISSEMINATED IN SILICEOUS LIMONITE. ZINC MINERALS USUALLY OCCUR A FEW FEET BELOW OR AWAY FROM, RATHER THAN WITH, THE LEAD MINERALS IN A GIVEN STOPE. (WILSON, 1927, P. 50-51)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 84.
- 2) WILSON, E.D., 1927, GEOLOGY AND ORE DEPOSITS OF THE COURTLAND-GLEESON REGION, ARIZONA: ARIZ. BUR. MINES BULL. 123, P. 72-74.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 4) BIDEAUX, P.A., S.A. WILLIAMS, AND R.W. THOMSEN (1960) SOME NEW OCCURRENCES OF MINERALS OF ARIZONA. ARIZ. GEOL. SOC. DIGEST, 3: 53-569
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.M. THESIS, UNIV. ALASKA.
- 7) MACRAE, D.M., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY, ARIZONA: SOC. MINING ENGINEERS TRANS., V. 235, NO. 2, P. 133-138.

RECORD 00094

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000989
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... TOMBSTONE DIST.
 MINING DISTRICT/AREA/SUBDIST. TOMBSTONE DISTRICT/TOMBSTONE HILLS
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
 1: 0062500 TOMBSTONE, AZ.

LATITUDE LONGITUDE
 31-42-30N 110-04- W

TWP..... 20S 21S
 RANGE..... 21E 22E
 MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 0-3 MILES S & SW OF TOMBSTONE

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB MN CU ZN AU MO V CO SB TE MECA CLAY, AS

MAIN COMMOD..... AG PB MN

MINOR COMMOD..... CU ZN AU MO V MECA CLAY, AS CO SB TE

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA AND TETRAHEDRITE

MINOR ORE MINERALS:

PYRITE, SPHALERITE, CHALCOPYRITE, CERUSSITE, WULFENITE, BROMYRITE, CERARGYRITE, SMITHSONITE, MALACHITE,
 NATIVE GOLD AND SILVER, CHALCOCITE AND ARGENTITE, ALLANITE, PSILOMELANE, ALABANDITE, ANGLESITE, AURICHALCITE,
 TENORITE, AZURITE, BEAVERITE, BINHEIMITE, BORNITE, BOURNONITE, VANADINITE, BROCHANTITE, COPPER, CALAMINE,

CHRYSOCOLLA, CONNELLITE, COVELLITE, CUPRITE, EMBOLITE, EMMONSITE, FAMATINITC, HESSITE, HETAEROLITE, HYDROZINCITE, MAGNETITE, MANGANITE, MOLLANDITE MOTTAMITE (CUPRODESCLOIZITE, PLUMBOJAROSITE, DESCLOIZITE, PYROLUSITE, PYROMORPHITE, ROSASITE, STROMEYERITE, TELLURIUM.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT, FISSURE VEIN

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SHAFT MINES AND PROSPECTS

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PB-AG ORE	EST	1500	TONS	1878-1970	
16 MN CONCENT	ES		TONS	1878-1970	SMELTER FLUX
17 PB EST		15000	LBS		
18 CU EST		1.5	TONS	1900-1970	
19 PB EST		22.5	TONS	1900-1970	
20 ZN EST		0.59	TONS	1900-1970	
21 AU EST		240	OZ	1900-1970	
22 AG EST		30000	OZ	1900-1970	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 73 13

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ. CRET.
 HOST ROCK TYPES..... NACO GROUP AND BISBEE FORMATION

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. TERI.
 IGNEOUS ROCK TYPES..... DIKES, UNCLE SAM QUARTZ LATITE PORPHYRY AND TUFF.

PERTINENT MINERALOGY..... LIMONITE

IMPORTANT ORE CONTROL/LOCUS.. THE MOST FAVORABLE LOC1 FOR ORE DEPOSITION WERE WHERE A NORTHEAST FISSURE VEIN, DIKE OR PREMINERAL FAULT CUT A FAVORABLE HORIZON THAT HAD BEEN FOLDED BY ONE OF THE WEST-NORTHWEST-TRENDING ANTICLINAL FLEXURES. IN MOST CASES, THE LOWER LIMESTONES OF THE BISBEE FM. WERE MORE TIGHTLY FOLDED AND FRACTURED THAN WERE THE UNDERLYING NACO LIMESTONES. THESE FEATURES, TOGETHER WITH THE FACT THAT THE LIMESTONES WERE CAPPED AND BOTTOMED BY IMPERMEABLE HORNFELSIC SHALES, MADE THEM THE MOST RECEPTIVE HOSTS IN THE DISTRICT. FRACTURING AND PERMEABILITY ARE THE GREATEST WHERE THE BENDS ARE THE SHARPEST.

THE HORNFELSIC SHALES FRACTURED WELL, THUS PROVIDING EXCELLENT, CONFINED CHANNEL WAYS FOR ASCENDING MINERALIZING SOLUTIONS; AND, BECAUSE THEY WERE UNSHATTERED AND COMPETENT EXCEPT IN THE IMMEDIATE VICINITY OF THE FISSURE VEINS, THEY FORMED IMPERMEABLE CAPS UNDER WHICH THE SOLUTIONS COULD SPREAD AND REPLACE FAVORABLE LIMESTONE HORIZONS. SINCE THE BISBEE FORMATION IS MOSTLY SHALE AND SANDSTONE THAT ALTERED TO HORNFELS AND QUARTZITE, MUCH OF THE ORE WAS CONFINED TO FISSURE VEINS AND FAULTS. HOWEVER, THE LARGEST OREBODIES OCCURRED AS LIMESTONE

REPLACEMENT DEPOSITS. FAVORABLE HORIZONS FOR REPLACEMENT DEPOSITS WERE THE "10-FOOT LIMESTONE," THE "BLUE LIMESTONE" AND THE "NOVACULITE," OF THE LOWER BISBEE FORMATION AND THE UPPERMOST BEDS OF THE NACO GROUP.

SEVERAL OREBODIES WERE FORMED WITHIN THE LARGER FAULTS. THESE DEPOSITS GENERALLY OCCURRED AT THE INTERSECTIONS OF FAULTS AND FISSURE VEINS, PARTICULARLY WHERE A FISSURE VEIN HOOKED INTO AND PARALLELED THE FAULT FOR SOME DISTANCE BEFORE CONTINUING IN A NORTHEASTERLY DIRECTION. OREBODIES SO FORMED WERE USUALLY IRREGULAR, ERRATIC AND PIPELIKE IN SHAPE. (DEVERE, 1978)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SEVERAL PERIODS OF FAULTING, WITH MOVEMENT ALONG THE SAME STRUCTURE, SOMETIMES IN DIFFERENT DIRECTIONS, HAS COMPLICATED THE UNRAVELLING OF THE TECTONIC HISTORY.

TWO STRUCTURAL FEATURES PREDOMINATE: THE AJAX HILL HORST AND THE TOMBSTONE BASIN (BUTLER AND OTHERS, 1938). THE AJAX HILL HORSE, LOCATED MOSTLY SOUTH AND EAST OF FIGURE 4, IS A 6 M2 AREA THAT IS BOUNDED ON THE WEST BY THE NORTH-SOUTH TRENDING AJAX HILL FAULT, ON THE NORTH BY THE EAST-WEST TRENDING PROMPTER REVERSE FAULT, AND ON THE SOUTH BY THE NORTHEAST-SOUTHWEST TRENDING HORQUILLA PEAK FAULT (GILLULY, 1956). TO THE EAST, THE BOUNDARY IS CONCEALED BY ALLUVIUM. DISPLACEMENT ALONG THE BOUNDARY FAULTS HAS BEEN SIGNIFICANT; (DEVERE, 1978)

SIGNIFICANT ALTERATION:

THE INTRUSION OF THE SCHIEFFELIN GRANODIORITE AND ITS ACCOMPANYING DIKES METAMORPHOSED THE ROCKS IN THE TOMBSTONE MINING DISTRICT PRIOR TO MINERALIZATION. SHALE AND SANDSTONE OF THE BISBEE FORMATION WERE CONVERTED TO HORNFELS AND QUARTZITE WHICH FRACTURED WELL AND HELPED DEVELOP THE LONG CONTINUOUS TENSION FRACTURES DURING THE MANY PERIODS OF FAULTING. LIMESTONE OF THE BISBEE FORMATION AND UPPER NACO GROUP WERE RECRYSTALLIZED, WHILE THE "NOVACULITE," THE BASAL MEMBER OF THE BISBEE FORMATION, ALTERED TO A JASPEROID. SULFIDE ORE WAS ALTERED TO OXIDES (DEVERE, 1978)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

PRIOR TO THE INTRUSION OF THE SCHIEFFELIN GRANODIORITE THE TOMBSTONE BASIN WAS SUBJECT TO EAST-WEST AND NORTH-SOUTH FAULTING. FOLLOWING THE INTRUSION OF THE GRANODIORITE, DIKES OF SIMILAR COMPOSITION WERE EMPLACED ALONG MANY OF THE PRE-EXISTING FAULTS. THE BASIN WAS THEN FAULTED ALONG NORTH-NORTH-EAST TRENDS, AND THERE WAS RENEWED MOVEMENT ALONG THE EAST-WEST AND NORTH-SOUTH FAULTS WHICH BROUGHT ABOUT THE DEVELOPMENT OF A SERIES OF NORTHEAST TENSION FRACTURES. THEREAFTER, THE FAULTS AND THE TENSION FRACTURES WERE MINERALIZED, WITH THE TENSION FRACTURES BECOMING THE NORTHEAST FISSURE VEINS. FOLLOWING MINERALIZATION, THE BASIN WAS AGAIN DISRUPTED BY FAULTING ALONG WEST-NORTHWEST AND NORTH-NORTHWEST TRENDS. MOVEMENT ALONG THE NEWLY CREATED AND PRE-EXISTING FAULTS TILTED THE BASIN TO THE NORTH AND NORTHEAST. (DEVERE, 1978)

COMMENTS (GEOLOGY AND MINERALOGY):

THERE APPEAR TO HAVE BEEN AT LEAST TWO PHASES OF MINERALIZATION: AN EARLIER IRON, LEAD, ZINC, COPPER SULFIDE PHASE THAT WAS RICH IN SILVER AND CONTAINED SIGNIFICANT GOLD AND A LATER MANGANESE-SILVER PHASE.

THE LATER MANGANESE-SILVER ORES OCCUR MOSTLY IN THE SOUTHERN AND WESTERN PARTS OF THE DISTRICT PRINCIPALLY IN OREBODIES ASSOCIATED WITH THE PROMPTER AND LUCKY CUSS FAULTS.

RANSOME (1920) CONCLUDED THAT THERE WAS LITTLE DOUBT THAT THE MANGANESE-SILVER DEPOSITS OCCURRED, AT LEAST IN PART, DUE TO THE REACTION BETWEEN THE CARBONATE HOST ROCKS AND THE OXIDIZING SULFIDE DEPOSITS. HOWEVER, THE MUCH LOWER SILVER AND LEAD, AND THE HIGHER COPPER CONTENT OF THE MANGANESE-RICH ORES COMPARED TO THE LOW-MANGANESE SULFIDE ORES SUGGESTS A SEPARATE, DISTINCT PHASE OF MINERALIZATION. (DEVERE, 1978)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 73-80
- 2) BUCHARD, H.C., 1884, PRODUCTION OF GOLD AND SILVER IN THE UNITED STATES, 1883: U.S. DEP. OF TREASURY, DOC. 604, P. 36-50.
- 3) BUTLER, B.S. AND E.D. WILSON, 1942, ORE DEPOSITS AT TOMBSTONE, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES, P. 201-203; PRINCETON UNIV. PRESS
- 4) BUTLER, B.S., E.D. WILSON, AND C.A. RASOR, 1938, GEOLOGY AND ORE DEPOSITS OF THE TOMBSTONE DISTRICT, ARIZONA: ARIZ. BUR. MINES BULL. 143

- 5) BUTLER, B.S. E.D. WILSON, ET AL. (1938) SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12: 136 P.
- 6) BLAKE, W.P., 1882, THE GEOLOGY AND VEINS OF TOMBSTONE, ARIZONA: AIME TRANS., V. 10, P. 334-345
- 7) CHURCH, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AIME TRANS., V. 33, P. 3-37
- 8) RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710, P. 96-103, P. 113-119.
- 9) BUTLER, B.S. AND E.D. WILSON, 1938, STRUCTURAL CONTROL OF THE ORE DEPOSITS AT TOMBSTONE, ARIZONA: ARIZ. BUR. MINES BULL. 145, P. 101-110
- 2) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
- 2) DEVERE, B.J., JR., 1978, THE TOMBSTONE MINING DISTRICT, HISTORY, GEOLOGY AND ORE DEPOSITS: NEW MEXICO GEOL. SOC. GUIDEBOOK, LAND OF COCHISE, P. 315-320.
- 3) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 4) DEVERE, J.M., 1960, THE TOMBSTONE BONANZA, 1878-1886: ARIZONA PIONEERS HIST. QUART., V. 1, P. 16-20.
- 5) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, 169 P.
- 7) VC ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, 169 P.
- 7) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. 1-5.
- 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 10) NEWELL, R.A., 1974, EXPLORATION GEOLOGY AND GEOCHEMISTRY OF THE TOMBSTONE-CHARLESTON AREA, COCHISE COUNTY, ARIZONA (PH.D. DISSERTATION): STANFORD, CALIF., STANFORD UNIV., 205 P.
- 11) ANDERSON, G.E. (AND OTHERS) AEROMAGNETIC MAP OF TOMBSTONE AND VICINITY, COCHISE AND SANTA CRUZ COUNTIES, ARIZONA: USGS OPEN-FILE REP., SCALE 1:125,000 (1965)
- 12) LEE, L.C. (1967) THE ECONOMIC GEOLOGY OF PORTIONS OF THE TOMBSTONE-CHARLESTON DISTRICT, COCHISE COUNTY, ARIZONA, IN LIGHT OF 1967 SILVER ECONOMICS. UNIV. ARIZONA M.S. THESIS, 99 P.
- 13) NEFDHAM, A.B. AND W.R. STORMS, 1956, INVESTIGATION OF TOMBSTONE DISTRICT MANGANESE DEPOSITS, COCHISE COUNTY, ARIZONA: U.S. BUR. MINES RI 5188
- 14) SPANGLER, DANIEL P.
- 15) RASOR, C.A. (1937) MINERALOGY AND PETROGRAPHY OF THE TOMBSTONE MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 115 P.
- 16) WILSON, E.D. AND G.M. BUTLER, 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 17) NEWELL, R.A. 1976, EXPLORATION GEOLOGY AND GEOCHEMISTRY OF THE TOMBSTONE-CHARLESTON AREA, COCHISE COUNTY, ARIZONA (ABSTR): ABSTR. INT., VOL. 36, NO. 9, P. 4353B-4354B
- 18) WILLIAMS, S.A. 1978, KHINITE, PARAKHINITE, AND DUGGANITE, THREE NEW TELLURATES FROM TOMBSTONE, ARIZONA: AM. MINERAL., VOL. 63, NO. 9-10, P. 1016-1019.

RECORD 00095

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030586
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... TRIBUTE MINE

MINING DISTRICT/AREA/SUBDIST. TOMSTONE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0024000 TOMSTONE, ARIZONA

LATITUDE LONGITUDE
31-42-09N 100-04-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3500645.0 584205.0 +12

TWP..... 20S
RANGE.... 22E
SECTION.. 11
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4650 FT

LOCATION COMMENTS: SOUTH CENTER OF SEC. 11

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG AU CU MO

MAIN COMMOD..... PB AG AU
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:

OXIDIZED ARGENTIFEROUS AND AURIFEROUS BASE METAL SULFIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... DIKES ARE N12E

DIP OF OREBODY..... 75-85W

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT WORKINGS

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 80

PRODUCTION COMMENTS.... PRODUCED SEVERAL HUNDRED TONS OF ORE IN 1880'S AND A SMALL TONNAGE INTERMITTENTLY SINCE THEN.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET.

HOST ROCK TYPES..... BISBEE GROUP SHALES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.

IGNEOUS ROCK TYPES..... DIKE OF GRANODIORITE TO DIORITE

IMPORTANT ORE CONTROL/LOCUS.. WHERE FOLD IS INTERSECTED BY A DIKE AND "NORTHEAST" FISSURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

OXIDIZED MINERALIZATION; DIKES ARE DEEPLY ALTERED

COMMENTS (GEOLOGY AND MINERALOGY):

GOLD CONTENT IS GREATEST IN OR NEAR THE NE FISSURES

GENERAL REFERENCES

1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 73-80

2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, B.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.

3)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

4)KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.

S1CHURCH, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AINE TRANS., V. 33, P. 3-37
6)BUTLER, B.S., E.D. WILSON, AND C.A. RASOR, 1938, GEOLOGY AND ORE DEPOSITS OF THE TOMSTONE DISTRICT, ARIZONA:
ARIZ. BUR. MINES BULL. 143
7)DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ
COUNTIES, ARIZ. U.S. BUR. MINES RI5650

RECORD 00096

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030579
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... TUNGSTEN KING
SYNONYM NAME..... BLACK ROCK GROUPS, TUNGSTEN QUEEN GROUP.

MINING DISTRICT/AREA/SUBDIST. COCHISE DIST/LITTLE DRAGON MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE

QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGON, ARIZONA

LATITUDE LONGITUDE
32-04-34N 110-08-57W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 16S
RANGE.... 22E
SECTION.. 01 06
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5250 FT - DALE 4,900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 6.6 KM SW OF JOHNSON PEAK; IN CLARK CANYON (DALE); FROM HUGHES CANYON
SOUTH FOR A MILE (COOPER AND SILVER)

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU PB MO BE

MAIN COMMOD..... W
MINOR COMMOD.... CU PB MO RI BE

MAIN ORE MINERALS:
SCHEELITE, PYRITE, GALENA

MINOR ORE MINERALS:
TETRADYMITE, BERYL, CHALCOPYRITE WULFENITE COPPER STAIN, BERYL

ANALYTICAL DATA(GENERAL)

GRADE OF ORE, WHEN MINED AVERAGED FROM ABOUT 0.3 TO 0.6% W₃ (DALE ETAL, 1960); BETWEEN 0.0008 AND 0.052% BAU

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY..... LOCATED IN 1913
BY WHOM..... LOCATED BY J. J. WIEN OF BENSON
PRESENT/LAST OWNER..... GOLD, SILVER AND TUNGSTEN, INC; KRAMER MNG AND MLLG CO.; STANDARD TUNGSTEN CORP.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... ERRATIC VALUES
MAX LENGTH..... 4000 FT
MAX WIDTH..... 6 FT
MAX THICKNESS..... 6" - 5 FT
STRIKE OF OREBODY.... NORTH
DIP OF OREBODY..... 45 - 50 E

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 130 FT
LENGTH OF WORKINGS..... 600 FT

COMMENTS(DESCRIP. OF WORKINGS):

OPEN PITS, SHORT ADIT; 335 FT ADIT, 180 FT DRIFT WITH 260 FT OF CROSSCUTS

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 W CONCENTRATES	06012	TONS		1913-1954	

SOURCE OF INFORMATION (PRODUCTION).. ARM FILE PAGES

PRODUCTION COMMENTS.... 0.1- 1 TO 2% W₃; AVE 0.5% W₃; 1913 SCHEELITE DISCOVERED; HWI = 5 TONS HIGH GRADE SCHEELITE CONCENTRATE; 1937 - 800 LBS SCHEELITE CONC; 1941 SUSPENDED; KRAMER MNG AND MLLG. CO. MINED AND MILLED ABOUT 400 T OF ORE (2000 LBS OF W CONCENTRATES; 1952 - POMERENE GRAVITY MILL 1953 - STANDARD TUNGSTEN CORP NEW MILL PRODUCED 2000 LBS OF CONCENTRATES FROM 200 TONS OF DRES; 1952 - OCT. 1954 = 12,650 LBS CONC.; TOTAL 11 3/4 TONS CONCENTRATE CONTAINING 750 UNITS W₃; MILL RECOVERY WAS 6.6 - 8 LBS OF CONCENTRATE PER TON FOR A RECOVERY 60% W₃ CONCENTRATES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PRE CAMB.
HOST ROCK TYPES..... SCHIST
IGNEOUS ROCK TYPES..... GRANITE AND APLITE DIKES

PERTINENT MINERALOGY..... PACKETS OF CALCITE, OXIDIZED PARTS - JAROSITE ETC., QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. ALONG GRANITE - SCHIST CONTACT IN MINERALIZED FAULT ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MIN. FAULT ZONE

SIGNIFICANT ALTERATION:
ALTERED LAMPROPHYNI DIKE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 197, 98 P., P. 60
- 2) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650, P. 43-45
- 3) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 43-44.
- 4) COOPER, J.R. AND L.T. SILVER (1964) GEOLOGY AND ORE DEPOSITS OF THE DRAGON QUADRANGLE, COCHISE COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 188-189, 7, 26, 32-35, 39, 41, 84, 134, 136, 155, 159, 188-189.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318
- 7) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 56-58.

RECORD 00097

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04113
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... TURQUOISE DISTRICT
MINING DISTRICT/AREA/SUBDIST. TURQUOISE, DISTRICT/COURTLAND-GLEESON AREA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCHISE
LATITUDE LONGITUDE
31-44- N 109-49- W
TWP..... 19S 20S
RANGE.... 24E 25E

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB CU AU ZN MO MN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB CU AU ZN
MINOR PRODUCTS.. MO MN

MAIN ORE MINERALS:

CHALCOPYRITE, MALACHITE, CHALCOHITE, CERUSSITE

MINOR ORE MINERALS:

BORNITE, AZURITE, TENORITE (MELACONITE), CHRYSOCOLLA, NATIVE COPPER, TURQUOISE, ANGLESITE, WULFENITE, GALENA,
CERARGYRITE, NATIVE SILVER, NATIVE GOLD, SMITHSONITE, CALAMINE, SPHALERITE, AURICHALCITE, PYRITE, LIMONITE,
HEMATITE, MAGNETITE, JAROSITE, VANTHOSIDERITE, PYROLUSITE, WAD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

STOCKWORKS PIPES AND IRREGULAR FORM/SHAPE OF DEPOSIT: SPECIFIC (SPOT) LOCATION
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS MINES AND PROSPECTS DEVELOPED BY SHAFTS, TUNNELS AND ADITS SINCE 1883.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 BASE METAL	ORE	88751	TONS		
16 MN ORE	EST	0.25	TONS		

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1973, P. 80

PRODUCTION COMMENTS.... ALSO SOME TURQUOISE AND CONSIDERABLE QUARTZITE SMELTER FLUX

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB, MISS, PENN
HOST ROCK TYPES..... BOLSA QUARTZITE AND ABRIGO LIMESTONE, MACO GROUP LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE, GRANITE

AGE OF MINERALIZATION..... CRET. (75 M.Y.)

PERTINENT MINERALOGY..... QUARTZ, SERICITE, CALCITE, EPIDOTE, KAOLINITE, GARNET, CHLORITE, ARAGONITE.

IMPORTANT ORE CONTROL/LOCUS.. OXIDIZED COPPER DEPOSITS OCCUR IN THRUST PLANE BETWEEN BOLSA QUARTZITE AND ABRIGO LIMESTONE IN UPPER PLATE AND MACO GROUP LIMESTONES IN LOWER PLATE. IRREGULAR REPLACEMENT DEPOSITS OCCUR IN ABRIGO LIMESTONE AND IN CARBONIFEROUS LIMESTONE CLOSE TO CONTACT WITH QUARTZ MONZONITE INTRUSIVE. LEAD-ZINC OXIDIZED DEPOSITS OCCUR AT FAULT AND FRACTURE INTERSECTIONS IN MACO GROUP LIMESTONES. TURQUOISE OCCURS IN STRINGERS IN ALTERED GRANITE AND QUARTZITE. MANGANESE OXIDES OCCUR ALONG FRACTURES IN LIMESTONE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THRUST FAULTS, NORMAL FAULTS, FOLDS

SIGNIFICANT ALTERATION:

OXIDATION

GENERAL REFERENCES

- 1) WILSON, E.D., 1927, GEOLOGY AND ORE DEPOSITS OF THE COURTLAND-GLEESON REGION, ARIZONA: ARIZ. BUR. MINES BULL. 123, 79 P.
- 2) BIDEAUX, P.A., S.A. WILLIAMS, AND R.W. THOMSEN (1960) SOME NEW OCCURRENCES OF MINERALS OF ARIZONA. ARIZ. GEOL. SOC. DIGEST, 3: 53-56.
- 3) PLATT, J.M., 1909, THE TURQUOISE MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 87, P. 213
- 4) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 80-85
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) WARNER, L.A., M.T. HOLSER, V.R. WILMARTH, AND E.M. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 318
- 5) DUMBLE, E.T., NOTES ON THE GEOLOGY OF SOUTHEASTERN ARIZONA: AMERICAN INST. OF MIN. ENG., TRANS., VOL. 31, PP. 696-715. 1902.
- 6) PICKARD, B.D., MINING IN THE GLEESON DISTRICT OF ARIZONA: MINING SCIENCE, VOL. 67, NO. 1722, PP. 52-53. 1913.
- 7) DARTON, N.H., A RESUME OF ARIZONA GEOLOGY: ARIZ. BUREAU OF MINES BULL 119, GEOL. SERIES 3, PP. 293-296. 1925.
- 8) MEINZER, D.E., AND KELTON, F.C., GEOLOGY AND WATER RESOURCES OF SULPHUR SPRING VALLEY, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 320. 1913.
- 3) TURQUOISE DISTRICT:
 - 1) MCRAE, D.M., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY, ARIZONA: SOC. MINING ENGINEERS TRANS., V. 235, NO. 28 P. 133-138.
 - 4) RANSOME, F.L., 1912, ACTIVITIES IN THE TURQUOISE COPPER DISTRICT, ARIZONA: MIN. ENGR. WORLD, V. 36, P. 1359-1361
 - 5) RANSOME, F.L., 1913, THE TURQUOISE COPPER MINING DISTRICT, ARIZONA: U.S. GEOL. SURVEY BULL. 530, P. 125-234
 - 6) CRAWFORD, W.P., AND F. JOHNSON, 1937, TURQUOISE DEPOSITS OF COURTLAND, ARIZONA: ECON. GEOL., V. 32, P. 511-523
 - 7) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.M. THESIS, UNIV. ALASKA.
 - 8) DINSMORE, C.A., 1910, COURTLAND, ARIZONA, AND ITS MINING POSSIBILITIES: MIN. WORLD, V. 32, P. 747-749
- 4) DRAGON MTS:
 - 1) PERRY, D.V., 1964, GENESIS OF THE CONTACT ROCKS AT THE ABRIL MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
 - 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
 - 6) DAMON, P.E. AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC., DIGEST, V. 7 P. 63-78.
 - 7) WILSON, E.D., 1951, DRAGON MOUNTAINS IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 10-29
 - 8) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: MINIMINARY RECONNAISSANCE REPORTS, OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES
 - 9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 10) HARVIN, R.F., STERN, T.W., CREASEY, S.C., AND MEHNERT, H.H., 1973, RADIO-METRIC AGES OF IGNEOUS ROCKS FROM PIMA, SANTA CRUZ, AND COCHISE COUNTIES, SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1379, 27 P.
 - 11) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 67-69.
 - 12) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RI 5650
 - 13) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58.
 - 14) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22

- 15) WARNER, L.A., W.T. HOLSER, V.R. WILMARTH, AND E.N. CAMERON, 1959, OCCURRENCES OF NONPEGMATITE BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 319
- 16) CEDERSTROM, D.J., 1946B, THE STRUCTURAL GEOLOGY OF THE DRAGON MOUNTAINS, ARIZONA: AM. JOUR. SCI., VOL. 244, NO. 9., P. 601-621.
- 17) CEDERSTROM, D.J., 1946A, GEOLOGY OF THE CENTRAL DRAGON MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS
- 18) KEITH, S.B., AND BARRETT, L.F., 1976, TECTONICS OF THE CENTRAL DRAGON MOUNTAINS: A NEW LOOK: ARIZ. GEOL. SOC. DIGEST 110, P. 169-204.
- 19) SOUSA, FRANCIS X., 1979, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.,
- 20) DREWES, H., 1975, LARAMIDE TECTONICS FROM PARADISE TO HELLS GATE, SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 10, P. 151-168.
- 21) GILLULY, J., 1941, THRUST FAULTING IN THE DRAGON MOUNTAINS, ARIZONA (ABS.): GEOL. SOC. AM. BULL., V. 52, NO. 12, P. 1949.
- 22) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 281, 169 P.
- 23) GILLULY, J., COOPER, J.R., AND WILLIAMS, J.S., 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 266, 49 P.
- 24) JONES, R.W., 1961, A STRUCTURAL SYNTHESIS OF PART OF SOUTHEAST ARIZONA: UNPUB. PH.D. DISSERTATION, UNIVERSITY OF CHICAGO, 198 P.
- 25) JONES, R.W., 1963, STRUCTURAL EVOLUTION OF PART OF SOUTHEAST ARIZONA, IN BACKBONE OF THE AMERICAS--TECTONIC HISTORY FROM POLE TO POLE: AM. ASSOC. PETROLEUM GEOLOGISTS MEM. NO. 2, P. 140-151.
- 26) JONES, R.W., 1966, DIFFERENTIAL VERTICAL UPLIFT--A MAJOR FACTOR IN THE STRUCTURAL EVOLUTION OF SOUTHEAST ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 8, P. 97-124.
- 27) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 28) SOUSA, FRANCIS X., 1979-80?, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.,
- 29) RUSHING, J.A., 1978, CONTACT METAMORPHISM AND METASOMATISM OF PALEOZOIC ROCKS NEAR STRONGHOLD CANYON, DRAGON MOUNTAINS, ARIZONA: M.S. THESIS (UNPUBLISHED), UNIV. OF ARIZONA.

RECORD 00098

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... MD30587
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... WARREN DIST.
 MINING DISTRICT/AREA/SUBDIST. WARREN DIST./BISBEE AREA/MULE MTS
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... COCHISE
 LATITUDE LONGITUDE
 27-30- N 109-55- W
 TWP..... 22S 24S
 RANGE..... 23E 25E
 MERIDIAN. GILA AND SALT R.
 ALTITUDE.. 5000 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CD, BI, SE, TE, AS, SB U, CU PB ZN AG AU MN F

MAIN ORE MINERALS:

MINOR ORE MINERALS:

THE FOLLOWING PRIMARY MINERALS, MOSTLY SULFIDES, HAVE BEEN FOUND AT BISBEE: ATKINITE, ALABANDITE, BORNITE, CHALCOCITE, CHALCOPYRITE, CINNABAR, COVELLITE, DIGENITE, DJURLEITE, ENARGSITE, FAMATINITE, GALENA, GOLD, GREENOCKITE, MOLYBDENITE, POWELLITE (?), PYRITE, RICKARDITE, SPHALERITE, STROMEYERITE, TENNANTITE, TETRAHEDRITE, URANINITE, WITTICHENITE A LIST OF OXIDE ZONE MINERALS FOUND AT BISBEE IS GIVEN BELOW:
 ALUNITE, ANGLESITE, ANTHONYITE, ANTLERITE, ATACAMITE, AURICHALCITE, AZURITE, BASALUMINITE, BAYLEYITE, BINDHEIMITE, BISBEEITE, BUTRYOGEN, BRAUNITE, BROCHANTITE, BROMARGYRITE, CARBONATE-CYANOTRICHITE, CERUSSITE, CHALCANTHITE, CHALCOALUMITE, CHALCOPHANITE, CHALCOPHYLLITE, CHALCOSIDERITE, CHLONARGYRITE, CHRYSOCOLLA, CONICHALCITE, CONNELLITE, COPIAPITE, COPPER, COQUIMBITE, CUPRITE, CYANOTRICHITE, DELAFOSSITE, DESCLOIZITE, DEVILLINE, DIOPHASE, EMBOLITE, EPSOMITE, GIBBSITE, GOETHITE, GRAEMITE, GROUTITE, GYPSUM, HAUSMANNITE, HEMIMORPHITE, HETAEROLITE, HEXAHYDRITE, HISINGERITE, HYDROBASALUMINITE, HYDROHETAEROLITE, JAROSITE, KORNELITE, LANGITE, LEADHILLITE, LEPIDOCROCITE, MALACHITE, MELANTERITE, METAVOLTINE, MIMETITE, MOTTAMITE, MURDOCHITE, PARAMELACONITE, PARATACAMITE, PHARMACOSIDERITE, PLATTNERITE, PSILOMELANE, PYROLUSITE, PYROMORPHITE, RANSOMITE, RHOMBOCLASE, ROEMERITE, ROSASITE, SENGIERITE, SHATTUCKITE, SILVER, SMITHSONITE,

SPANGOLITE, STIBICONITE, SULFUR, SZOMOLNOKITE, TENORITE, TILASITE, TURQUOISE, TYUYAMUNITE, URANINITE, VARISCITE, VOLTAITE, WILLEMITE, WULFENITE, ILSOMANNITE. (ANTHONY ETAL, 1977)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT, DISSEMINATED, QUARTZ VEINS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ
 HOST ROCK TYPES..... LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. (163, 186 - CREASEY AND K STLER)

AGE OF MINERALIZATION..... JUR. 2180

PERTINENT MINERALOGY..... ROCK-FORMING, GANGUE, AND ALTERATION MINERALS FOUND AT BISBEE INCLUDE: ALLANITE, ALLOPHANE, ALUNITE, APATITE, ARAGONITE, AUGITE, BARITE, Biotite, CALCITE, CELADONITE, CHROMITE, CLINOCHLORE, CLINOCHRYSOILE, DELESSITE, DIASPORE, DICKITE, DIOPSIDE, DOLOMITE, ENSTATITE, EPIDOTE, FLUDRITE, GRAPHITE, GROSSULAR, HALLOYSITE, HEMATITE, HORNBLENDE, HYDROBIOTITE, KAOLINITE, LAUMONTITE, MAGNETITE, METAHALLOYSITE, MICROCLINE, OLIVINE, ORTHOCLASE, PENNINITE, PLAGIOCLASE, PUMPELLYITE, PYROPHYLLITE, RHODOCHROSITE, RUTILE, SANIDINE, SERICITE, SIDERITE, SPHENE, STEVENSITE, THOMSUNITE, TOURMALINE, TREMOLITE, ZIRCON. (ANTHONY, WILLIAMS AND BIDEAUX, 1977)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

N 73 W TRENDING 70 S DIPPING DIVIDEND FAULT SPLITS THE SACRAMENTO QUARTZ PORPHYRY STOCK, THE FOCUS OF MINERALIZATION. EASTWARD THE DIVIDEND BECOMES MORE EAST TRENDING ON THE NORTH OR FOOTWALL SIDE THE FAULT WALL IS PINAL SCHIST; ON THE SOUTH OR HANGING WALL IT IS PALEOZOIC SEDIMENTS. DISPLACEMENT ON THE DIVIDEND FAULT IS NORMAL AND IS ABOUT 2,000 FEET AT THE OLD GLORY HOLE IN BISBEE AND ABOUT 5,000 FEET 2 U/2 MILES EASTWARD AT THE SAGINAW SHAFT. ORE OCCURRENCE IS INTIMATELY ASSOCIATED WITH THESE NORTHEAST FRACTURES. THEY HAVE A STRIKE THAT IS COMPLEMENTARY TO THE DIVIDEND FAULT, ROUGHLY N. 20 E., AND DIP STEEPLY TO THE WEST. ABOUT 5,000 FEET SOUTH OF THE DIVIDEND FAULT IS THE FIRST OF ANOTHER SYSTEM OF FAULTS THAT IS MORE OR LESS PARALLEL TO THE DIVIDEND AND LIMITS THE PRODUCTIVE AREA ON THE SOUTH. THE ZONE OF BREAKING, REFERRED TO AS THE DON LUIS BLOCK IN SOME OF THE EARLIER LITERATURE, IS ABOUT 3,000 FEET WIDE. GENERALLY, DISPLACEMENT IS NORMAL, AND THE DOWNTOWN SIDE IS ON THE NORTH FOR THE NORTHERNMOST BREAKS AND ON THE SOUTH FOR THE SOUTHERN BREAKS.

SIGNIFICANT ALTERATION:

ALTERATION APPEARS TO BE SPATIALLY CONTROLLED BY ROCK TYPES.

THE ROCK MASS THAT INTRODUCED ORES AT BISBEE IS A QUARTZ MONZONITE PORPHYRY. IN MOST PLACES THE ORIGINAL SILICATE MINERALS IN THIS ROCK (QUARTZ, ORTHOCLASE, PLAGIOCLASE, BIOTITE) HAVE BEEN DESTROYED, AND THE ROCK IS RECRYSTALLIZED BEYOND RECOGNITION. USUALLY THE ALTERED ROCK CONSISTS OF GRANULAR QUARTZ ENCLOSING PYROPHYLLITE (LOCALLY SERICITE) SCALES LOOSELY BUNCHED TOGETHER SO AS TO SHOW THE OUTLINES OF EARLIER PLAGIOCLASE AND BIOTITE PHENOCRYSTS. RUTILE USUALLY ACCOMPANIES THE ALTERED BIOTITE. OF THE SULFIDE GRAINS SCATTERED THROUGHOUT THE ALTERED PORPHYRY, PYRITE IS BY FAR THE MOST COMMON.

QUARTZITES INVADDED BY THE PORPHYRY ARE ALTERED STRONGLY AND OFTEN CLOSELY RESEMBLE THE INTRUSIVE, FOR THEY TOO CONSIST LARGELY OF QUARTZ, SERICITE, AND SCATTERED PYRITE GRAINS. SHALY ROCKS IN THE WALLS HAVE BEHAVED SIMILARLY BUT CONTAIN CONSIDERABLY MORE SERICITE THAN THE QUARTZITES. PERHAPS THE MOST PRONOUNCED EFFECTS ARE

IN CALCAREOUS ROCKS NEAR THE INTRUSIVE. THESE HAVE BEEN CONVERTED TO CALC-SILICATE TACTITES WHICH MAY BE RICH IN MINERALS SUCH AS EPIDOTE, GARNET (USUALLY NEAR GORSSULAR-ANDRADITE), DIOPSIDE, AND TREMOLITE. (ANTHONY ETAL 1977)

OXIDATION LEADING AND REDEPOSITION OF THE COPPER BETWEEN PERMIAN AND CRETACEOUS TIMES DEVELOPED A CHALCOCITE BLANKET. THIS BLANKET DIPS EASTERLY AND IS FROM 50 TO 400 FEET THICK. THE UPPER SURFACE OF THE BLANKET IS IRREGULAR AND UNDULATES CONFORMABLY TO THE EROSION SURFACE UPON WHICH THE CRETACEOUS GLANCE CONGLOMERATE WAS DEPOSITED. (BRYANT AND METZ, 1967)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE COPPER ORES AT BISBEE WERE INTRODUCED BY AN INTRUSIVE PORPHYRYTIC IGNEOUS ROCK APPROXIMATELY 180 MILLION YEARS AGO. MUCH OF THE COPPER AND IRON RELEASED BY THIS INTRUSIVE REPLACED THE ENCLOSING LIMESTONES, FORMING IRREGULAR MASSES OF ORE WHICH OFTEN WERE TOTALLY ISOLATED WITHIN BARREN, SEEMINGLY UNAFFECTED, LIMESTONE. SCATTERED SULFIDE GRAINS WERE ALSO RETAINED IN THE INTRUSIVE, AND THESE LOWER GRADE ORES WERE THOSE LATER MINED BY OPEN-PIT METHODS (ANTHONY, ETAL, 1977) THE DEFORMATION, POSSIBLY INITIATED BY INTRUSION OF THE JUNIPER FLAT GRANITE, COMMENCED WITH EXTENSIVE SHATTERING AND FAULTING WITH DOMINANT NORTHEASTERLY AND NORTHWESTERLY TRENDS.

FOLLOWING THE FRACTURING, THE SACRAMENTO QUARTZ PORPHYRY STOCK AND ASSOCIATED INTRUSION (?) BRECCIA WERE INTRODUCED ALONG THE DIVIDEND FAULT, A MAJOR NORTHWEST STRUCTURE. AFTER INTRUSION OF THE SACRAMENTO STOCK, THE SURROUNDING LIMESTONE AND PROBABLY THE PORPHYRY ITSELF WERE INTENSELY PYRITIZED AND SILICIFIED BY HYDROTHERMAL SOLUTIONS. IN THE LIMESTONE, THIS MINERALIZATION PRODUCED LARGE MASSIVE BODIES OF SILICEOUS PYRITE WITH ONLY MINOR OR TRACE AMOUNTS OF COPPER. PROBABLY THE INTENSE SILICIFICATION OF THE QUARTZ PORPHYRY STOCK AND INTRODUCTION OF PYRITE MAY BE ATTRIBUTED TO THIS PERIOD OF HYDROTHERMAL ACTIVITY. THE AMOUNT OF EARLY BARREN PYRITE INTRODUCED AT THIS STAGE IS CONSERVATIVELY ESTIMATED AT MORE THAN 500 MILLION TONS. FOLLOWING THIS INTENSE MINERALIZATION (SERICITIE), FELDSPAR QUARTZ PORPHYRY INTRODUCED THE LIMESTONE OF THE DISTRICT ADJACENT TO THE SACRAMENTO QUARTZ PORPHYRY AND THROUGHOUT THE DISTRICT AS DIKES, SILLS, AND IRREGULAR BODIES. THE INTRUSIVE BRECCIAS CONTAINING FRAGMENTS OF ALL THE PRE-ORE ROCK WERE THEN INJECTED INTO THE SACRAMENTO STOCK AND THE LIMESTONE AS STRUCTURALLY CONTROLLED IRREGULAR BODIES OR DIKES ALONG FRACTURES AND INTO THE BEDS AS SILLS. AFTER EMPLACEMENT OF THE INTRUSIVE BRECCIAS, COPPER MINERALIZATION PROBABLY TRANSPORTED BY HYDROTHERMAL SOLUTIONS WAS INITIATED. THE DEPOSITION OF THE COPPER ORE WAS LOCALIZED ALONG MANY OF THE SAME STRUCTURES THAT CONTROLLED THE POSITION OF THE PORPHYRIES, PYRITE, SILICA MINERALIZATION, AND INTRUSIVE BRECCIAS, INDICATING THAT THE MAJOR INGRESS CHANNELWAYS WERE PROBABLY OPEN CONTINUALLY. FOLLOWING THE INITIAL STAGE OF COPPER MINERALIZATION--WHICH DEPOSITED CHALCOPYRITE, BORNITE, CHALCOCITE, AND PYRITE--THE SOLUTIONS THEN DEPOSITED SPHALERITE, GALENA, PYRITE, AND CHALCOPYRITE PERIPHERAL TO THE PRECEDING INDIVIDUAL COPPER ORE BODIES AND TO THE COPPER AREA. THE STAGE OF LEAD-ZINC MINERALIZATION TERMINATED THE MAJOR MAGMATIC ACTIVITY IN THE BISBEE DISTRICT.

THE NEXT EVENTS IN THE GEOLOGIC HISTORY OF THE BISBEE DISTRICT WERE EROSION, OXIDATION ALONG FRACTURES TO VARIABLE DEPTHS, AND THE SUPERGENE ENRICHMENT OF THE ORE BODIES BY CHALCOCITE. THE DEPTH OF OXIDATION IS EXTREMELY VARIABLE AND IS DIRECTLY RELATED TO DIFFERENCES IN THE STRENGTH AND PERMEABILITY OF THE CONTROLLING FRACTURES. THE CHALCOCITE OF THE LAVENDER PIT BLANKET WAS PRODUCED DURING THE PRE-CRETACEOUS PERIOD BECAUSE EVIDENCE FOR SUPERIMPOSED OXIDATION OR ENRICHMENT IS ABSENT. IN ADDITION, THE TOP OF THE CHALCOCITE BLANKET IS MORE OR LESS PARALLEL TO THE IRREGULAR EROSION SURFACE UPON WHICH THE OVERLYING CRETACEOUS SEDIMENTS WERE DEPOSITED.

BEFORE THE DEPOSITION OF THE CRETACEOUS SEDIMENTS, REJUVENATION OF THE DIVIDEND FAULT DROPPED THE SOUTHERN BLOCK SEVERAL THOUSANDS OF FEET WITH REFERENCE TO THE NORTHERN SIDE. ON THE SOUTHERN SIDE THE EXTREMELY ROUGH TOPOGRAPHY WAS NOT LEVELED BY EROSION BUT WAS PRESERVED AND COVERED BY THE ANGULAR MATERIAL OF THE GLANCE CONGLOMERATE PRODUCED BY THE EROSION OF THE BLOCK NORTH OF THE DIVIDEND FAULT. ON COMPLETION OF THE LEVELING BY "CUTTING AND BACK FILLING," THE AREA WAS COVERED BY THE SHALLOW CRETACEOUS SEAS, AND DEPOSITION OF THE MORITA FORMATION BEGAN. (BRYANT AND METZ, 1967)

GENERAL COMMENTS

SEE RECORD M800113 FOR FURTHER REFERENCES

RECORD 00099

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M03565
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, J.C.
DATE..... 80 04

NAME AND LOCATION

DEPOSIT NAME..... ESCAPULE PROPERTY
SYNONYM NAME..... GARNET AND MOONLIGHT GROUPS

MINING DISTRICT/AREA/SUBDIST. MIDDLE PASS DIST/DRAOON MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCHISE ? CHECK

QUAD SCALE QUAD NO OR NAME
1: 0062500 PEARCE, ARIZONA

LATITUDE LONGITUDE
31-51-02N 109-56-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3524200.0 600115.0 +12

TWP..... 18S
RANGE.... 23E
SECTION.. 24
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 66120 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 KM SE VABM 7143 EAST OF THE SAN JUAN MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG CU AU MO V

MAIN COMMOD..... PB AN AG
MINOR COMMOD..... CU AU MO V

MAIN ORE MINERALS:
OXIDIZED LEAD, ZINC

MINOR ORE MINERALS:
WULFENITE, MONOR COPPER VANADINITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BEDDED REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
ADIT WORKINGS

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	0.05	TONS		1938-1955	

SOURCE OF INFORMATION (PRODUCTION).. KEITH 1973 P. 68

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB
HOST ROCK TYPES..... ABRIG LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FOLDED AND FAULTED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 68.
- 2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 3) WILSON, E.D., 1950, DRAGON MOUNTAINS, AN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 10-29, P. 26.
- 4) CEDARSTROM, D.J., 1946, GEOLOGY OF THE CENTRAL DRAGON MOUNTAINS, ARIZONA: UNIV. AZ, PH.D. THESIS, P. 86.

RECORD 00100

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030425
RECORD TYPE..... 42
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

SYNONYM NAME..... CAMERON DISTRICT INCLUDES: MAX JOHNSON 1, 10 JACK DANIELS 1, ALYEE TOLINO 1, HUSKON 2, YAZZIE 101, HUSKON 12, HUSKON 1, YAZZIE 312, HUSKON 3, HUSKON 7, YAZZIE 102, HUSKON 10, HUSKON 11, RAMCO 21, RAMCO 20 & 22, 23, 24, HUSKON 17, E. LEE 1,3; & J. CHEE 4, 3, 2, HUSKON 4, HUSKIE 5, HUSKON 5, SHADOW MOUNTAIN COLLAPSE, HUSKON 6, LEMVEL LITTLEMAN NO. 1, 2, 3, & 7, JEEPSTER NO. 1, MONTEZUMA GROUP, CASEY NO. 3, KADHINA NO. 6, CHARLES HUSKON 19,20, ELWOOD CANYON SHAFT, BOYD TISI NO. 1,2, JUAN HORSE NO. 3,4, HUSKON 14, MONTEZUMA NO. 1, EVANS HUSKON NO. 34, 35, CHARLES HUSKON, A & B NO. 2, 3, MANUEL DENETSONE NO. 2, JEFFERSON CANYON, JACK HUSKON NO. 3, JACK HUSKON NO. 1, PAUL HUSKIE 162, YAZZIE NO. 105, HUSKON NO. 8, TAYLOR REID NO. 2, MEL GARDNER PROSPECT, RYAN NO 1, ADA & NORDELL, LIBA GROUP (PRETTY GIRL), HOWARD NO. 1, SECTION 1, SECTION 9, RYAN NO. 2, NAVAJO 26, LUSTER NO. 1, GRUB NO. 14, MURPHY GROUP (BLACK POINT), YAZZIE NO. 1, 2, JACKPOT NO. 40, 1, 5, AMOS NO. 8, MAX JOHNSON NO. 7, CHARLES HUSKON NO. 9, 18 RIVERVIEW GROUP.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 CAMERON, ARIZ.

LATITUDE LONGITUDE A
35-45- N 111-04- W

TWP..... 28N 27N
RANGE.... 10E 09E
MERIDIAN. G & LR

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR LITTLE COLORADO R. EAST OF CAMERON

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO V CO MN

MAIN COMMOD..... U
MINOR COMMOD..... CO MN

MAIN ORE MINERALS:

METATORBERNITE, META-AUTINITE, URANINITE, COFFINITE

MINOR ORE MINERALS:

URANOPHANE, SAHNGALITE, METAZEONERITE, ZIPPEITE, ANDERSONITE, AUTUNITE, BETA-URANOPHANE, BETA ZIPPEITE, BOTTHOODITE, CARNOTITE, GUMMITE, META-AUTINITE, META-TORBERNITE, METAURANOCIRCITE, PHOSPHURANYLITE, SCHRDECKINGERITE, SCHDEPITE, TORBERNITE, TYNHAMUNITE, ZLUNERITE

ANALYTICAL DATA(GENERAL)

V: U=1:7

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNELS & PODS

FORM/SHAPE OF DEPOSIT: ELLIPTICAL, AND SAUCER-SHAPED

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT.....	1-1000	TONS
MAX LENGTH.....	450	FT
MAX WIDTH.....	350	FT
MAX THICKNESS.....	11	FT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI

HOST ROCK TYPES..... PETRIFIED FOREST MEMBER OF CHINLE FORMATION (SANDY AND SILTY MUOSTONE)

PERTINENT MINERALOGY..... GANGUE MINERALS ARE MONTMORILLONITE, QUARTZ, KADLIN, SERICITE, GYPSUM, LIMONITE, JAROSITE, PYRITE, CALCITE, BARITE, SMALTITE, SPHAEROCOBALTITE. OTHER NON-URANIAN PRIMARY MINERALS ARE: BORNITE, CHALCOPYRITE, COVELLITE, DOLOMITE, GALENA, GREENACKITE, HEMATITE, MARCASITE, PYRITE. NON-URANIAN SECONDARY MINERALS INCLUDE: ALUNITE, ATACAMITE, AZURITE, BIEBERITE, CHALCEDONY, COPIAPITE, FERRIMOLYBDITE, HALOTRICHITE, ILSEMANNITE, JORDISITE, MALACHITE, METASIDERONATRITE, OPAL, PYROLUSITE, AND A MINERAL SIMILAR TO UMANORITE.

IMPORTANT ORE CONTROL/LOCUS.. NEAR CARBONACEOUS MATERIAL NEAR BASE OF SANDY SCOURS IN PURPLE MUOSTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTING OR FRACTURING CONNECTING TO THE UNDERLYING SHINARUPH CONGLOMERATE MEMBER MAY BE AN IMPORTANT CHANNELWAY FOR ARE BEARING SOLUTIONS.

SIGNIFICANT ALTERATION:

HIGHLY OXIDIZED WITH ORE BODIES SURROUNDED BY YELLOWISH BROWN ALTERATION HALOS OF JAROSITE AND HYDRONS IRON OXIDES AND SERICITIZED FELDSPARS

COMMENTS (GEOLOGY AND MINERALOGY):

COBALT BLOOM (SPHAEROCOBALTITE) AND TRACE MOLYBOENUM INCREASE NEAR ORE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILY, J.C., 1970, COAL, OIL, NATURAL GAS, HELLIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-289.

- 2) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 3) HINCKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 5) ISACHSEN, Y.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.
- 6) GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM., RME
- 7) PETERSEN, R.G. 1. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1778 (1957)
- 8) FINCH, W.L., 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
- 9) KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL., V. 69, P. 1075-1109.
- 10) HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.
- 11) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., REM-4002.
- 12) AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.
- 13) GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.
- 14) GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.
- 15) BOTINELLY, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.
- 16) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.
- 17) HINCKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).
- 18) AUSTIN, S.R. 1958, MINERALOGY OF THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (IN PRESS).
- 19) REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.
- 20) KEPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 21) HAMILTON, P. AND P.F. KERR (1959) UMOHOTTE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1249-1260.
- 22) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) PLATEAU URANIUM:
 - GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51, P. 7.
 - 5) EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMO-659, 19 P., MAPS (1950)
 - 6) CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)
 - 7) HARSHBARGER, J.W., KEPENNING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.
 - 8) MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.
 - 9) MILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZ.

- 10) KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.
- 11) ISACHSEN, Y.W. 1. (AND MITCHELL, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)
- 12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.
- 13) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
- 14) GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)
- 15) GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)
- 16) GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)
- 17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMO-566, PT. 3 (1952)
- 18) GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
- 19) BOTZ, RADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
- 19) BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS PROF. PAPER 300, P. 187-193 (1956)

RECORD 00101

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030428
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... ALICE TOLINO MINE
SYNONYM NAME..... MAX JOHNSON NO. 9

MINING DISTRICT/AREA/SUBDIST. CAMERON DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 CAMERON ARIZ.

LATITUDE LONGITUDE
35-51-20N 111-21-18W

TWP..... 29N
RANGE..... 09E
SECTION.. 24
MERIDIAN. G & SR

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE N OF TANNERS CROSSING OVER LITTLE COLORADO R., 2 MILES E OF CAMERON

LOCATION COMMENTS: E CENTRAL 24, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... U NO

MAIN COMMOD..... U

MAIN ORE MINERALS:
URANIUM MINERALS

MINOR ORE MINERALS:
UMOHTE; ILSEMANNITE COBALT RICH PYRITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT: LENS-LIKE

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 200 FT

MAX WIDTH..... 100 FT

STRIKE OF OREBODY.... N

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970 P. 221

PRODUCTION COMMENTS.... A FEW THOUSAND TONS PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TR1

HOST ROCK TYPES..... LOWER PETRIFIED FOREST MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY..... SOOTY MASSES AND CARBONACEOUS TRASH

IMPORTANT ORE CONTROL/LOCUS.. CARBONACEOUS MATERIAL; HIGHEST URANIUM CONTENT IS ALONG A FAULT PARALLELING THE CHANNEL WHICH MAY HAVE PROVIDED A PASSAGEWAY FOR URANIUM RICH SOLUTIONS FROM THE SHINARUMP MEMBER.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SERIES OF FLOWING SPRINGS ISSUE FROM THE BOTTOM OF THE MINE ALONG A FAULT LINE WHICH TRAVERSED THE PIT (BOLLIN & KERR, 1958, P. 166)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289, P. 221.
- 2) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 3) HINCKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 5) ISACHSEN, Y.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.
- 6) GRUNER, J.W., GARONER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM.,
- 7) PETERSEN, R.G. 1. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1778 (1957)
- 8) FINCH, W.L. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
- 9) KERR, PAUL F., 1956, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL., V. 69, P.

1075-1109.

- 10) HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.
 - 11) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.
 - 12) AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: 4 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.
 - 14) GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.
 - 15) BOTINELLI, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.
 - 16) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.
 - 17) HINCKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (IN PRESS).
 - 19) REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.
 - 20) REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
 - 21) HAMILTON, P. AND P.F. KERR (1959) UMOHITTE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1249-1260.
 - 22) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) PLATEAU URANIUM:
- GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51, P. 7.
 - 5) EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMD-659, 19 P., MAPS (1950)
 - 6) CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)
 - 7) HARSHBARGER, J.W., REPENNING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.
 - 8) MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.H., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME PT. 1, P. 464-533.
 - 9) WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.
 - 10) KERR, PAUL F., 1959, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.
 - 11) ISACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)
 - 12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.
 - 13) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
 - 14) GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)
 - 15) GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)
 - 16) GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)
 - 17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMD-566, PT. 3 (1952)
 - 18) GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
 - 19) BOTINELLI, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO PLATEAU: USGS BULL. 1074-A, 2 P. (1957)

20)BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLDRADO PLATEAU URANIUM DRES: USGS
PROF. PAPER 300, P. 187-193 (1956)

RECORD 00102

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030426
RECORD TYPE..... X1
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... HUSKON #10 MINE
SYNONYM NAME..... ALSO NEAR HUSKON #3,8 #7, #10, YIZZIE 102 ETC.

MINING DISTRICT/AREA/SUBDIST. CAMERON AREA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 CAMERON ARIZ; ALSO CAMERON SE, 1:24000

LATITUDE LONGITUDE
35-45-57N 111-20-32W

TWP..... 28N
RANGE.... 10E
SECTION.. 29
MERIDIAN. G&S. R.

ALTITUDE.. 4320 FT

POSITION FROM NEAREST PROMINENT LOCALITY: WEST OF LITTLE COLORADO R. 9 MILES SE OF CAMERON

LOCATION COMMENTS: N 1/2

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU V MN

MAIN COMMOD..... U

MAIN ORE MINERALS:
METATORBERNITE, META-AUTINITE, AND URANINITE

MINOR ORE MINERALS:
URANOPHANE, SABUGALITE, METAZENNERITE, AND ZIPPEITE, COFFINITE, CARNOTITE, SCHRAECKINGERITE, BECQUERELITE,

TORBERNITE, ILSEMANNITE, HALOTRICHITE, SPHAEROCOBAULTITE (COBALT BLOOM)

ANALYTICAL DATA(GENERAL)

V:U=1:7

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1952

BY WHOM..... DISCOVERED BY CHARLES HUSKON, A NAVAJO INDIAN

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNELS

FORM/SHAPE OF DEPOSIT: ELLIPTICAL AND SAUCER SHAPED

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1450 FT

MAX WIDTH..... 100 FT

MAX THICKNESS..... 11

STRIKE OF DREBODY.... NE

COMMENTS(DESCRIPTION OF DEPOSIT):

HUSKON # 1 & 3 FILL LOWER PARTS OF SCOURS AND HAVE HORIZONTAL UPPER SURFACE. HUSKON #2 & #10 ARE IRREGULAR PODLIKE BODIES WITHIN A SCOUR NEAR CONCENTRATIONS OF CARBONACEOUS PLANT MATERIAL AND NEAR PERMEABILITY CONTRASTS OF 1 TO 1000 TON SIZE. HUSKON #7 IS A TRANSITION BETWEEN LENS AND POD FORMS.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 225

PRODUCTION COMMENTS.... SEVERAL THOUSAND TONS ORE PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRIASSIC

HOST ROCK TYPES..... CHINLE FORMATION SAND AND SILTY MUDDSTONE

PERTINENT MINERALOGY..... GANGUE MINERALS ARE MONTMORILLONITE, QUARTZ, KAOLIN SERICITE, GYPSUM, LIMONITE, JAROSITE, PYRITE, CALCITE, BARITE, SMALTITE, AND SPHAEROCOBAULTITE

IMPORTANT ORE CONTROL/LOCUS.. URANIUM IS CONCENTRATED IN LOWER PART OF SANDY AND SOMEWHAT SILTY LENSES OCCUPYING NE SCOURS 20 FT DEEP BY 250 FT LONG. SOME PODS OF ORE OCCUR IN THE VICINITY OF FOSSIL WOOD. HIGHEST GRADE OCCURS AT BASE OF SCOURS AND IN CONCENTRATIONS OF ABUNDANT CARBONIZED PLANT REMAINS IN SANDY AND SILTY MUDDSTONE OF PETRIFIED FOREST MEMBER OF CHINLE FORMATION. (IN THE LOWER 60 FEET OF GREGORY'S C MEMBER) WHICH CUTS DOWN TO SHINARUMP MEMBER (KEITH, 1970)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

COMMON NW JOINTS AND SOME NE JOINTS HAVE NO RELATION TO MINERALIZATION

SIGNIFICANT ALTERATION:

LIGHT BROWN TO YELLOWISH BROWN ALTERATION HALOS SURROUND THE ORE - CHARACTERIZED BY HIGH CONTENT OF JAROSITE AND HYDROUS IRON OXIDES, SERICITIZATION OF FELDSPAR, AND AN INCREASE IN TRACE AMOUNTS OF MOLYBDENUM NEAR THE ORE (ISACHSEN AND EVENSEN, 1956)

COMMENTS (GEOLOGY AND MINERALOGY):

1)ISEMANNITE STAINING HALOTRICHITE A DEEP INKY BLUE (ANTHONY ETAL, 1977, 121) AEC, GRAND JCT MINE. COLBALT BLOOM AND MULYBDENUM TRACE AMOUNTS INCREASE NEAR ORE (ISACHSEN AND EVENSEN, 1956)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289, P. 225.
- 2) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 3) HINKKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
- 4)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 5)ISACHSEN, Y.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.
- 6)GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM.,
- 7)PETERSEN, R.G. 1. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1778 (1957)
- 8)FINCH, W.L. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
- 9)KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL., V. 69, P. 1075-1109.
- 10)HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.
- 11)WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.
- 12)AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.
- 13)GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.,
- 14)GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957; U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.
- 15)BOTINELLI, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.
- 16)U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.,
- 17)HINKKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).
- 18)AUSTIN, S.R. 1958, MINERALOGY OF THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (IN PRESS).
- 19)REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.
- 20)REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 21)HAMILTON, P. AND P.F. KERR (1959) UMOMOITE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1248-1260.
- 22)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) PLATEAU URANIUM:
GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME 51, P. 7.

- 5)EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMD-659, 19 P., MAPS (1950)
- 6)CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GO-162 (1962)
- 7)HARSHBARGER, J.W., REPENNING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.
- 8)MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.
- 9)WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.
- 10)KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROCD. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.
- 11)ISACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL. V. 50, NO. 2, P. 127-134 (1955)
- 12)OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.
- 13)MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
- 14)GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)
- 15)GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)
- 16)GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66 ILLUS. (1954)
- 17)GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMD-566, PT. 3 (1952)
- 18)GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
- 19)BOTINELLY, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO PLATEAU: USGS BULL. 1074-A, 2 P. (1957)
- 20)BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS PROF. PAPER 300, P. 187-193 (1956)

RECORD 00103

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... #016027
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... JASPER GROUP
MINING DISTRICT/AREA/SUBDIST. VERMILION CLIFFS AREA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 TANNER WASH

LATITUDE LONGITUDE
36-44-53N 111-44-37W

TWP..... 39N
RANGE..... 06E
SECTION.. 27
MERIDIAN. G&SR

ALTITUDE.. 4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE NE OF CLIFF DWELLERS LODGE

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO

MAIN COMMOD..... U
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
TORBERNITE AND UNIDENTIFIED SECONDARY U MINERAL

MINOR ORE MINERALS:

COPPER CARBONATES (MALACHITE, AZURITE)

ANALYTICAL DATA(GENERAL)

3.00 MR/HR BG 0.017 MR/HR; 0.1405% E U3O8 AND 0.1583%

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

LOW GRADE MINERALIZATION

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... LA SALLE MINING CO. IN 1955

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT.....	SMALL	
MAX LENGTH.....	300	FT
MAX WIDTH.....	50	FT
MAX THICKNESS.....	20	FT

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970 P. 219

PRODUCTION COMMENTS.... NO PRODUCTION RECORDED; ONLY A FEW TONS OF LOW GRADE ROCK PRODUCED (PETERSEN 1957 P. 153).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRIASSIC

HOST ROCK TYPES..... SHINARUMP CONGLOMERATE MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY..... SOME CARBONACEOUS MATERIAL

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION AT OR NEAR CONTACT OF SHINARUMP AND UNDERLYING MOENKOPI

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PETRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-269.
- 2) PETERSEN, R.G., 1957, THE CENTRAL EAST VERMILLON CLIFFS AREA, IN GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS -- SEMI-ANNUAL PROGRESS REPORT, DEC. 1, 1956- MAY 31, 1957: U.S. GEOL. SURVEY TEI-690, BOOK 1, P. 152-154, ISSUED BY U.S. ATOMIC ENERGY COMM., P. 147.
- 3) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 4) HOLEN AND TIVITSHILL, 1955, JASPER GROUP: U.S. ATOMIC ENERGY COMM. P.R.R. R-R- 275, 1 P.
- 5) ANTHONY, J.W. WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 6) ISACHSEN, Y.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.

- 7)GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM., AME 3083
 - 8)PETERSEN, R.G. 1. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1778 (1957)
 - 9)FINCH, W.L. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
 - 10)KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICAN BULL., V. 69, P. 1075-1109.
 - 11)HOLLAND, H.D., WITTE, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GEOLCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.
 - 12)WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.
 - 13)AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.
 - 14)GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.
 - 15)GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.
 - 16)BOTINELLI, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.
 - 17)U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.
 - 18)HINCKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).
 - 19)AUSTIN, S.R. 1964 MINERALOGY OF THE CAMERON AREA, COCONINO CO.: ARIZONA U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT RME-99, 99 P.
 - 20)REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.
 - 21)REPPENING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
 - 22)HAMILTON, P. AND P.F. KERR (1959) UMOHOITE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1248-1260.
 - 23)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) PLATEAU URANIUM:
- GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51, P. 7.
 - 5)EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMO-659, 19 P., MAPS (1950)
 - 6)CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)
 - 7)HARSHBARGER, J.W., REPPENING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.
 - 8)MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.
 - 9)WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.
 - 10)KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.
 - 11)ISACHSEN, Y.W. 1. (AND MITCHEM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)
 - 12)OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.
 - 13)MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.

- 14)GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)
- 15)GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)
- 16)GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)
- 17)GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMO-566, PT. 3 (1952)
- 18)GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)
- 19)BUTINELLY, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO PLATEAU: USGS BULL. 1074-A, 2 P. (1957)
- 20)BUTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS PROF. PAPER 300, P. 187-193 (1956)

RECORD 00104

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W016025
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILL, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... ORPHAN LODE MINE

MINING DISTRICT/AREA/SUBDIST. GRAND CANYON

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 BRIGHT ANGEL, ARIZ.

LATITUDE LONGITUDE
36-04-17N 112-09-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3992260. 396260. +12

TWP..... 31N
RANGE.... 02E
SECTION.. 14
MERIDIAN. GCSR

ALTITUDE.. 6960 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1200 FT BELOW S RIM 1 1/2 MI. FROM BRIGHT ANGEL LODE NEAR POWELL POINT

LOCATION COMMENTS: WC OR SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... U SB CO CU AU FE PB U, SB CO CU AU FE PB MG MN MO NI AG TI ZN
AS HG SE V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. U CU

MAIN COMMOD..... U CO CU PB MO NI AN
 MINOR COMMOD.... SB AU FE MG MN AG

MAIN ORE MINERALS:

TORBERNITE, METATORBERNITE URANIUM URANINITE, PYRITE, URANINITE

MINOR ORE MINERALS:

URANIUM: URANINITE-PITCHBLEND, COFFINITE, TOBERNITE, META-TOBERNITE, AEUNERITE, META-ZEUNERITE, GUMMITE, HYDROUS URANIUM SULPHATE (?), URANOSPINITE, URANOPILITE (?), ZIPPEITE (?), JOHANNITE (?), CURITE (?), URANOPHANE, SHROECKINGERITE; COPPER: TENNANTITE, TETRAEDRITE, BORNITE, CHALCOPYRITE, CHALCOCITE, DIGENITE (?), COVELLITE, MALACHITE, AZURITE, BROCHANTITE, CUPRITE, NATIVE COPPER; MOLYBDENUM: MOLYBDENITE, LLSMANNITE, WULFENITE; LEAD: GALENA, WULFENITE, ANGLESITE, BINDHEIMITE (?); ZINC: SPHALERITE, MARMATITIC SPHALERITE, SMITHSONITE; NICKEL: COBALT: SIEGENITE, NICKEL-SKUTTERUDITE (?), BRAVOITE (?), MILLERITE (?), ZARATITE (?) ANNABERGITE (?), ERYTHRITE; ANTIMONY: TETRAEDRITE, STIBNITE, BINDHEIMITE (?); ARSENIC: TENNANTITE, ARSENOPYRITE, URANOSPINITE, ORPIMENT, REALGAR (?); MERCURY: CINNABAR, METACINNABAR (?); SILVER: PROUSTITE; SELENIUM: (UNKNOWN); VANADIUM: HEWETTITE; MAGNESIUM: DOLOMITE; MANGANESE: RHODOCHROSITE, PYROLUSITE (?); GOLD: NATIVE (?); IRON: PYRITE, HEMATITE, SIDERITE, ANKERITE, JAROSITE, MELANITERITE, GOETHITE, LIMONITE, MARCASITE.

ELEMENTS INDICATED BY SPECTROGRAPHIC ANALYSIS. MINERALS UNKNOWN: CADMIUM, COLUMBIUM (?), GALLIUM, GERMANIUM, TANTALUM, TIN, TITANIUM, YTRIUM. (KOFFORD, 1969)

ANALYTICAL DATA(GENERAL)

CHIP SAMPLES RAN 0.56, 1.0, 0.21, 0.008, 0.064% AND 12.5% FOR GRAB SAMPLE IN HIGH GRADE SHEAR ZONE* (GRANGER 1951). CHIP SAMPLES RAN 0.07, 0.01, 0.94, 0.41, 0.08, AND 3.0% U3O8 (MILLER AND WEATHERS, 1953). ORE IS HIGH GRADE, AVERAGE SAMPLES RUNNING UP TO OVER 1.0% U3O8

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY..... CLAIM LOCATED IN 1891, FILED IN 1893, PATENTED IN 1906 (PRE-DATING ESTABLISHMENT OF NATIONAL MONUMENT IN 1908)

BY WHOM..... DISCOVERED BY DANIEL L. HOGAN

PRESENT/LAST OWNER..... OWNER BEFORE 1953 WAS MRS. MADELINE JACOBS, PRESCOTT, AZ. THE GOLDEN CROWN MINING CO. OBTAINED THE PROPERTY IN 1953. OWNED BY COTTER CORP. OF ROSWELL, N. MEX. IN 1967. (BRUNDY, 1977)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE

FORM/SHAPE OF DEPOSIT: VERTICAL, CIRCULAR, FUNNEL SHAPED, PIPE-LIKE

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... PIPE INCREASES SOMEWHAT IN SIZE DOWNWARD FROM 175 TO 450 FT IN DIAMETER. AT THE ADIT LEVEL PIPE, DIAMETER IS 150 FT AT 100 FT. LEVEL IS 170 FT BY 125 FT, AT 365 FT. LEVEL IS AT MAXIMUM OF 380 FT WITH MINERALIZED ANNULAR RING EXTENDING TO TOTAL DIAMETER OF 500 FT.

DEPTH TO BOTTOM..... 2000 FT

MAX LENGTH..... 380 FT

MAX WIDTH..... 380 FT

DIP OF OREBODY..... 90 DEGREES

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 1600 FT

LENGTH OF WORKINGS..... 2300 FT

COMMENTS(DESCRIP. OF WORKINGS):

DEVELOPMENT WORK UNTIL 1955 CONSISTED OF ONE 70 FT ADIT; IN 1956 AN AERIAL TRAMWAY WAS BUILT, TUNNEL AND SHAFT

1500 FT LEVEL DROPPED IN 1960

PRODUCTION

YES

LARGE PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT	THOUS. UNITS YEAR	GRADE, REMARKS
15 ORE	EST 500	TONS	0.3-0.6% U308

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 262

PRODUCTION COMMENTS.... A MAJOR PRODUCER IN ARIZONA, SUPPLYING CLOSE TO 500,000 TONS OF ORE AVERAGING 0.30 TO 0.60% U308; BY APRIL 1969 ORPHAN LODGE HAD PRODUCED \$40 MILLION IN URANIUM (GRUNDY, 1977)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC AMOUNT	THOUS. UNITS YEAR	GRADE OR USE
1 ORE	EST 100	TONS	1970 0.30% U308

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 262

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS, PENN, PERMIAN
 HOST ROCK TYPES..... COCONINO, HERMIT, SUPAI FORMATIONS (SANDSTONE, SHALE AND REDWALL LIMESTONE)
 IGNEOUS ROCK TYPES..... NONE

AGE OF MINERALIZATION..... 101 +/- M.Y. (MID CRET.) (MILLER AND KULP, 1963) OR OLDER

PERTINENT MINERALOGY..... SOME BLACK ASPHALTIC BLEBS: NON-METALLIC EPIGENETIC MINERALS INCLUDE: BARITE, BARYOCALCITE, CALCITE, DOLOMITE, ARAGONITE, SIDERITE, ANDESINE, LABRADORITE, QUARTZ (OVERGROWTHS, NORMAL IN SEDIMENTS), ILLITE, ALUNITE, ALLOPHANE, KAOLIN (KAOLINITE), SERICITE, GYPSUM, CARBON (KOFFORD, 1969)

IMPORTANT ORE CONTROL/LOCUS.. GREY, VERY FINE GRAINED SANDSTONE, SHALE, AND LIMESTONE IN COCONINO, HERMIT (?) AND SUPAI (?) FORMATIONS LODGE FORMATION IN PIPE. STRONGEST MINERALIZATION IS IN MOST PERMEABLE AREAS AROUND THE PERIPHERY, CONSISTING OF DISSEMINATIONS AND VEIN-LIKE STRINGERS OF URANINITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIA PIPE (FRACTURES) IS A COLLAPSE BRECCIA AND ANNULAR RINGS

SIGNIFICANT ALTERATION:

STRONG BLEACHING AND ALTERATION EXTENDING INTO SEDIMENTS AS FUNCTION OF PERMEABILITY BEYOND AREAS OF SIGNIFICANT MINERALIZATION, ARGILLIZATION AND CARBONIZATION OBLITERATE PREEXISTING STRUCTURES.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

- (1) COLLAPSE OF SUPAI FORMATION INTO A CAVERN IN THE REDWALL LIMESTONE, WHICH MIGHT HAVE BEEN CAUSED BY HYDRO-THERMAL STOPING.
- (2) EXPLOSIVE OPENING OF THE PIPE WHEN THE PRESSURE OF THE ASCENDING GASES OR SOLUTIONS EXCEEDED THE

SUPERINCUMBENT STRENGTH OF THE OVERLYING FORMATIONS. THIS IS INFERRED FROM THE RELATIVELY SMOOTH, FLARED BORE AND THE INTRICATE THRUST PATTERNS DEVELOPED IN THE UPPER PART OF THE PIPE. (3) CONTINUED SUBSIDENCE AND FORMATION (CONSTRUCTION) OF PIPE SEDIMENTS. REMOVAL OF CARBONATES FROM LOWER FORMATIONS AND REDEPOSITION IN THE SUPRA SECTION OF THE PIPE, WHICH MAY HAVE BEEN ACCOMPLISHED BY SOLUTIONS RICH IN HCO_3 ORIGINATING AT DEPTH. (4) TELESCOPED HYDROTHERMAL DEPOSITION (XENOTHERMAL) OCCURRED. (5) AFTERWARD THE SOLUTIONS COOLED TO A POINT WHERE VEGETAL MATTER COULD GROW IN THE OPEN HOLE. THIS SUPPORTED THE GROWTH OF SULFIDE-REDUCING BACTERIA. (6) MODIFICATION OF THE DEPOSIT BY MINERALS COLLECTED FROM THE GROUNDWATER, ACCOUNTING FOR THE UNIQUE MINERALOGY OF THE DEPOSIT. (7) POST-DEPOSITION MOBILIZATION AND ENRICHMENT, MAINLY THROUGH BACTERIOLOGIC PROCESSES. (KUFFORD, 1969)

GENERAL REFERENCES

- 1) GENERAL REFERENCES: KOFFORD, M.E., 1969, THE ORPHAN MINE, IN THE GRAND CANYON: FOUR CORNERS GEOLOGICAL SOC. GUIDEBOOK, P. 190-194.
- 2) GRANGER, H.C., AND RAUP, R.B., JR., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY BULL. 1147-A, P. 1-54.
- 3) KEITH, STANTON B., 1970, URANIUM, IN PETRICE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289.
- 4) GORNITZ, V.M., 1969, MINERALIZATION, ALTERATION, AND MECHANISM OF EMPLACEMENT, ORPHAN ORE DEPOSIT, GRAND CANYON, ARIZONA: UNPUB. PH.D. THESIS, COLUMBIA UNIV.,
- 5) BILLINGSLEY, G.H., 1974, MINING IN GRAND CANYON; IN GEOLOGY OF THE GRAND CANYON, THE CENOZOIC: MUSEUM NORTHERN ARIZONA, FLAGSTAFF, AZ., P. 170-8.
- 6) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 7) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
- 8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 9) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 10) ROWLES, C.G., 1965, URANIUM-BEARING PIPE FORMED BY SOLUTION AND COLLAPSE OF LIMESTONE: U.S. GEOL. SURV. PROF. PAPER 525-A, P. 12.
- 11) ROWLES, C.G., 1977, ECONOMIC IMPLICATIONS OF NEW HYPOTHESIS OF ORIGIN OF URANIUM- AND COPPER-BEARING BRECCIA PIPES, GRAND CANYON, ARIZONA (ABS): U.S. GEOL. SURV., CIRC. 753, P. 25-27. (IN SECOND URANIUM AND THORIUM RESEARCH AND RESOURCE CONFERENCE, GOLDEN, COLOR., APRIL 1977.)
- 12) BRUNDY, C.M., 1977, ORPHAN WITH A MIDAS TOUCH: EMPIRE MAGAZINE, NOV. 27, 1977, P. 12-17, SUPPLEMENT TO THE DENVER POST.
- 13) MARKS, R.L. MINING URANIUM ON THE RIM OF THE GRAND CANYON: EXPLOSIVES ENGR., V. 39, NO. 6, P. 165-170 (1961)
- 14) U.S. GEOL. SURVEY, 1972, GRAND CANYON NATIONAL PARK AND VICINITY, ARIZONA: U.S. GEOL. SURVEY TOPOGRAPHIC
- 15) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.
- 16) FINCH, W.L., 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
- 17) GABELMAN, J.W., BOYER, W.H., 1958, RELATION OF URANIUM DEPOSITS TO FEEDER STRUCTURES, ASSOCIATED ALTERATION AND MINERAL ZONES: PROC. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 338-350.
- 18) SACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)
- 19) JOHNSON, H.S., JR., AND THORDARSON, W., 1956, REGIONAL SYNTHESIS STUDIES--UTAH AND ARIZONA: U.S. ATOMIC ENERGY COMM. TEI-640, P. 188-195.
- 20) MINING WORLD, JAN, 1959, P. 32-35.
- 21) GRANGER, H.C., 1951, ORPHAN CLAIM: U.S. ATOMIC ENERGY COMM., PRELIM. RECON. REPT., 1 P.
- 22) MILLER, R.D., AND WEATHERS, G., 1953, ORPHAN LORE CLAIM: U.S. ATOMIC ENERGY COMM., PRELIM. RECON. REPT., A P-52, 1 P.
- 23) KOFFORD, MAX E., 1956, THE ORPHAN ORE DEPOSIT: UNPUBLISHED GOLDEN CROWN MINING CO. REPORT.
- 24) STILL, ARTHUR R., 1954, THE ORPHAN LORE URANIUM DEPOSIT: PRIVATE REPORT TO GOLDEN CROWN MINING CO.

- 4) GEOLOGIC MAPS OF AREA: MAXSON, J.H., 1961, GEOLOGIC MAP OF THE BRIGHT ANGEL QUADRANGLE, GRAND CANYON NATIONAL PARK, ARIZONA: GRAND CANYON NAT. HISTORY ASSOC., 1:48,000.
- 5) MAXSON, J.H., 1969, PRELIMINARY GEOLOGIC MAP OF THE GRAND CANYON AND VICINITY, ARIZONA: GRAND CANYON NAT. HISTORY ASSOC., 1:62,500.
- 6) MAXSON, J.H., 1969, PRELIMINARY GEOLOGIC MAP OF THE GRAND CANYON AND VICINITY, ARIZONA (WESTERN): GRAND CANYON NATURAL HISTORY ASSOC., 1:62,500.
- 7) MAXSON, J.H., 1969, PRELIMINARY GEOLOGIC MAP OF THE GRAND CANYON AND VICINITY, ARIZONA (CENTRAL): GRAND CANYON NATURAL HISTORY ASSOC., 1:62,500.
- 9) HUNTOON, P.W., BILLINGSLEY, G.H., JR., BREED, W.J., SEARS, J.W., FORD, T.D., CLARK, M.D., BABCOCK, R.S., AND BROWN, E.H., 1976, GEOLOGIC MAP OF THE GRAND CANYON NATIONAL PARK, ARIZONA: GRAND CANYON NAT. HISTORY ASSOC., P.O. BOX 309, GRAND CANYON, ARIZONA., AND MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, ARIZ.

RECORD 00105

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030424
RECORD TYPE..... R1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... SUN VALLEY MINE
MINING DISTRICT/AREA/SUBDIST. EAST OF JACOB LAKE
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMMETT WASH, ARIZ.

LATITUDE LONGITUDE
36-44-11N 111-46-58W

TWP..... 39N
RANGE.... 06E
SECTION.. 32
MERIDIAN. G & SR

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN CANYON ABOUT 2 MILES WSW OF CLIFF DWELLERS LODGE

LOCATION COMMENTS: WEST CENTRAL

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO RH CO PB ZN

MAIN COMMOD..... U

MAIN ORE MINERALS:

URANINITE URANIUM, PHOSPHATE ZIPPEITE

MINOR ORE MINERALS:

ILSEMONNITE; JORDISITE (?) PYRITE, SPHALERITE, HEMATITE, GALENA (RARE)

ANALYTICAL DATA(GENERAL)

TEN SAMPLES OF URANIUM BEARING ROCK CONTAINED AN UNUSUAL AMOUNT (UP TO 0.07%) OF RHENIUM CONCENTRATED IN THE WATER SOLUBLE FRACTION OF THE SAMPLES. THE SOLUBLE SALT FRACTION OF 2 SAMPLES ASSAYED 1.5% RHENIUM. MOLYBDENUM CONTENT IS AS HIGH AS 10% (PETERSON ETAL, 1959). AVERAGE GRADE MAY BE AROUND 0.20% U3O8 (KEITH, 1978, P. 218)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT: U SHAPED BEND OF PALUSTREAM CHANNEL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT.....	PODS 3 FT BY 2 FT
MAX LENGTH.....	1000 FT
MAX WIDTH.....	400 FT
MAX THICKNESS.....	130 FT

PRODUCTION

YES

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	TRIASSIC
HOST ROCK TYPES.....	SANDSTONE, SHINARUMP CONGLOMERATE MEMBER OF CHINLE FM
IGNEOUS ROCK TYPES.....	NONE

PERTINENT MINERALOGY..... CALCITE AND CHALCEDONY CEMENT

IMPORTANT ORE CONTROL/LOCUS.. IN BOTTOM 2-5 FT OF PALEOSTREAM CHANNEL FILLED WITH SHINARUMP CONGLOMERATE; SOME CARBONIZED PLANT REMAINS. CHERT AND QUARTZITE PEBBLE CONGLOMERATE 40 FT THICK overlain BY 90 FT OF CROSSBEDDED SANDSTONE. CONGLOMERATE UNDERLAIN BY MOENKOPI

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

ILSIMANNITE FORMS ON WALLS OF OLOER MINE WORKINGS OF U. MINE; URANINITE OCCURS AS INTERSTITIAL MATERIAL AND AS ROUNDED GRAINS; ILSEMANITE IS ASSOCIATED WITH RHENIUM OXIDE

GENERAL REFERENCES

- 1) PETERSEN, R.G. 1. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 68, NO. 12, P. 1778 (1957)
- 2) KEITH, STANTON B., 1970, URANIUM, IN PETRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELLIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-289.
- 3) PETERSEN, R.G., 1957, THE CENTRAL EAST VERMILLON CLIFFS AREA, IN GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS--SEMI-ANNUAL PROGRESS REPORT, DEC. 1, 1956- MAY 31, 1957: U.S. GEOL. SURVEY TEI-690, BOOK 1, P.

152-154, ISSUED BY U.S. ATOMIC ENERGY COMM., P. 147

4)BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 99TH FIELD CONF., P. 164-168.

5)HOLEN AND TIVITSELL, 1955, JASPER GROUP: U.S. ATOMIC ENERGY COMM. P.R.R. R-R-275, 1 P.

6)HINKKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.

7)ECON. GEOL., 1960, V. 55, #1, P. 138-149.

8)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 123

9)ISACHSEN, V.W., AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.

10)GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM., 11)FINCH, W.L., 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN

THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)

12)KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL, V. 69, P. 1075-1109.

13)HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., JII, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF JRE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.

14)WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.

15)AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.

16)GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.

17)GRUNER, J.W., AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.

18)ROBINELLY, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.

11)U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.

20)HINKKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).

21)AUSTIN, S.R., 1964, MINERALOGY OF THE CAMERON AREA, COCONINO CO: ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT RME-99, 99 P.

22)REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.

23)REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.

24)HAMILTON, P. AND P.F. KERR (1959) UMOHOITE FROM CAMERON, ARIZONA. AMER. MIN. 44: 1248-1260.

25)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

4) PLATEAU URANIUM:

GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51, P. 7.

5)EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC.RMD-659, 19 P., MAPS (1950)

6)CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)

7)HARSHBARGER, J.W., REPENNING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.

8)MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.

9)WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.

10)KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC. 2ND INT'L. CONF.

ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.

11) ISACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)

12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 146 P.

13) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.

14) GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)

15) GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1954)

16) GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)

17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RMD-566, PT. 3 (1952)

18) GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: USAEC, RME-3092 (1954)

19) BOTINELLY, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO PLATEAU: USGS BULL. 1074-A, 2 P. (1957)

20) BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS PROF. PAPER 300, P. 167-193 (1956)

RECORD 00106

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030429
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... VERMILION NO. 1 MINE
MINING DISTRICT/AREA/SUBDIST. VERMILION CLIFFS AREA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... COCONINO

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMMETT WASH, ARIZ.

LATITUDE LONGITUDE
36-41-10N 111-52-40W

TWP..... 38N
RANGE.... 05E
SECTION.. 20
MERIDIAN. G & SR

ALTITUDE.. 4920

POSITION FROM NEAREST PROMINENT LOCALITY: ON EMMETT HILL S. OF U.S. 89

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO

MAIN COMMOD..... U
MINOR COMMOD.... CU MO

MAIN ORE MINERALS:
METATORBERNITE

MINOR ORE MINERALS:

COPPER MINERALS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT.....	SMALL	
MAX LENGTH.....	300	FT
MAX WIDTH.....	50	FT
MAX THICKNESS.....	20	FT

DESCRIPTION OF WORKINGS

SURFACE

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 219

PRODUCTION COMMENTS.... PRODUCED A FEW TONS OF LOW GRADE MINERALIZATION

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 219

COMMENTS (RESERVES/POT RESOURCES).. RESOURCES OF LOW GRADE VERY LIMITED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	TRI
HOST ROCK TYPES.....	SHINARUMP MEMBER OF CHINLE FORMATION (POORLY SORTED CLAY, SAND AND GRAVEL)
IGNEOUS ROCK TYPES.....	NONE

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION IN SHINARUMP AND MOEKOPI AT OR NEAR CONTACT

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-209.
- 2) PETERSEN, R.G., 1957, THE CENTRAL EAST VERMILLON CLIFFS AREA, IN GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS --SEMI-ANNUAL PROGRESS REPORT, DEC. 1, 1956- MAY 31, 1957: U.S. GEOL. SURVEY 1E1-690, BOOK 1, P. 152-154, ISSUED BY U.S. ATOMIC ENERGY COMM. P. 147.
- 3) BOLLIN, E.M., AND KERR, P.F., 1958, URANIUM MINERALIZATION NEAR CAMERON, ARIZONA, IN GUIDEBOOK OF THE BLACK MESA BASIN, NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., 9TH FIELD CONF., P. 164-168.
- 4) HULEN AND TWITCHELL, 1955, JASPER GROUP: U.S. ATOMIC ENERGY COMM. P.R.R. R-R-275, 1 P.
- 5) HINKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121
- 7) ISACHSEN, Y.W. AND EVENSEN, C.G., 1956, GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS OF THE COLORADO PLATEAU: U.S. GEOL. SURVEY PROF. PAPER 300, P. 263-280.
- 8) GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM., RME-3082
- 9) PETERSEN, R.G. J. (AND HAMILTON, J.C., AND MYERS, A.T.) OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, NO. 2, P. 254-267 (1959); (ABST): GEOL. SOC. AM. BULL, V. 68, NO. 12, P. 1778 (1957)
- 10) FINCH, W.L. I. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER

538, 121 P. (1967)

11) KERR, PAUL F., 1958, URANIUM EMPLACEMENT IN THE COLORADO PLATEAU: GEOL. SOC. AMERICA BULL., V. 69, P. 1075-1109.

12) HOLLAND, H.D., WITTER, G.G., JR., HEAD, W.B., III, AND PETTI, R.W., 1958, THE DISTRIBUTION OF LEACHABLE URANIUM IN SURFACE SAMPLES IN THE VICINITY OF ORE BODIES, PT. 2 OF THE USES OF LEACHABLE URANIUM IN GELCHEMICAL PROSPECTING ON THE COLORADO PLATEAU: ECON. GEOLOGY, V. 57, NO. 2, P. 137-167.

13) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM., RME-4002.

14) AUSTIN, S. RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.

15) GRUNER, J.W., AND SMITH, D.K., JR., 1955, ANNUAL REPORT FOR APRIL 1, 1954 TO MARCH 31, 1955: U.S. ATOMIC ENERGY COMM. RME-3020, 37 P.,

16) GRUNER, J.W. AND KNOX, J.A., 1957, ANNUAL REPORT FOR APRIL 1, 1956 TO MARCH 31, 1957: U.S. ATOMIC ENERGY COMM. RME-3148, 51 P.

17) BOTINELLI, T., WEEKS, A.D., AND JOHNSON, D.H., 1953, GENERAL MINERALOGIC STUDIES: GEOLOGIC INVESTIGATIONS OF RADIOACTIVE DEPOSITS, SEMIANNUAL PROGRESS REPORT, JUNE 1 TO NOVEMBER 30, 1953: U.S. GEOL. SURVEY TEI-390, P. 45-48.

18) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLOR.,

19) HINCKLEY, DAVID N., 1955, RECONNAISSANCE IN THE CAMERON AREA, COCONINO COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT (UNPUBLISHED).

20) AUSTIN, S.R. 1964, MINERALOGY OF THE CAMERON AREA, COCONINO CO.: ARIZONA: U.S. ATOMIC ENERGY COMM., RAW MATERIALS EXPLORATION REPORT RME-99, 99 P.

21) REICHE, PARRY, 1937, QUATERNARY DEFORMATION IN THE CAMERON DISTRICT OF THE PLATEAU PROVINCE: AM. JOUR. SCI., 5TH SER., V. 34, NO. 200, P. 128-138.

22) REPENNING, C.A., C/OLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPF FORMATIONS, NAVAJO AND HOPÍ INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.

23) HAMILTON, P. AND P.F. KERR (1959) UMOHITO FROM CAMERON, ARIZONA. AMER. MIN. 44: 1248-1260.

24) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

4) PLATEAU URANIUM:

GREGG, C.C., AND MOORE, E.L. (1955) RECONNAISSANCE OF THE CHINLE FORMATION IN THE CAMERON-ST. JOHNS AREA, COCONINO, NAVAJO, AND APACHE COUNTIES, ARIZONA, U.S.A.E.C. RME-51, P. 7.

5) EVERHART, D.L. (SEE ALSO MCKELVEY, V.E., 3) 1. RECONNAISSANCE EXAMINATIONS OF COPPER-URANIUM DEPOSITS WEST OF THE COLORADO RIVER: USAEC, RMO-659, 19 P., MAPS (1950)

6) CHENOWETH, W.L. 4. GEOLOGY OF THE CAMERON QUADRANGLE, ARIZONA: USGS MAP GQ-162 (1962)

7) HARSHBARGER, J.W., REPENNING, C.A., AND IRWIN, J.H., 1957, STRATIGRAPHY OF THE UPPERMOST TRIASSIC AND THE JURASSIC ROCKS OF THE NAVAJO COUNTRY: U.S. GEOL. SURVEY PROF. PAPER 291, 79 P.

8) MCKELVEY, V.E., EVERHART, D.L., AND GARRELS, R.M., 1955, ORIGIN OF URANIUM DEPOSITS: ECON. GEOL. 50TH ANNIVERSARY VOLUME, PT. 1, P. 464-533.

9) WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.

10) KERR, PAUL F., 1958, CRITERIA OF HYDROTHERMAL EMPLACEMENT IN PLATEAU URANIUM STRATA: PROC. 2ND INT'L. CONF. ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, 330-334.

11) ISACHSEN, Y.W. 1. (AND MITCHAM, T.W., AND WOOD, H.B.) AGE AND SEDIMENTARY ENVIRONMENT OF URANIUM HOST ROCKS, COLORADO PLATEAU: ECON. GEOL., V. 50, NO. 2, P. 127-134 (1955)

12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-G, 145 P.

13) MILLER, DONALD S., AND KULP, J. LAURENCE, 1963, ISOTOPIC EVIDENCE ON THE ORIGIN OF THE COLORADO PLATEAU URANIUM ORES: GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.

14) GRUNER, JOHN W. 5. MINERAL ASSOCIATIONS IN THE CONTINENTAL-TYPE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT AREAS: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 7TH FIELD CONF., P. 151-154, ILLUS. (1956)

15) GRUNER, JOHN W. 4. THE URANIUM MINERALOGY OF THE COLORADO PLATEAU AND ADJACENT REGIONS: UTAH GEOL. SOC., GUIDEBOOK 9, P. 70-77, TABLES (1945)

16) GRUNER, JOHN W. 3. THE ORIGIN OF THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT REGIONS: MINES MAG., V. 44, NO. 3, P. 53-66, ILLUS. (1954)

- 17)GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF TSHINARUMP
FORMATION: USAEC, RMD-566, PT. 3 (1952)
- 18)GRUNER, JOHN W. 2. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO PLATEAU AND ADJACENT
REGIONS: USAEC, RME-3092 (1954)
- 19)BOTINELLY, T. 2. (AND WEEKS, A.D.) MINERALOGIC CLASSIFICATION OF URANIUM-VANADIUM DEPOSITS OF THE COLORADO
PLATEAU: USGS BULL. 1074--A, 2 P. (1957)
- 20)BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM ORES: USGS
PROF. PAPER 300, P. 187-193 (1956)

RECORD 00111

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030446
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... US8M-004 007 0132
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... ALBERT LEA PROPERTY
SYNONYM NAME..... LEA TUNNELS

MINING DISTRICT/AREA/SUBDIST. GLOBE HILLS DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 GLOBE, ARIZ.

LATITUDE LONGITUDE
33-24-33N 110-45-47W

TWP..... 01N
RANGE.... 15 1/2 E
SECTION.. 22
SECTION FRACTIONS: SW OF SE
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MILES NE OF GLOBE ; 1 MILE SOUTH OF BUCKEYE MTN

LOCATION COMMENTS: NEAR SOUTH BOUNDARY SEC 22

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN V AU AG CU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG
MINOR PRODUCTS.. CU AU

MAIN COMMOD..... PB
 MINOR COMMOD..... ZN V

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... V MD

MAIN ORE MINERALS:
 CERUSSITE

MINOR ORE MINERALS:
 GALENA, MASSICOT, HEMIMORPHITE, DESCLOIZITE, VANADINITE, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE
 YEAR OF FIRST PRODUCTION. 1941
 YEAR OF LAST PRODUCTION. 1946
 PRESENT/LAST OWNER..... DEVELOPED AND WORKED BY CEFERINO LIANO OF GLOBE

EXPLOR. AND DEVELOP. COMMENTS:
 PREVIOUS OPERATORS INCLUDE ORTEGA AND COCHRAN

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FISSURE VEIN
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 STRIKE OF OREBODY.... E-W
 DIP OF OREBODY..... 75N

DESCRIPTION OF WORKINGS

UNDERGROUND
 DEPTH OF WORKINGS BELOW SURFACE. 140 FT
 LENGTH OF WORKINGS..... 700 FT

COMMENTS(DESCRIP. OF WORKINGS):
 2 ADITS WITH DRIFTS AND CROSSCUTS

PRODUCTION

YES
 SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE ACC	0.254	TONS	1944		
2 PB ACC	40.577	LBS	1944		
3 AG ACC	1.441	OZ	1944		
4 ORE ACC	0.769	TONS	1945		

5	PB	ACC	164,662	LBS	1945
6	AG	ACC	5.087	OZ	1645

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		1.231	TONS	1941-1946	
16 CU ACC		0.995	LBS	1941-1946	
17 PB ACC		298.901	LBS	1941-1946	
18 AG ACC		8.765	OZS	1941-1946	
19 AU ACC		0.014	OZS	1941-1946	
20 ORE ACC		1.2	TONS	1944-1946	12% PB, 4% ZN, 0.10% CU, 0.012 OZ AU/T, 6.7 OZ AG/T
21 PB ACC		232.250	LBS	1944-1946	
22 AG ACC		7.5	OZ	1944-1946	

SOURCE OF INFORMATION (PRODUCTION).. PETERSON, 1962, P. 124 AZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... MOST OF THE PRODUCTION WAS OBTAINED FROM SMALL STOPES BETWEEN THE SUBLEVELS AND ABOVE THE DRIFT ON THE ADIT LEVEL.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... TROY QUARTZITE, DIABASE
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... LIMONITE AND MANGANESE OXIDES (PSILOMELANE) ABUNDANT ON HINGING WALL

IMPORTANT ORE CONTROL/LOCUS.. ORE OCCURRED AS SMALL BUNCHES OR SHORTS ALONG THE VEIN IN QUARTZITE BRECCIA.
 BETWEEN THE STOPES THE QUARTZITE BRECCIA IS PRACTICALLY BARREN OF ORE MINERALS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THIN DIABASE DIKES HAVE BEEN INTRUDED ALONG SOME FAULTS IN QUARTZITE. LATER DISPLACEMENT OCCURRED ALONG THE WALLS OF THE DIKES AND ALONG SMALL CROSS FAULTS. FAULTS ARE SOMETIMES MARKED BY CEMENTED BRECCIA STANDING ABOVE THE TALUSO.

MINERALIZED FISSURES ARE TERMINATED TO WEST BY A STEEPLY DIPPING, NE STRIKING FAULT WHICH HAS DOWNDROPPED THE BLOCK TO THE SE.

COMMENTS (GEOLOGY AND MINERALOGY):

BRECCIA FRAGMENTS AND FRACTURES IN THE WALLS OF THE VEIN ARE COMMONLY COATED BY THIN CRUSTS OF PALE-YELLOW OR ORANGE VANADINITE CRYSTALS OR BROWN DESCLOIZITE. MINERALIZATION ASSOCIATED WITH LCRET-

GENERAL REFERENCES

- 1) ABM FILE PAGE
- 2) PETERSON, N.P.. 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., 124-126.
- 3) ABGMT-USBM FILE DATA

RECORD 00112

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030444
 RECORD TYPE..... 11
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 FILE LINK ID..... USBM-004 007 0281
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... APACHE MINE
 SYNONYM NAME..... DEFIANCE MINE, VANADIUM SHAFT , DEFIANCE LEAD

MINING DISTRICT/AREA/SUBDIST. GLOBE HILLS DIST./

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 GLOBE, ARIZ.

LATITUDE LONGITUDE
 33-27-45N 110-48-25W

TWP..... 01N

RANGE..... 15E

SECTION.. 02

SECTION FRACTIONS: NW OF NW

MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES NW OF GLOBE AND 1 1/4 MILES NE OF RADIUM ON PINAL CREEK

LOCATION COMMENTS: LOCATION GIVEN IS FOR VANADIUM SHAFT. CLAIMS CONTINUE INTO SEC. 34, T02N, R15E

COMMODITY INFORMATION

COMMODITIES PRESENT..... V PB MO ZN CU AG AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS..

MINOR PRODUCTS.. MO ZN CU AG AU

MAIN COMMOD..... V PB
MINOR COMMOD..... MD ZN CU

MAIN ORE MINERALS:
VANADINITE, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
MATLUCKITE, CERUSSITE, BROCHANTITE, BOLEITE; DESCLOIZITE, MOTTRAMITE, WILLEMITE, GALENA, MOLFENITE,
MALACHITE, CHRYSOCOLLA, COVELLITE.

ANALYTICAL DATA(GENERAL)
HAND SORTED ORE 19% PB, 3.7% ZN, 0.55% CU, 0.17 OZ AU/T, 3.7 OZ AG/T.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... PROBABLY WORKED IN LATE 1800'S AS A PROSPECT PIT IS LOCATED ON A 1902 MAP
YEAR OF FIRST PRODUCTION. 1929
YEAR OF LAST PRODUCTION. 1957
PRESENT/LAST OWNER..... WORLEY, SPRIG, HUNTER (1974)

EXPLOR. AND DEVELOP. COMMENTS:

PROPERTY INCLUDES 8 CLAIMS AND 2 FRACTIONS. PREVIOUS OWNERS AND OPERATORS INCLUDE PFEISTER BROS. (1913), D.S.
MCDONALD AND FRANK CHISUM (1943), E.J. SIKES, J. RAGGIO, FRED GOAT (1973), MERCER-KING CONSOLIDATED MINES LTD.
(1953)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1500 FT
MAX WIDTH..... 10 FT
STRIKE OF OREBODY.... N35E
DIP OF OREBODY..... 80 SE

COMMENTS(DESCRIPTION OF DEPOSIT):

VEIN IS BOUNDED ON TOP BY DATABASE FLOW AND ON BOTTOM BY A BEDDING PLANE FAULT.

DESCRIPTION OF WORKINGS

UNDERGROUND
LENGTH OF WORKINGS..... 1400 FT

COMMENTS(DESCRIP. OF WORKINGS):

2 SHAFTS AND 1400 FT OF DRIFTS, CROSSCUTS, RAISES; VANADIUM SHAFT (NO. 1) IS 150 FT DEEP WITH LEVELS AT 50 FT AND
150 FT; SHAFT NO. 2 IS 110 FT DEEP WITH LEVELS AT 30, 65, AND 110 FT BUT IS FILLED WITH WASTE ROCK TO 65 FT
LEVEL; VEIN EXPLORED FOR 550 FT ALONG STRIKE AND PARTLY BACKFILLED (PETERSON, 1962, P. 126)

PRODUCTION

YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 V CONC.	EST	0.020	TONS	1930	
2 V	ACC	5.577	LBS	1930	
3 ORE	ACC	0.040	TONS	1936	?
4 PB	ACC	22.248	LBS	1936	
5 AU	ACC	0.012	OZ	1936	
6 AG	ACC	0.316	OZ	1936	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 PB ORE		1.3	TONS	1936-1948	SOME AU AG
16 PB	ACC	424.637	LBS	1936-1948	
17 AG	ACC	3.755	OZ	1936-1948	
18 AU	ACC	0.227	OZ	1936-1948	

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1971, P. 253

PRODUCTION	COMMENTS.....	ORE	ACC	0.091	TONS	1940
PB	ACC	43.978	LBS			1940
AU	ACC	0.041	OZ			1940
AG	ACC	0.535	OZ			1940
ORE	ACC	0.156	TONS			1941
PB	ACC	85.282	LBS			1941
AU	ACC	0.039	OZ			1941
AG	ACC	1.145	OZ			1941
ORE	ACC	0.151	TONS			1942
PB	ACC	89.458	LBS			1942
AU	ACC	0.014	OZ			1942
AG	ACC	0.543	OZ			1942
ORE	ACC	0.136	TONS			1943
PB	ACC	39.278	LBS			1943
AU	ACC	0.010	OZ			1943
AG	ACC	0.216	OZ			1943
ORE	ACC	0.143	TONS			1944
PB	ACC	33.673	LBS			1944
AU	ACC	0.019	OZ			1944
AG	ACC	0.233	OZ			1944
ORE	ACC	0.090	TONS			1945
PB	ACC	15.491	LBS			1945
AU	ACC	0.010	OZ			1945
AG	ACC	0.031	OZ			1945
ORE	ACC	0.134	TONS			1946
PB	ACC	29.646	LBS			1946
AU	ACC	0.028	OZ			1946
AG	ACC	0.159	OZ			1946
ORE	ACC	0.276	TONS			1947
PB	ACC	53.665	LBS			1947
AU	ACC	0.041	OZ			1947
AG	ACC	0.334	OZ			1947
ORE	ACC	0.099	TONS			1948

PB ACC 11.918 LBS 1948
 AU ACC 0.013 OZ 1948
 AG ACC 0.243 OZ 1948

(SOURCE: PETERSON, 1950, AZ BUR. MINES BULL. 156, P. 101; FIRST KNOWN PRODUCTION IN 1930 BY EDWARD C. O'BRIEN CO. SHIPPED 20 TONS VANADIUM CONCENTRATE (MOSTLY VANADINITE CRYSTALS))

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
 HOST ROCK TYPES..... PIONEER FORMATION (QUARTZITE), DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC
 IGNEOUS ROCK TYPES..... DIABASE

AGE OF MINERALIZATION..... LCRET-TEXT

PERTINENT MINERALOGY..... CALCITE, QUARTZ LIMONITE; MANGANESE OXIDES IN PARTS; QUARTZITE FRAGMENTS AND DIABASE GANGE

IMPORTANT ORE CONTROL/LOCUS.. ORE MINERALS ARE CONFINED TO A NARROW BAND IN THE MIDDLE PART OF THE FAULT ZONE CONSISTING OF QUARTZITE FRAGMENTS AND DIABASE GANGE ALTERED TO A WHITE POROUS MASS OF CLAY, SERICITE, AND CALCITE (PETERSON, 1962, P. 128)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BOTTOM LIMIT OF ORE IS SAID TO BE A BEDDING PLANE FAULT, POSSIBLY BECAUSE OF FAULT OBSTRUCTED MINERALIZING SOLUTIONS.

SIGNIFICANT ALTERATION:

CHLORITIC ALTERATION; CLAY, SERICITE, AND FINELY DISSEMINATED CALCITE

COMMENTS (GEOLOGY AND MINERALOGY):

BLOOD RED VANADINITE OF STICKY HABIT ON A BACKGROUND OF RICH, BLACK MOTTRAMITE AND MOTTLED, META-SEDIMENT MATRIX; RICH, BLACK DRUSES OF SOOTY TO SPARKLING MATTRAMITE; VANADINITE, DESCLOIZITE AND MOTTRAMITE ARE MOST ABUNDANT IN FRACTURED QUARTZITE; LEAD ORE OCCURRED AS MASSES OF CERUSSITE SURROUNDING SMALL KERNELS OF GALENA ENCLOSED IN SHELLS OF ANGLESITE. MINERALIZATION ASSOCIATED WITH LCRET-

GENERAL REFERENCES

- 1) WILSON, W.E., 1971, CLASSIC LOCALITY: THE APACHE MINE: MINERALOGICAL RECORD, V. 2, NO. 6, P. 252-258.
- 2) PETERSON, N.P., 1962 19. GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 126-128.
- 3) JONES, BOB, 1979, APACHE UPRISING: ROCK AND GEM, V. 9, NO. 2, P. 64-65, 67-69.
- 4) THOMSSON, R., 1957, MICROMOUNTS FROM THE APACHE MINE: THE MINERAL EXPLORER, V. 1, NO. 1
- 5) BIDEAUX, R.A., AND WILLIAMS, S.A., 1960, SOME NEW OCCURRENCES OF MINERALS OF ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 53-56, P. 55.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 144, 197.
- 7) PETERSON, N.P., 1950, LEAD AND ZINC DEPOSITS IN THE GLOBE-MIAMI DISTRICT, ARIZONA: IN ARIZONA ZINC AND LEAD DEPOSITS, PT. 1, ARIZ. BUR. MINES, GEOL. SER. NO. 18, BULL. NO. 156, P. 98-112, P. 101-105.
- 8) ADMN DEFIANCE FILE
- 9) ABGMT CLIPPINGS FILES (DEFIANCE, APACHE)
- 10) ABGMT-USBM FILE DATA

RECORD 00113

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 4016098
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 UPDATED..... 80 01
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BANNER DISTRICT
 MINING DISTRICT/AREA/SUBDIST. BANNER DIST./DRIPPING SPRING MTS
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 CHRISTMAS AND HAYDEN, ARIZ.

LATITUDE LONGITUDE
 33-04-00N 110-45-00W

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB MD ZN V BE FE W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
 MINOR PRODUCTS.. AU AG PB ZN

MAIN COMMOD..... CU
 MINOR COMMOD..... AU AG PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... MD
 OCCURRENCE..... V

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, BORNITE, GALENA, SPHALERITE, CERUSSITE.

MINOR ORE MINERALS:

CHALCOITE, MOLYBDENITE, TETRAHEDRITE, SILVER PROBABLY CARRIED IN GALENA; SECONDARY MINERALS INCLUDE
 COVELLITE, CHALCOITE, SULFUR, COPPER, TENORITE, GOETHITE, HEMATITE, MURDOCHITE, PLATTNERITE, HETAEROLITE,
 CUPRITE (?), MALACHITE, SMITHSONITE, AURICHALCITE, ROSASITE, AZURITE, HYDROZINCITE, CHALCANTHITE, ANGLESITE,

PISANITE, PLUMBOJAROSITE, BROCHANTITE, LINARITE (?), WULFENITE, MIMETITE, DESCLOIZITE, MOTTRAMITE, OLIVENITE, CLINOCLASE, AUSTINITE (?), PYROMORPHITE, VANADINITE, HEMIMORPHITE, CHRYCOLLA, WILLEMITE, DIOPHASE, ALSO TENNANTITE AND BORNITE; NATIVE GOLD; SPHALERITE, GALENA, MOLYBDENITE; OXIDIZED ZONE INCLUDES COVELLITE, CUPRITE, NATIVE COPPER, MALACHITE, AZURITE, TENORITE, DIOPHASE, BROCHANTITE, CHALCANTHITE, PYRRHOTITE, CUBANITE; KINDITE, RAJITE, RUZITE, JUNIOTOITE; RHODOCHROSITE

ANALYTICAL DATA(GENERAL)

1-4% CU; LEAD OXIDES 22-24% PB, 4-5 OZ AG/T.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... MOST IN DISTRICT DISCOVERED IN LATE 1870'S AND EARLY 1880'S, BUT LITTLE ORE PRODUCED UNTIL AFTER 1900.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED PORPHYRY COPPER, VEINS AND VEINLETS, PIPES, IRREGULAR MASSIVE REPLACEMENTS, AND BEDDED REPLACEMENTS.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... MEDIUM

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 AU	ACC	0.257	OZ	1950	EASTLICK, 1968, P. 1193
2 AG	ACC	6.13	OZ	1950	EASTLICK, 1968, P. 1193
3 CU	ACC	1352.2	LBS	1950	
4 PB	ACC	59.2	LBS	1950	EASTLICK, 1968, P. 1193
5 ZN	ACC	2.5	LBS	1950	EASTLICK, 1968, P. 1193
7 AG	ACC	10.932	OZ	1951	

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 AU	ACC	22.689	OZ	1905-1949	ABM BULL. 158, 1951, P. 66
16 AG	ACC	702.786	OZ	1905-1949	ABM BULL. 158, 1951, P. 66
17 CU	ACC	68973.91	LBS	1905-1949	ABM BULL. 158, 1951, P. 66
18 PB	ACC	34284.2	LBS	1905-1949	ABM BULL. 158, 1951, P. 66
19 ZN	ACC	4593.733	LBS	1905-1949	ABM BULL. 158, 1951, P. 66

SOURCE OF INFORMATION (PRODUCTION).. EASTLICK, 1968, P. 1193

PRODUCTION COMMENTS.... CU

ACC	1658.6	LBS	1951
PB	ACC	128.0	LBS 1951
ZN	ACC	20.0	LBS 1951
AU	ACC	0.149	OZ 1952
AG	ACC	7.72	OZ 1952
CU	ACC	1359.4	LBS 1952
PB	ACC	63.1	LBS 1952
ZN	ACC	51.5	LBS 1952
AU	ACC	0.11	OZ 1953
AG	ACC	4.215	OZ 1953
CU	ACC	1252.0	LBS 1953
PB	ACC	8.5	LBS 1953
AU	ACC	0.152	OZ 1954
AG	ACC	5.153	OZ 1954
CU	ACC	1465.4	LBS 1954
AG	ACC	0.129	OZ 1955
CU	ACC	70.0	LBS 1955
PB	ACC	12.0	LBS 1955
ZN	ACC	1.788	LBS 1955
AU	ACC	0.003	OZ 1956
AG	ACC	0.293	OZ 1956
CU	ACC	241.4	LBS 1956
AU	ACC	0.002	OZ 1957
AG	ACC	0.522	OZ 1957
CU	ACC	365.2	LBS 1957
PB	ACC	34.3	LBS 1957
CU	ACC	254.559	LBS 1958
CU	ACC	1121.398	LBS 1959
CU	ACC	334.794	LBS 1960
CU	ACC	331.016	LBS 1961
CU	ACC	4465.319	LBS 1962
CU	ACC	20232.893	LBS 1963

(EASTLICK, 1968, P. 1193); \$26 MILLION TO 1964
EASTLICK, 1968, P. 1193

3

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. DEV. MISS. PENN. TERT.
HOST ROCK TYPES..... LIMESTONE, QUARTZ DIORITE PORPHYRY, ANDESITE, DIABASE, APACHE GROUP METASEDIMENTS.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (62 M.Y., CREASEY AND KISTLER, 1962)
IGNEOUS ROCK TYPES..... QUARTZ MICA DIORITE STOCK, HORNBLENDE PORPHYRY DIKES, RHYODACITE PORPHYRY DIKES.

AGE OF MINERALIZATION..... TERT. (62 M.Y., CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY..... GANGUE IS MAINLY GARNET, IDOCRASE, EPIDOITE, QUARTZ, AND LIMESTONE; MAGNETITE, SPECULAR HEMATITE; CHONDRDITE, DIOPSIDE, TREMOLITE, ACTINOLITE, SERICITE, CHLORITE, HEDENBERGITE, BARITE, FELDSPAR, ANHYDRITE, GYPSUM, BRUCITE, ZINITE, ANTIGORITE, MOLLASTONITE, HEMATITE AND GOETHITE, WAD (A MIXTURE OF HOLLANDITE MANGANITE, AND PYROLUSITE), LEPIDOCROCITE, CALCITE, SIDERITE, DOLOMITE, HALOTRICHITE, MELANITERITE, JAROSITE, SCORODITE; MONTMORILLONITE, SAUCONITE (?), KAOLINITE ILLITE (?), ANDRADITE ARNET, VESUVIANITE

IMPORTANT ORE CONTROL/LOCUS.. ORE MINERALIZATION IS DIRECTLY PROPORTIONAL TO THE EXTENT OF METAMORPHISM AND HYDROTHERMAL ALTERATION. THESE, IN TURN, ARE FUNCTIONS OF PROXIMITY TO THE INTRUSIVE CONTACT, OF THE CHARACTERISTICS OF VARIOUS ROCKS, AND OF THE INTENSITY OF PRE-MINERAL FRACTURING. THERE ARE FOUR MAJOR TYPES OF DEPOSITS IN THE DISTRICT: (1) BEDDED REPLACEMENT IN CERTAIN STRATIGRAPHIC HORIZONS; (2) IRREGULAR MASSIVE

REPLACEMENTS ALONG THE EDGES OF INTRUSIVE CONTACTS; (3) PIPE-LIKE REPLACEMENTS AT THE INTERSECTIONS OF SHEAR AND FRACTURE ZONES; AND (4) VEIN DEPOSITS ALONG FISSURES (EASTLICK, 1968)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT SYSTEMS INCLUDE STEEP EAST-WEST FAULTS, STEEP NORTHEAST FAULTS, AND STEEP NORTHWEST FAULTS. THE EAST-WESTERS, STRIKE BETWEEN N65 E AND N70 AND DIP 70 S TO 50 N. ORIGINAL DISPLACEMENTS ALONG THESE ZONES SERVED TO LOCALIZE THE EMPLACEMENT OF THE EARLIER FINE-GRAINED DIORITIC AND APLITIC BODIES, AND THE LATER INTRUSIONS OF QUARTZ-MICA DIORITE AND DACITE PORPHYRY.

PERSISTENT NORTHEAST SHEAR ZONES STRIKE N15 TO 55 E AND DIP FROM 50 NW TO 65 SW. THE NORTHEASTERS ARE MOST INTENSELY MINERALIZED AT THEIR INTERSECTIONS WITH THE EAST-WESTERS, FORMING SEVERAL PIPE-LIKE ORE DEPOSITS. THESE BODIES COMMONLY OCCUR NEAR AN INTRUSIVE CONTACT IN EITHER AN ALTERED SEDIMENTARY OR INTRUSIVE ROCK. IN MOST INSTANCES, HOWEVER, THE NORTHEAST SYSTEM (TOGETHER WITH THE NORTH-WEST FISSURES) FORM, AT THEIR INTERSECTIONS WITH FAVORABLE BEDS, THE LOCI FOR SULFIDE MINERALIZATION.

THE NORTHWEST FAULTS AND FRACTURES FORM A SEPARATE, WELL-DEFINED SYSTEM WITH N5 TO 40 W TRENDS. THE NORTHWESTERS ARE LATER THAN THE OTHER GROUPS, APPEARING IN MANY INSTANCES AS TENSION SHEARS BETWEEN THE NORTHEAST AND EASTWEST FAULTS. LATER POST-MINERAL MOVEMENT ALONG THE MAJOR NORTHWEST FAULTS EVIDENTLY FOLLOWED THESE EARLIER ZONES OF WEAKNESS. (EASTLICK, 1968)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

AT LEAST FOUR DISTINCT STAGES OF MINERALIZATION ARE RECOGNIZED. IN THE FIRST STAGE OF CONTACT METAMORPHISM AND THE SECOND OF HYDROTHERMAL ALTERATION, FAVORABLE ZONES WERE PREPARED FOR ORE DEPOSITION. METALLIZATION OCCURRED IN THREE OF THE MINERALIZING STAGES. MAGNETITE, PYRITE, AND HEMATITE WERE DEPOSITED NEAR THE END OF THE SECOND STAGE OF HYDROTHERMAL ALTERATION. THE THIRD STAGE INCLUDED THE MAIN DEPOSITION OF SPHALERITE, CHALCOPYRITE, BORNITE, AND GALENA. IN THE FOURTH AND FINAL STAGE, MINOR AMOUNTS OF SULFIDE MINERALS WERE DEPOSITED WITH A LATE ANHYDRITE AND QUARTZ GANGUE. (EASTLICK, 1968, P. 1192)

COMMENTS (GEOLOGY AND MINERALOGY):

THE CHILITO-LONDON-ARIZONA AND THE CHRISTMAS AREAS SEEM TO REPRESENT CENTRAL ZONES OF COPPER MINERALIZATION. SURROUNDING THESE AREAS ARE OTHER MINERALIZED DEPOSITS CONTAINING A LOWER TEMPERATURE ASSEMBLAGE OF MINERALS SUCH AS GALENA, SPHALERITE, AND GOLD.

THE MAJOR ECONOMIC HYPOGENE ORE MINERALS OF THE BANNER DISTRICT ARE CHALCOPYRITE, BORNITE, SPHALERITE, AND GALENA. OTHER PRIMARY MINERALS OF LESSER IMPORTANCE INCLUDE CHALCOCITE, COVELLITE, CUBANITE, MOLYBDENITE, GOLD, AND SILVER. PYRITE, MAGNETITE, PYRRHOTITE, AND HEMATITE ARE THE MOST ABUNDANT AND WIDELY DISTRIBUTED METALLIC MINERALS.

IN THE BANNER DISTRICT, OXIDIZED AND SECONDARY ENRICHED ORES CONSTITUTED MOST OF THE PRODUCTION PRIOR TO 1940. THE PRINCIPAL MINERALS DEVELOPED DURING OXIDATION OF THE PRIMARY ORES WERE HYDROUS IRON OXIDES, MALACHITE, AZURITE, CUPRITE, TENORITE, DIOPHASE, CHALCOCITE, NATIVE COPPER, ANGLESITE, CERUSSITE, AND HEMIMORPHITE. SMALL AMOUNTS OF MANGANESE OXIDE, CHALCANTHITE, COVELLITE, TURQUOISE, HYDROZINCITE, AND PLUMBOJAROSITE ARE GENERALLY PRESENT IN CERTAIN OXIDIZED ZONES, AND LOCAL OCCURRENCES OF MOTTRAMITE, VANADANITE, WULFENITE, SMITHSONITE, AND BROCHANTITE HAVE BEEN REPORTED IN VARIOUS WORKINGS. (EASTLICK 1968). THE CHRISTMAS AREA AND CHILITE-LONDON-ARIZONA AREA ARE ALIGNED EAST-WEST. ORES ARE LOCALIZED BY E-W FRACTURES AND DIKES.

GENERAL COMMENTS

SEE RECORD NUMBER M899986 FOR REFERENCES

RECORD 00114

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4001974
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 11
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BRONX MINE PROPERTY
SYNONYM NAME..... GLOBE-MIAMI DISTRICT

MINING DISTRICT/AREA/SUBDIST. SUMMIT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PINAL -ANCH

TWP..... 01S
RANGE..... 14E
SECTION.. 06
MERIDIAN. G&SR

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NW PART OF PINAL RANCH QUAD., 3/4 MILES NE OF PINAL RANCH

LOCATION COMMENTS: CENTER NEAR SOUTH LINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. MO

MAIN COMMOD..... MO

MAIN ORE MINERALS:
MOLYBDENITE

MINOR ORE MINERALS:

PYRITE, CHALCOPYRITE, FERRIMOLYBDATE CERUSSITE, AZURITE, MALACHITE

ANALYTICAL DATA(GENERAL)

A 1935 ASSAY FROM THE PORTAL OF TUNNEL 6 ON CLAIM 6 WHICH WAS ORIGINALLY WORKED FOR SILVER HAD \$11.20 GOLD, \$27.80 GOLD, \$11.70 COPPER (6.5%). TUNNEL #2 ON CLAIM #3 WHICH WAS WORKED FOR GOLD HAD 1.77 TO 5% MOLYBDENUM. (H.A. NORVILL, 1939, PRIVATE REPORT IN AZ. BUR. MINES FILES, REEL 20.1)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SHEAR ZONE, STOCKWORK

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... STRINGERS TO 3' WIDE ZONES

MAX LENGTH..... 1000 FT

MAX WIDTH..... 3 FT

STRIKE OF OREBODY.... NE

DIP OF OREBODY..... 65SE

COMMENTS(DESCRIPTION OF DEPOSIT):

VEINS ARE WIDEST AND MOST STRONGLY MINERALIZED NEAR THE BOTTOM OF THE CANYON, SUGGESTING THAT THE OUTCROPS ARE NEAR THE UPPER LIMITS OF MINERALIZATION. (PETERSON, 1962, P. 134).

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

TUNNEL 6 ON CLAIM 6 WAS CAVED IN 1939. TUNNEL 5 ON CLAIM 5 WAS 110 FT LONG WITH A WINZE 37 FT AND A DRIFT 65 FT; TUNNEL 2 ON CLAIM 3 IS 210 FT ON 1ST LEVEL AND 130 FT AT LOWER LEVEL (H.A. NORVILL, 1939, PRIVATE REPORT IN ARIZ. BUR. MINE FILES, REEL 20.1)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 MO ORE	EST	.050	TONS	1918	

SOURCE OF INFORMATION (PRODUCTION).. PETERSON, 1963, P. 16

PRODUCTION COMMENTS.... DURING EARLY MONTH OF WORLD WAR I 50 TONS OF HIGH-GRADE MOLYBDENITE WAS STOCKPILED BUT WASHED AWAY BY A FLASH FLOOD (PETERSON). CLAIMED TO HAVE PRODUCED \$60,000 IN GOLD (NORVILL, 1939)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... SCHULTZE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (57.8, 57.6, 58 M.Y.)
 IGNEOUS ROCK TYPES..... SCHULTZE GRANITE

AGE OF MINERALIZATION..... TERT. (57.8, 57.6, 58 M.Y.) (DAMON ETAL, 1970; MCDOWELL, 1971; DAMON ETAL 1964,

PERTINENT MINERALOGY..... MIDDLE PART OF VEIN IS MOSTLY QUARTZ INTERGROWN WITH COARSE MUSCOVITE. OUTWARD FROM CENTER THE VEIN COMMONLY GRADES INTO LOOSE, POROUS AGGREGATES OF COARSE MUSCOVITE CONTAINING OCCASIONAL GRAINS AND SMALL MASSES OF PURPLE OR COLORLESS FLUORITE. PETERSON, 1962, P. 134).

IMPORTANT ORE CONTROL/LOCUS.. MOLYBDENITE IS GENERALLY ASSOCIATED WITH QUARTZ. MOLYBDENITE IS ABUNDANT IN THE TRANSITION ZONE BETWEEN THE MIDDLE PART OF THE VEIN AND THE MUSCOVITE ENVELOPE.

POSSIBLE GENETIC RELATIONSHIP BETWEEN THESE QUARTZ-MUSCOVITE MOLYBDENITE VEINS WITH THE PRINCIPAL QUARTZ-MUSCOVITE VEINLETS IN THE SCHULTZE GRANITE WHICH CONTAIN OCCASIONAL GRAINS OF PYRITE.

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

ALONG SOME OF MORE OPEN FRACTURES PYRITE AND CHALCOPYRITE HAVE BEEN OXIDIZED AND LEACHED AND SOME COPPER REDEPOSITED AS AZURITE AND MALACHITE. POWDERY MASSES OF FERRIMOLYBDITE OCCUR IN A FEW PLACES AS A RESULT OF OXIDATION OF MOLYBDENITE.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

MAY HAVE RELATIONSHIP TO QUARTZ-MUSCOVITE VEINLETS THAT OCCUR THROUGHOUT THE MOST PROMINENT SET OF JOINTS OF THE SCHULTZE GRANITE. IT IS SIMILAR TO SWEDE VEIN IN ADJACENT PINAL CO. BUT DOES NOT HAVE TUNGSTEN.

GENERAL COMMENTS

IN 1942 OWNER CLAIMED A 12 FT VEIN IN WHICH FEET OF WHICH CARRIED 1.04% MOLYBDENUM AND THAT THE PROPERTY WAS WORKED IN THE 90'S AS A HIGH GRADE COPPER, SILVER, AND GOLD MINE.

GENERAL REFERENCES

- 1) PETERSON, N.P., 1962 GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 133-134.
- 2) PETERSON, N.P., 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, 18 P., P. 16-17.
- 3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM. IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 235, 220
- 4) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES.,
- 5) ARIZ. BUR. MINES FILE PAGE ATOMIC ENERGY COMM. P.R.R.
- 6) NORVILL, H.A., 1939, PRIVATE REPORT: IN ARIZ. BUR. MINES OLD MINE REPORTS, REEL 20.1.
- 4) AGE DATES:
 CREASEY, S.C., AND DILLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, D1-D5.
- 5) DAMON, P.E., MAUGER, R.L. AND BIKERMAN, M., 1964, K-AR DATING OF LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF ARIZONA AND SONORA: PROC. OF 22ND INT. GEOL. CONG., NEW DELHI, INDIA, P. 45-55.
- 6) DAMON, P.E., AND OTHERS, 1970 CORRELATION AND CHRONOLOGY OF THE OREDEPOSITS AND VOLCANIC ROCKS: ATOMIC ENERGY COMM. ANN. REPT. 1970-COO-689-130, UNIV. ARIZ.
- 7) MCDOWELL, F.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, AUGUST 1971, P. 1-17.

RECORD 00115

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030438
RECORD TYPE..... 1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... C & B VANADIUM MINE
SYNONYM NAME..... VANADIUM MINE

MINING DISTRICT/AREA/SUBDIST. DRIPPING SPRINGS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA
DRAINAGE AREA..... 15050100 LOWER COLORADO
LAND CLASSIFICATION..... 30 1979

QUAD SCALE QUAD NO OR NAME
1: 0024000 EL CAPITAN, ARIZ.

LATITUDE LONGITUDE
33-07-58N 110-49-57W

UTM NORTHING UTM EASTING UTM ZONE NO
3665830. 515650. +12

TWP..... 03S
RANGE.... 15E
SECTION.. 32
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 2880 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10 MILES NW OF CHRISTMAS; 1/2 MILE SOUTH OF DRIPPING SPRING WASH

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB V MO AG CU ZN

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. V

MAIN COMMOD..... V PB
MINOR COMMOD.... MO CU ZN AG

MAIN ORE MINERALS:
VANADENITE, DESCLOIZITE

MINOR ORE MINERALS:
MIMETITE, WULFENITE AND CERUSSITE ON ANGLESITE AND GALENA

ANALYTICAL DATA(GENERAL)
FOUR CHANNEL SAMPLES IN MINERALIZED ROCK; THREE AVERAGED 0.33 OZ AG/T, 1.92% V, AND 6.2% PB; THE FOURTH CONTAINED 0.17% V AND TRACES OF SILVER AND LEAD (BANKS AND KRIEGER, 1978)

EXPLORATION AND DEVELOPMENT
PRESENT/LAST OWNER..... OWNED IN 1925 BY E.E. CUTLER AND C. BYWATER

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... N60E
DIP OF OREBODY..... SE

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
A NUMBER OF ADITS AND ONE SHAFT SEVERAL HUNDRED FEET DEEP, MOSTLY DONE SINCE 1925, PROBABLY DURING WORLD WAR II (TREBISKEY AND KEITH); IN 1925 (ROSS) HAD A 20 FT SHAFT AND 2 TUNNELS 30 AND 60 FEET LONG WITH A 10 FOOT MINZE BELOW THE SHORTER ONE.

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ROSS, 1925, P. 69

PRODUCTION COMMENTS.... A LITTLE ORE HAS BEEN MINED AND SOME IS REPORTED TO HAVE BEEN SHIPPED DURING THE WAR; BECKWITH OF INSPIRATION CONS. COPPER CO. IN 1926 STATED 1 SMALL CAR OF ORE WAS SHIPPED TO THE SMELTER IN 1926 (BANKS AND KRIEGER, 197)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... DIABASE AND MESCAL LIMESTONE
IGNEOUS ROCK TYPES..... RED GRANITIC ROCK NEARBY
AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... CALCITE QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. CONTACT BETWEEN LIMESTONE AND DIABASE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

N10W TO N35W EAST DIPPING FRACTURE ZONES (ONE IS N50 E DIPPING 45S, THE OTHER IS N-S AND DIPS 50 E.

SIGNIFICANT ALTERATION:

SOME SILICIFICATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

GENERAL PARAGENETIC SEQUENCE IS VANADINITE-MIMETITE-DESCLOIZITE-CALCITE

GENERAL REFERENCES

- 1) TREBISKY, T.J., AND KEITH, S.B., 1975, DESCLOIZITE FROM THE C AND B VANADIUM MINE: MINERALOGICAL RECORD, V., P. 109.
- 2) CORNWALL, H.R., AND KRIEGER, M.H., 1978, GEOLOGIC MAP OF THE EL CAPITAN QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-1442.
- 3) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., MAP
- 4) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 5) RUSS'S REPORT WAS FROM NOTES BY F.L. HESS OF THE U.S. GEOLOGICAL SURVEY TAKEN IN APRIL, 1917.

RECORD 00116

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030448
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-004 007 0210
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... CACTUS DEPOSIT
SYNONYM NAME..... HAMILTON SHAFT, PINTO SHAFT

MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 INSPIRATION, ARIZ.

LATITUDE LONGITUDE
33-23-03N 110-58-54W

UTM NORTHING UTM EASTING UTM ZONE NO
3693660. 501840. +12

TWP..... 01N
RANGE..... 13E
SECTION.. 36 UNSURVEYED
SECTION FRACTIONS: E2
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3650 FT-3750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON PINTO CREEK NEAR SOUTHWEST CORNER OF INSPIRATION QUADRANGLE JUST WEST OF MANITOU HILL.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB ZN

MAIN COMMOD..... CU MO AU AG
MINOR COMMOD..... PB ZN

MAIN ORE MINERALS:
CHALCOHITE

MINOR ORE MINERALS:
PYRITE, COPPER CARBONATES AND SILICATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... 1905
PRESENT/LAST OWNER..... PROPERTY ACQUIRED BY CASTLE DOME COPPER CO. IN 1940.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISEMINATED COPPER
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL
COMMENTS(DESCRIPTION OF DEPOSIT):
FAULTED TOP OF AN OREBODY

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
15 CHURN DRILL HOLES FROM 170-700 FT. BY CACTUS COPPER CO. FROM 1908-1910. PINTO AND HAMILTON SHAFTS SUNK AND
6500 FT OF LATERAL WORKINGS DRIVEN ON 300, 400, AND 500 FT. LEVELS OF HAMILTON SHAFT. PINTO VALLEY CO. TOOK OVER
PROPERTY IN 1921 AND SUNK 15 MORE CHURN-DRILL HOLES. NO WORK DONE AFTER 1929. (PETERSON, 1962). ALL UNDERGROUND
WORKINGS NOW INACCESSIBLE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
IGNEOUS ROCK TYPES..... GRANITE PORPHYRY (SCHULTZE GRANITE) IS NEARBY

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... LIMONITE, BRECCIA

IMPORTANT ORE CONTROL/LOCUS.. DEPOSIT IS A GENTLY DIPPING, PARTLY OXIDIZED CHALCOHITE BLANKET FORMED BY SUPERGENE
ENRICHMENT. OUTCROP IS OVERLAPPED BY DACITE (20M.Y.) AND GILA CONGLOMERATE. CHALCOHITE DEPOSIT IS DIRECTLY
UNDERLAIN BY CACTUS FAULT (A 20-30 SW DIPPING THRUST) WHICH IS RICHLY METALLIZED WITH COPPER CARBONATES AND
SILICATES COATING BRECCIA FRAGMENTS AND FILLING INTERSTICES. RICHEST METALLIZATION IS JUST ABOVE FAULT. PROTIRE
HAS NOT BEEN DESCRIBED.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
CACTUS FAULT, THE BOTTOM BOUNDARY OF THE DEPOSIT, DIPS 20 - 30 SW, AND IS A THRUST FAULT FROM SOUTH OR

SOUTHWEST OVER UNALTERED OR "BLACK" SCHIST. KELLY FAULT IS SOUTH BOUNDARY OF DEPOSIT WHERE MINERALIZED SCHIST HAS BEEN DROPPED INTO CONTACT WITH UNALTERED SCHIST, GRANITE AND DIABASE IN SOUTH OR FOOTWALL SIDE.

A PROBABLE OFFSET FRAGMENT OF THE CACTUS FAULT STRIKES NORTH AND DIPS 20 - 30 W AND HAS BEEN THRUST OVER WHITETAIL CONGLOMERATE (32 M.Y.) AND DIABASE. THE OUTCROP OF THE FAULT TO THE NORTH IS OVERLAPPED BY DACITE (20 M.Y.)

SIGNIFICANT ALTERATION:

PINAL SCHIST IS HIGHLY SHATTERED AND HYDROTHERMALLY ALTERED. HIGHLY SILICIFIED SCHIST IS STAINED LIGHT BROWN BY RESIDUAL LIMONITE.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SUPERGENE ENRICHMENT PROBABLY TOOK PLACE MOSTLY BEFORE THRUST INTO PRESENT POSITION, THOUGH MUCH OF OXIDATION, LEACHING AND DEPOSITION OF COPPER CARBONATES AND SILICATES OCCURRED IN THE PRESENT CYCLE OF EROSION.

GENERAL REFERENCES

- 1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 2) PETERSON, N.P., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMY DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 95-97.

RECORD 00117

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030432
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-004 007 0232
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... CHILITO
SYNONYM NAME..... VELASCO PIT (?) SCHNEIDER GROUP

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN ARIZ.

LATITUDE LONGITUDE
33-03-57N 110-47-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3658400. 519220. 12

TWP..... 04S
RANGE..... 15E
SECTION.. 22
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 1/2 MILES N. OF HAYDEN; 1 KM N80W OF NEW YEAR MINE

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS..

MINOR PRODUCTS.. MO AG AU

MAIN COMMOD..... CU
MINOR COMMOD.... MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
MOLYBDENITE-OXIDIZED MINERALS

COMMODITY SUBTYPES OR USE CATEGORIES:
SILICA FLUX FOR KENNECOTT SMELTER AT HAYDEN

ANALYTICAL DATA(GENERAL)
0.01-.03% MO; 0.1-0.8% CU

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... SCHNEIDER CLAIMS LOCATED IN 1880'S
BY WHOM..... SCHNEIDER CLAIMS LOCATED BY JAKE SCHNEIDER
YEAR OF LAST PRODUCTION. 1962

EXPLOR. AND DEVELOP. COMMENTS:
OPERATORS INCLUDED GORDON MAINWRIGHT, CHILLITO, MURRAY, GILA CANYON CONSOLIDATED, GEORGE B. CHITTENDEN; GROUP
CONSISTS OF 20 CLAIMS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
STOCKWORK-VEIN-DISSEMINATED PORPHYRY COPPER
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL-TO-MEDIUM SIZED
COMMENTS(DESCRIPTION OF DEPOSIT):
DIORITIC STOCK IS 3800 FT BY 1000 FT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
OPEN PIT (1975); 1800 FT LONG TUNNEL ON SCHNEIDER CLAIMS

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. GEOLOGY FILE DATA

PRODUCTION COMMENTS.... EASTLICK, 1968 - CHILLITO PRODUCED ABOUT \$1 1/4 MILLION WORTH OF ORE DURING WORLD WAR I

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
 HOST ROCK TYPES..... APACHE GROUP, GRANITE, DIABASE SILLS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (63 M.Y.)
 IGNEOUS ROCK TYPES..... QUARTZ MICA DIORITE PORPHYRY STOCK RHYD-DACITE PORPHYRY

AGE OF MINERALIZATION..... ETERT

PERTINENT MINERALOGY..... ANHYDRITE

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION OCCURS IN TWO ORE SHELLS AT THE SURFACE IN APACHE GROUP SEDIMENTS THAT ARE MARGINAL TO THE QUARTZ DIORITE STOCK. DEEPER ORE ZONES ARE IN THE QUARTZ DIORITE STOCK, 1400 M.Y.A GRANITES, AND DIABASE SILLS (KEITH, UNPUBLISHED MAPPING).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 HORST BLOCK BETWEEN NNW KEYSTONE FAULT AND O'CARROLL FAULT TO E.

SIGNIFICANT ALTERATION:
 IN DIABASE ALTERATION MINERALS INCLUDE EPIDOTE, CHLORITE, CLAY AND MAGNETITE; IN OTHER ASSEMBLAGE IS QUARTZ-SERICITE (KEITH) ALSO BIOTITE AND CARBONATE MINERALS. (BANKS AND DRIEGER, 1977)

GENERAL REFERENCES

- 1) KEITH, STANLEY B., 1975, UNPUBLISHED MAPPING
- 2) BANKS, N.G., AND KRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GEOL. SURVEY GEOL. QUAD. MAP, GQ-1391, P. 3.
- 3) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY, BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: AIME, V. 11, P. 1191-1210.
- 4) RUSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., P. 63.
- 5) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAP.
- 6) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 85
- 7) ADMR FILE DATA
- 8) ABCMT USBM FILE DATA

RECORD 00118

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04083
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040070052
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... CHRISTMAS MINE
SYNONYM NAME..... RED BIRD SHAFTS, HACKBERRY SHAFTS

MINING DISTRICT/AREA/SUBDIST. CHRISTMAS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHRISTMAS, ARIZONA

LATITUDE LONGITUDE
33-03-48N 110-44-46W

UTM NORTHING UTM EASTING UTM ZONE NO
3657800. 524330. +12

TWP..... 04S
RANGE.... 16E
SECTION.. 29
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 3040 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 8 MILES N. OF WINKELMAN, 22 MILES S. OF GLOBE

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN PB MO AG AU RE FE W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AU AG

MAIN COMMOD..... CU
MINOR COMMOD..... ZN PB MD AG AU BE FE W

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, BORNITE, CHALCOCITE

MINOR ORE MINERALS:
SPHALERITE, GALENA, MOLYBDENITE; EXODIZED ZONE INCLUDES COVELLITE, CUPRITE, NATIVE COPPER, MALACHITE,
AZURITE, TENORITE, DIOPTASE, BROCHANTITE, CHALCANTHITE, PYRRHOTITE, CUBANITE; KINDRITE, RAJITE, RUIZITE,
JUNITOITE

ANALYTICAL DATA(GENERAL)

ORE ANALYSIS: 0.005 OZ AU/T, 0.23 OZ AG/T, 2.04% CU, 33.2% SI, 1.7% AL, 3.6% S, 12.8% FE, 28.2% CAO (PETERSON AND
SWANSON, 1956, P. 363)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... THE ORIGINAL MINERAL CLAIMS THAT INCLUDE THE CHRISTMAS DEPOSIT WERE LOCATED ABOUT 1880
BY DENNIS O'BRIEN AND WILLIAM TWEED, WHO SOLD OR OPTIONED THEM TO PHELPS-DODGE CO. THE LOCATIONS PROVED TO BE ON
THE SAN CARLOS INDIAN RESERVATION AND WERE DECLARED INVALID. IN DECEMBER 1902, THE PORTION OF THE RESERVATION
THAT INCLUDES THE DEPOSITS WAS RESTORED TO THE PUBLIC DOMAIN BY EXECUTIVE ORDER, AND THE CLAIMS WERE RELOCATED ON
CHRISTMAS EVE BY G.B. CHITTENDEN.

YEAR OF FIRST PRODUCTION. 1905

YEAR OF LAST PRODUCTION. 1979

PRESENT/LAST OWNER..... INSPIRATION CONSOLIDATED COPPER CO. AS CHRISTMAS DIVISION

EXPLOR. AND DEVELOP. COMMENTS:

PREVIOUS OPERATORS INCLUDED ANACONDA CO., CHRISTMAS COPPER CO., COLUMBIA MINING AND MILLING CO., RIVIERA MINES CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SKARN OR GREISEN REPLACEMENT CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT: TABULAR, SOME PIPE LIKE SOME STOCKWORK

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... MEDIUM

COMMENTS(DESCRIPTION OF DEPOSIT):

DIMENSIONS OF THE QUARTZ DIORITE STOCK ARE APPROXIMATELY 1500 FT BY 3000 FT ELONGATED IN A N60E DIRECTION
(PETERSON AND SWANSON, P. 360).

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 1600 FT

LENGTH OF WORKINGS..... 20000 FT

OVERALL LENGTH OF MINED AREA.... 3500 FT

OVERALL WIDTH OF MINED AREA..... 2500 FT

COMMENTS(DESCRIP. OF WORKINGS):

6 SHAFTS. LEVELS EVERY 100 FT TO 900 FT. DIMENSIONS ESTIMATED FROM MINE MAP. 1600 FT LEVEL EXTENDS NE TO ADJACENT McDONALD SHAFT.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	17011.47	TONS	1919-1976	
16 CU	ACC	263360.3	LBS	1919-1976	
17 AG	ACC	1592.951	OZS	1919-1976	
18 AU	ACC	41.524	OZS	1919-1976	
19 ORE	ACC	1079.855	TONS	1905-1933	ELSING AND HEINEMAN
20 CU	ACC	48300.00	LBS	1905-1933	ELSING AND HEINEMAN
21 ORE	ACC	1268.964	TONS	1905-1943	PETERSON AND SWANSON
22 CU	ACC	55337.3	LBS	1905-1943	PETERSON AND SWANSON
23 CU	ACC	89354.30	LBS	1980-1964	EASTLICK, 1968, P. 1193
24 ORE	ACC	2370.700	TONS	1980-1964	EASTLICK, 1968, P. 1193

PRODUCTION COMMENTS..... 1905-1914 PRODUCTION NOT INCLUDED IN ABGMT-USBM FILE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT; PENN, MISS., DEV; CRET
 HOST ROCK TYPES..... DIORITE; LIMESTONES OF NACO, ESCABROSA AND MARTIN FMS; ANDESITES

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
 IGNEOUS ROCK TYPES..... QUARTZ MICA DIORITE STOCK, HORNBLENDE PORPHYRY DIKES

AGE OF MINERALIZATION..... TERT. (62 M.Y., CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY..... GANGUE IS MAINLY GARNET, IDOGRASE, EPIDOTE, QUARTZ, AND LIMESTONE; MAGNETITE, SPECULAR HEMATITE; OTHER GANGUE MINERALS INCLUDE CHONDRODITE, DIOPSIDE, TREMOLITE, ACTINOLITE, SERICITE, CHLORITE, HEDENBERGITE, BARITE, FELDSPAR, ANHYDRITE, GYPSUM, BRUCITE, ZOLSITE, ANTIGORITE; MOLLASTONITE

IMPORTANT ORE CONTROL/LOCUS.. 1) PROXIMITY TO LIMESTONE-QUARTZ DIORITE CONTACT, 2) PRESENCE OF FAVORABLE LIMESTONE BEDS AS RELATIVELY THIN UNITS IN A SERIES OF ALTERNATING SHALE AND LIMESTONE, 3) GARNETIZED BY CONTACT METAMORPHISM, AND 4) PRESENCE OF FRACTURES OR FAULTS FOLLOWING GARNETIZATION. NE STRUCTURES ARE MOST INTENSELY MINERALIZED AT INTERSECTIONS WITH E-W FRACTURES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

CHRISTMAS-JOKER FAULT ZONE IS A 7.5 MILE LONG, 100 FT WIDE, NW TRENDING NORMAL FAULT WITH THE NE SIDE DOWNTHROWN APPROXIMATELY 2500 FT. IN WHICH MOST MOVEMENT WAS PRIOR TO INTRUSION OF QUARTZ DIORITE WITH SOME POST-MINERALIZATION MOVEMENT. CHRISTMAS MINE IS IN WESTERN (UP OR FOOTWALL) SIDE OF FAULT. FAULTS AND FRACTURES IN AREA ARE: EAST-WEST (N65E-N70W, DIPPING 50 DEGREES N-60 DEGREES S); NORTHEAST (N15E-N50E, DIPPING 50-65 DEGREES NW); AND NORTHWEST (N5-40W, LATER)

SIGNIFICANT ALTERATION:

HYDROTHERMAL ALTERATION IS MAJOR ALTERATION AND IS STRONGEST WHERE FRACTURES ALLOWED ACCESS OF MINERALIZING SOLUTIONS. ANDESITES NEAR CENTRAL INTRUSION ARE FLOODED WITH FINE GRAINED SECONDARY Biotite AND QUARTZ

VEINLETS. A PERIPHERAL ALTERATION ZONE OF EPIDOTE PATCHES AND VEINLETS EXTENDS FOR ONE MILE. THE INTRUSION IS RECRYSTALLIZED WITH SECONDARY QUARTZ AND ORTHOCLASE WITH SOME CALCITE, CLAY AND SERICITE. MOST SILICIFICATION IN PALEOZOIC LIMESTONES AND SHALES IS DUE TO CONTACT METAMORPHISM, WITH NO EVIDENCE OF INTRODUCTION OF SILICA (EASTLICK, 1967, P. 1205).

THE PRINCIPAL TYPES OF IGNEOUS ROCK ALTERATION-MINERALIZATION RECOGNIZED AT CHRISTMAS ARE LISTED BELOW:

1. WIDESPREAD AND LOW-GRADE PERVASIVE ALTERATION OF BASALTIC VOLCANIC ROCKS RESULTING IN THE PROPYLITIC ASSEMBLAGE ACTINOLITE-CHLORITE-EPIDOTE; THIS ALTERATION PREDATES STAGE I ALTERATION-MINERALIZATION.
2. EARLY (STAGE I) PORPHYRY-RELATED K-SILICATE ALTERATION CENTERED ON THE CHRISTMAS STOCK. K-SILICATE ALTERATION IS ASSOCIATED WITH CHALCOPYRITE-BORNITE (-MOLYBDENITE) MINERALIZATION.
3. LATE (STAGE II) QUARTZ-SERICITE-CHLORITE ALTERATION AND ASSOCIATED PYRITE-CHALCOPYRITE MINERALIZATION OVERLAPPING WITH, BUT LARGELY PERIPHERAL TO, STAGE I ALTERATION-MINERALIZATION.
4. PROPYLITIC ALTERATION RESULTING IN THE ASSEMBLAGE CHLORITE-EPIDOTE-ALBITE-SPHENE IN BIOTITE RHYODACITE PORPHYRY DIKES AND THE FORMATION OF EPIDOTE-QUARTZ VEINS IN VOLCANIC ROCKS.
5. NEAR-SURFACE OXIDATION AND LEACHING OF PORPHYRY AND VOLCANIC ROCKS IN THE HIGH PYRITE, QUARTZ-SERICITE-CHLORITE ZONE (SUPERGENE ALTERATION). (KOSKI, 1979, P. 80-81)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

PYROMETASOMATIC REPLACEMENT OF LIMESTONE. LITTLE OR NO ENRICHMENT BY SUPERGENE PROCESSES. SOME OXIDATION ALONG FRACTURES.

MINERALIZATION IS DIVIDED INTO AN EARLIER METAMORPHIC STAGE, A HYDROTHERMAL ALTERATION STAGE, A MAIN SULFIDE MINERALIZATION STAGE, AND A LATE GANGUE STAGE (EASTLICK, 1967, P. 1205-6).

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE OCCURS IN A FEW PLACES, MAINLY ON THE UPPER LEVELS.

MAGNETITE AND IRON SULFIDE MINERALS INCREASE IN ABUNDANCE WITH DEPTH BORNITE DECREASES IN ABUNDANCE AWAY FROM CENTRAL ZONE IN WALLS OF VEIN.

LATERALLY AWAY FROM CENTRAL INTRUSIVE MASS, THE MINERALIZATION GRADES FROM A PYRITE-CHALCOPYRITE ZONE TO A CHALCOPYRITE-BORNITE INTERMEDIATE ZONE TO A PYRRHOTITE-PYRITE-SPHALERITE-CHALCOPYRITE OUTER ZONE.

GENERAL REFERENCES

- 1) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY, BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: AIME, V. II, P. 1191-1210.
- 2) PETERSON, N.P., AND SWANSON, R.W., 1956, GEOLOGY OF THE CHRISTMAS COPPER MINE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-H, P. 351-371.
- 3) TAINTER, S.L., 1948, CHRISTMAS COPPER DEPOSIT, GILA COUNTY, ARIZONA: U.S. BUR. MINES REPT. INV. NO. 4293, 58 P.
- 4) WILLODEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY BULL. 1161-E, 64 P., P. 50-56.
- 5) WILLIAMS, S.A., 1976, JUNITE A NEW HYDRATED CALCIUM ZINC SILICATE FROM CHRISTMAS, ARIZONA: AM. MINERAL., V. 61 NO. 11-12 P. 1255-1258.
- 6) WILLIAMS, S.A. AND DUGGAN, M., 1977, RUZITE, A NEW SILICATE MINERAL FROM CHRISTMAS, ARIZONA: MINERAL. MAG., V. 41, NO. 320, P. 429-432.
- 7) PETERSON, N.P., AND SWANSON, R.W., 1944, THE CHRISTMAS COPPER MINE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPT., 40 P.
- 8) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 9) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., P. 52-60.
- 10) KNOERR, A., AND M. EIGO (1963) ARIZONA'S NEWEST COPPER PRODUCER--THE CHRISTMAS MINE. ENGR. MINING JOUR. 164: 55.
- 11) KOSKI, R.A., AND COOK, D.S., 1976, ALTERATION AND MINERALIZATION ASSOCIATED WITH A MULTIPHASE STOCK AT CHRISTMAS, ARIZONA (ABS.): GEOL. SOC. AMERICA, AHS. WITH PROGRAMS, V. 8, NO. 6, P. 962.
- 12) KOSKI, R.A., 1978, GEOLOGY AND PORPHYRY COPPER-TYPES ALTERATION-MINERALIZATION OF IGNEOUS ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNPUB. PH.D. THESIS, STANFORD UNIV., STANFORD, CALIF. 268 P. (U.S.G.S. OPEN-FILE REP. 79-844)
- 13) MCCURRY, H.G., 1971, MINERALOGY AND PARAGENESIS OF THE ORES, CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNPUB.

- M.S. THESIS, ARIZ. STATE UNIV. 47 P.
- 14)PERRY, D.V., 1968, GENESIS OF THE CONTACT ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNIV. ARIZ., PH.D. THESIS, 229 P.
- 15)PERRY, D.V., 1968, GENESIS OF THE CONTACT ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA (ABS.): DISSERT. ABS., V. 28, NO. 12, P. 5083-8.
- 16)PERRY, D.V., 1969, SKARN GENESIS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: ECON. GEOL. V. 64, NO. 3, P. 255-270.
- 17)BOGERT, J.R., 1960, CHRISTMAS MINE DEVELOPMENT PROCEEDS AT FAST PACE: MINING WORLD, V. 22, NO. 8, P. 28-29.
- 18)CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, D1-D5.
- 19)EASTLICK, J.T., 1958, NEW DEVELOPMENTS AT THE CHRISTMAS MINE, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 1, P. 1-6.
- 20)VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
- 21)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 22)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES.,
- 23)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 24)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 25)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 26)NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A AMER. MINERAL., V. 19, P. 209-220.
- 27)WILLIAMS, S.A., AND ANTHONY, J.W., 1970, HEMIHEDRITE, A NEW MINERAL FROM ARIZONA: AMER. MIN., V. 55, P. 1088-1102.
- 28)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, 233.
- 29)KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 30)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 31)WILLOEN, RONALD, 1960, SEDIMENTARY IRON-FORMATION IN THE DEVONIAN MARTIN FORMATION, CHRISTMAS QUADRANGLE, ARIZONA, IN SHORT PAPERS IN THE GEOLOGICAL SCIENCES: U.S. GEOL. SURVEY PROF. PAPER 400-B, P. 821-823.
- 32)WILLOEN, RONALD, 1961, COMPOSITION OF THE IRON-FORMATION OF DEVONIAN AGE IN THE CHRISTMAS QUADRANGLE, ARIZONA, IN SHORT PAPERS IN THE GEOLOGIC AND HYDROLOGIC SCIENCES: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. D304-D306.
- 33)WILSON, E.D., AND OTHERS, 1959, GEOLOGIC MAP OF GILA COUNTY, ARIZONA: ARIZONA UNIV., ARIZONA BUR. MINES, SCALE 1:375,000.

RECORD 00119

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030449
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USNM-004 007 0009
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... COPPER CITIES MINE
SYNONYM NAME..... PORPHYRY RESERVES, LOST GULCH, YELLOW METAL, SLEEPING BEAUTY.

MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 GLOBE, ARIZ. AND INSPIRATION, ARIZ.

LATITUDE LONGITUDE
33-26-30N 110-52-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3700300. 511650. +12

TWP..... 01N 01N
RANGE.... 15E 14E
SECTION.. 07 12 13
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH FLANK OF SLEEPING BEAUTY MTN, 3 1/2 MILES N. OF MIAMI

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB ZN U

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
MINOR PRODUCTS.. AU AG

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....
 OCCURRENCE..... PB ZN U

MAIN ORE MINERALS:
 PYRITE, CHALCOPYRITE, MOLYBDENITE

MINOR ORE MINERALS:
 A FEW SPECIMENTS OF GALENA AND SPHALERITE. SUPERGENE MINERALS ARE CHALCOCITE AND COVELLITE DERIVED FROM CHALCOCITE. OXIDIZED COPPER MINERALS INCLUDE MALACHITE, AZURITE, AND TURQUOISE, AND FERRIMOLYBDITE. METATORBERNITE ALSO OCCURS.

ANALYTICAL DATA(GENERAL)

THE GRADE OF ORE MINED TO DATE HAS BEEN SLIGHTLY MORE THAN 0.7 PERCENT TOTAL COPPER. THE GRADE OF ORE TO BE MINED IN THE FUTURE WILL BE CONSIDERABLY LOWER. 0.004% OF MOLYBDENUM.

THE ESTIMATED COPPER CONTENT OF THE UNENRICHED PROTORE WITHIN THE LIMITS OF THE ORE BODY AS DETERMINED BY DETAILED STUDIES OF SEVERAL EXPLORATORY DRILL HOLES, RANGED FROM ABOUT 0.25 TO 0.6 PERCENT. THE AVERAGE WAS ABOUT 0.4 PERCENT. IN GENERAL, THE PROTORE IN THE GRANITE PORPHYRY APPEARS TO BE SOMEWHAT LOWER GRADE AND PROBABLY CONTAINED FROM 0.15 TO 0.35 PERCENT COPPER. NEAR THE SOUTHERN EDGE OF THE ORE BODY, THE TENDR OF THE PROTORE IS 0.15 TO 0.25 PERCENT COPPER, AND FARTHER SOUTH THE COPPER CONTENT GRADUALLY DECREASE TO THE OUTER LIMIT OF MINERALIZATION.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... FIRST MINED FOR AU AND AG IN 1896 BY GERARD MIN. CO. (LOST GULCH MIN. CO)

PRESENT/LAST OWNER..... CITIES SERVICE CO. (MIAMI COPPER CO. PURCHASED IT IN 1942)

EXPLOR. AND DEVELOP. COMMENTS:

OTHER PREVIOUS OWNERS INCLUDE LOST GULCH UNITED MINES CO. (1909), LOUIS D'OR GOLD MINING CO. (1912), LOUIS D'OR MINING AND MILLING CO., PORPHYRY RESERVE COPPER CO. (1926), COPPER CITIES MINING CO. (A SUBSIDIARY OF MIAMI COPPER CO. (1943).

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED; VEINLETS

FORM/SHAPE OF DEPOSIT: THE MINE ITSELF IS ELONGATED N25 W DUE TO THE INFLUENCE OF THE CORDADO AND DRUMMOND FAULT ZONES. THE MINE RANGES FROM 1,000 FEET WIDE IN THE NORTHWEST TO ABOUT 2,000 FEET IN THE SOUTHEAST; IT IS SLIGHTLY MORE THAN 2,000 FEET LONG.

IN THE ORIGINALLY PLANNED MINE, THE ORE RANGED IN THICKNESS FROM 100 TO 400 FEET AND AVERAGED ABOUT 200 FEET. LATER DRILLING AND CHANGED ECONOMIC CONDITIONS HAVE INCREASED THE THICKNESS OF ORE. AN EXTREME THICKNESS OF MORE THAN 700 FEET WILL BE MINED IN A SMALL PART OF THE ENLARGED PIT.

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... ABOUT 1800 SQUARE FEET. THE OUTCROP OF INTRUSIVE ROCK MEASURES ABOUT 10,000 FEET FROM SOUTHWEST TO NORTHEAST AND ABOUT 3,000 FEET WIDE. ITS LONG AXIS TRENDS N 60 E, APPROXIMATELY PARALLEL TO THE SLEEPING BEAUTY FAULT.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

UNDERGROUND WORKINGS NOW INCLUDED IN OPEN PIT. SEE DEPOSIT DESCRIPTION FOR APPROXIMATE SIZE OF PIT.

PRODUCTION
YES
MEDIUM PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE ACC		1670.09	TONS	1975	GREELEY, 1976, P. 21
2 CU ACC		19055.55	LBS	1975	GREELEY, 1976, P. 21
3 MO ACC		19.760	LBS	1975	GREELEY, 1976, P. 21

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		6878.181	TONS	1956-1978	
16 CU ACC		754886.0	LBS	1956-1978	
17 AG ACC		1204.666	OZS	1956-1978	
18 AU ACC		16.934	OZS	1956-1978	
19 UD ACC		1446.184	LBS	1967-1975	

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. GEOL. FILE DATA

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1					0.50% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1976, P. 85

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (64 M.Y.)
HOST ROCK TYPES..... LOST GULCH QUARTZ MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (64 M.Y.)
IGNEOUS ROCK TYPES..... LOST GULCH QUARTZ MONZONITE; GRANITE PORPHYRY ASSOCIATED WITH SCHULTZ GRANITE

AGE OF MINERALIZATION..... TERT. (64-58 M.Y., CREASEY KISTLER, 1962)

PERTINENT MINERALOGY..... QUARTZ, PLUS ALTERATION MINERALS AND LEACHED CAPPING (LIMONITE)

IMPORTANT ORE CONTROL/LOCUS.. THE COPPER METALLIZATION IS CONFINED LARGELY TO THE BLOCK LYING BETWEEN THE CORDONADO AND DRUMMOND FAULT ZONES, WHICH IS IN THE NORTHEASTERN PART OF THE MINERALIZED AREA. IT APPEARS TO BE STRONGEST IN THE QUARTZ MONZONITE BORDERING THE GRANITE PORPHYRY INTRUSIVE BODIES AND LOCALLY IN THE GRANITE PORPHYRY ITSELF. AS THE COPPER CONTENT IS GREATEST NEAR THE QUARTZ MONZONITE-GRANITE PORPHYRY CONTACT, IT IS POSSIBLE THIS CONTACT SERVED AS A GUIDE FOR THE ORE SOLUTIONS.

ALL ENRICHMENT DECREASES PROGRESSIVELY WITH DEPTH. THE ENRICHED ZONE IS THINNER IN GRANITE PORPHYRY THAN IN QUARTZ MONZONITE. THIS IS BELIEVED TO BE DUE TO THE LESSER PERMEABILITY OF THE GRANITE PORPHYRY. THERE HAS BEEN VERY SLIGHT OR NO ENRICHMENT BELOW A DEPTH OF ABOUT 300 FEET.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE LOST GULCH QUARTZ MONZONITE--THE HOST ROCK FOR THE COPPER CITIES MINE--IS INTRUDED ALONG A NORTHEASTWARD ZONE, WHICH CAN BE TRACED FROM CASTLE DOME ON THE WEST TO EAST OF COPPER CITIES OR THE EAST. THE HORST BLOCK IS BOUNDED ON THE NORTHEAST BY THE BEN HUR FAULT, ON THE NORTHWEST BY THE SLEEPING BEAUTY FAULT, ON THE EAST BY THE MIAMI FAULT, AND ON THE SOUTH BY THE PINAL SCHIST.

THE MIAMI FAULT IS ONE OF THE LARGER FAULTS OF THE DISTRICT. IN THE MINE AREA, IT STRIKES NORTH-NORTHEAST AND DIPS ABOUT 60 E. THE EAST SIDE IS DOWNDROPPED. THE BEN HUR FAULT STRIKES N. 45 W. AND DIPS 60 - 65 NE. THE EAST SIDE IS DOWNDROPPED. THE SLEEPING BEAUTY FAULT STRIKES N. 45 E., AND ITS DIP IS PROBABLY NEAR VERTICAL OR STEEPLY SOUTHEAST. THE NORTH SIDE IS DOWNDROPPED.

THE ORE BODY IS BOUNDED ON THE EAST BY THE DRUMMOND FAULT OR FAULT ZONE, WHICH STRIKES N. 45 W. AND DIPS ABOUT 50 - 60 NE. THE CORONADO FAULT ZONE BOUNDS THE ORE BODY ON THE WEST AND IS WIDER THAN THE DRUMMOND FAULT. IT STRIKES NORTH AND DIPS 60 - 70 W. THE NORTH BOUNDARY OF THE ORE BODY IS THE SLEEPING BEAUTY FAULT, AND TO THE SOUTH THERE IS A GRADUAL DIMINISHING OF COPPER MINERALIZATION.

THE PIT AREA IS MOST INTRICATELY DISSECTED BY JOINTS AND MINOR FAULTS.

SIGNIFICANT ALTERATION:

THREE ALTERATION PHASES ARE REPRESENTED, A QUARTZ-SERICITE PHASE, AN ARGILLIC OR CLAY PHASE, AND A VERY FEEBLE BORDER PHASE IN WHICH MINERALS OF THE PROPYLITIC TYPE ARE PRESENT.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SEVERAL BODIES OF LOST GULCH QUARTZ MONZONITE WERE INTRUDED ALONG A ZONE OF WEAKNESS AT THE CONTACT BETWEEN THE PINAL SCHIST AND THE RUIN GRANITE, BOTH OF PRECAMBRIAN AGE. CLOSELY FOLLOWING THE INTRUSION OF THE LOST GULCH QUARTZ MONZONITE, THE SCHULTZE GRANITE WAS INTRUDED, PROBABLY GUIDED BY A FAULT THAT MUST EXIST ALONG THE NORTH FLANK OF THE PINAL MOUNTAINS TO THE SOUTH. THE GRANITE PORPHYRY IS THOUGHT TO BE A FACIES OF THE SCHULTZE GRANITE AND TO BE YOUNGER THAN THE DIABASE. THE INTRUSION OF GRANITE PORPHYRY WAS FOLLOWED BY HYPOGENE MINERALIZATION, WHICH SEEMS TO HAVE BEEN GUIDED BY THE QUARTZ MONZONITE-GRANITE PORPHYRY CONTACT.

DURING EARLY TERTIARY TIME, EROSION MUST HAVE STRIPPED THE OVERLYING ROCK FROM THE INTRUSIVE, AS DACITE OF TERTIARY AGE REST ON MINERALIZED QUARTZ MONZONITE. ELSEWHERE IN THE DISTRICT THE WHITETAIL CONGLOMERATE UNDERLIES THE DACITE; HOWEVER, THERE IS NO EVIDENCE THAT THE WHITETAIL WAS EVER DEPOSITED IN THE MINE AREA, WHICH INDICATES THAT IT WAS AN ELEVATED AREA DURING WHITETAIL TIME. AS SUCH, IT PROBABLY WAS UNDERGOING RAPID EROSION AND, CONSEQUENTLY, WAS ONLY SLIGHTLY ENRICHED DURING THIS PERIOD.

DURING AND AFTER DEPOSITION OF THE WHITETAIL CONGLOMERATE, THERE WAS A SHORT PERIOD OF VOLCANIC ACTIVITY IN THE DISTRICT, EVIDENCED BY TUFFACEOUS MATERIAL IN THE WHITETAIL AND OUTCROPS OF RHYOLITE AND PERLITE. IF IT EXTENDED TO THE COPPER CITIES AREA, ALL TRACES DISAPPEARED IN THE EROSION PERIOD THAT FOLLOWED. ANOTHER MORE WIDESPREAD INTENSE PERIOD OF VOLCANISM DEPOSITED A GREAT THICKNESS OF DACITE WHICH PROBABLY COVERED THE ENTIRE DISTRICT. LARGE-SCALE FAULTING FOLLOWED THE ERUPTION OF THE DACITE.

AFTER ERUPTION OF THE DACITE, EROSION BEGAN AND STRIPPED THE DACITE FROM THE ELEVATED AREAS. THIS DEBRIS AND THAT FROM THE UNDERLYING ROCKS WERE DEPOSITED IN GREAT ALLUVIAL FANS THAT MAKE UP THE GILA CONGLOMERATE. MINOR VOLCANIC ACTIVITY IS SHOWN BY THIN SHEETS OF OLIVINE BASALT, WHICH ARE INTERCALATED IN THE CONGLOMERATE.

WITH THE STRIPPING OF THE DACITE FROM THE MINERALIZED AREA, A PERIOD OF ENRICHMENT BEGAN THAT STILL CONTINUES. MINOR FAULTING OCCURRED DURING THIS TIME, AS SHOWN BY SLIGHT OFFSETS AT THE SHARP CONTACT BETWEEN LEACHED CAPPING AND ORE. (SIMMONS AND FOWELLS 1966)

COMMENTS (GEOLOGY AND MINERALOGY):

THE PYRITE TO CHALCOPYRITE RATIO INCREASES WITH DEPTH. WITHIN THE LIMITS OF THE ORE BODY, THE PYRITE TO CHALCOPYRITE RATIO RANGED FROM 1.2 TO 9, THE AVERAGE WAS ABOUT 3.6; WHEREAS BELOW THE ORE BODY, THE RATIO RANGES FROM 4 TO 16, THE AVERAGE BEING ABOUT 10.

GENERAL REFERENCES

- 1) SIMMONS, W.W. AND J.E. FOWELLS (1966) GEOLOGY OF THE COPPER CITIES MINE, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA. S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 151-156.
- 2) PETERSON, N.P., 1954, COPPER CITIES COPPER DEPOSIT, GLOBE-MIAMI DISTRICT, ARIZONA: ECON. GEOL., V. 49, P.

362-377

- 3) PETERSON, N.P., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P. P. 88-94.
- 4) STILL, A.R. URANIUM AT COPPER CITIES AND OTHER PORPHYRY COPPER DEPOSITS, MIAMI DISTRICT, ARIZONA: HARVARD UNIV., PHD THESIS (1962)
 - 5) REED, I.W., 1975, TRACE ELEMENT DISTRIBUTION AND ALTERATION STUDY OF THE COPPER CITIES DEPOSIT, ARIZONA: M.S. THESIS, OKLAHOMA STATE
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 101.
 - 7) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
 - 8) PETERSON, N.P. (AND GILBERT, G.M., QUICK, J.V., AND OTHERS) GEOLOGIC MAP OF A PORTION OF THE INSPIRATION QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 MAPS (1953)
 - 9) PETERSON, N.P. GEOLOGY OF THE GLOBE QUADRANGLE, ARIZONA: USGS MAP GQ-41, WITH TEXT (1954)
 - 10) DEMPSEY, W.J. 5. AEROMAGNETIC MAP OF GLOBE QUADRANGLE, GILA COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
 - 11) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
 - 12) PETERSON, N.P., 1954, STRUCTURAL CONTROL OF GLOBE-MIAMI DISTRICT, ARIZONA (ABS.); AIME MIN. GEOL. GEOPHYS. DIV., 1954 ANN. MEETING, ABSTS. TECH PAPERS, P. 17.
 - 13) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00120

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030510
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... CROWN POINT
SYNONYM NAME..... CROWN POINT NO. 6 CLAIM

MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 INSPIRATION, ARIZ.

LATITUDE LONGITUDE
33-23-30N 110-59-22W

TWP..... 01N
RANGE..... 13E
SECTION.. 25 36
SECTION FRACTIONS: SE OF SE IN SEC 25; NE OF NE IN SEC 36
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: W SIDE PINTO CREEK, 1/2 MILE N. OF CARLOTTA MINE SHAFT SHOWN ON
TOPOGRAPHIC MAP

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MO V

MAIN COMMOD..... PB
MINOR COMMOD..... MO V

MAIN ORE MINERALS:
CERUSSITE, GALENA

MINOR ORE MINERALS:
VANADINITE, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 60 FT

STRIKE OF OREBODY.... N60E

DIP OF OREBODY..... 50SE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....

PREC

HOST ROCK TYPES.....

DIABASE, PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS..

TERT. (PROB)

IGNEOUS ROCK TYPES.....

NEARBY DACITE CAPS DIABASE TO N, W, AND S.

PERTINENT MINERALOGY.....

QUARTZ

IMPORTANT ORE CONTROL/LOCUS..

SMALL FRACTURE IN DIABASE HAS BEEN SLIGHTLY MINERALIZED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THRUST PLATE WITH PINAL SCHIST OVERLYING DIABASE AND WHITETAIL CONGL. (POST 32 M.Y.)

COMMENTS (GEOLOGY AND MINERALOGY):

SOME CERUSSITE SURROUNDS SMALL KERNELS OF GALENA

GENERAL REFERENCES

1) ARM FILE PAGES

2) PETERSON, N.P., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 129.

RECORD 00121

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030554
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-004 007 0280
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... DAY PEAKS AREA VEINS
MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 INSPIRATION, ARIZ.

LATITUDE LONGITUDE
33-25-26N 110-53-30W 50W

UTM NORTHING UTM EASTING UTM ZONE NO
3698820 509350

TWP..... 01N
RANGE..... 14E
SECTION.. 14
SECTION FRACTIONS: E2
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4000 - 4100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 3/4 SW OF COPPER CITIES OPERATION

LOCATION COMMENTS: UNSURVEYED

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO PB AU

MAIN COMMOD..... MO
MINOR COMMOD..... PB W AU

MAIN ORE MINERALS:
MOLYBDENIAN STOLZITE, (WULFENITE)

MINOR ORE MINERALS:
CERUSSITE, SCHEELITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
STOLZITE WITH 9% MO OZ

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... E
DIP OF OREBODY..... 90
COMMENTS(DESCRIPTION OF DEPOSIT):
MOSTLY COVERED BY DIABASE TALUS

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
ADIT ABOUT 100 FT LONG

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... DIABASE

PERTINENT MINERALOGY..... ALTERED HOST ROCK, LIMONITE, QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. STRONGEST MINERALIZATION WAS ALONG TWO NARROW, EAST STRIKING FRACTURE ZONES IN
DIABASE NEAR THE EDGE OF THE DACITE THAT CAPS DAY PEAKS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
EAST TRENDING, NEARLY VERTICAL FAULT IS MINERALIZED

COMMENTS (GEOLOGY AND MINERALOGY):
MOLYBDENIAN STOLZITE OCCURS IN CAVITIES IN QUARTZ AND DISSEMINATED IN LIMONITE. THE THIN, TABULAR, IMPERFECTLY
FORMED, WHITE, LEMON-YELLOW, AND ORANGE CRYSTALS ARE MEGASCOPICALLY INDISTINGUISHABLE FROM WULFENITE. SCHEELITE,
AS PALE BLUE FLUORESCENCE BY ULTRAVIOLET LIGHT, OCCURRED AS A FEW ISOLATED GRAINS AND A SINGLE SMALL POD 1 INCH
WIDE AND 4 INCHES LONG (FAICK AND HILDEBRAND, 1958).

GENERAL REFERENCES

- 1) PETERSON, N.P., 1962. GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 129.
- 2) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 19-20
- 3) FAICK, J.N., AND HILDEBRAND, F.A. 1958, AN OCCURRENCE OF MOLYBDENIAN STOLIZITE IN ARIZONA: AMER. MINERALOGIST, V. 43, P. 156-159.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00122

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030445
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-004 007 0016
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... DOUGHBOY MINE
MINING DISTRICT/AREA/SUBDIST. GLOBE HILLS DIST/GLOBE HILLS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 GLOBE, ARIZ.

LATITUDE LONGITUDE
33-26-02N 110-47-18W

TWP..... 01N
RANGE.... 15E
SECTION.. 11 14
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3850 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON WEST FLANK OF A RIDGE AROUND WHICH IRENE GULCH BENDS SHARPLY TO THE SOUTH ABOUT 1 MILE EAST OF THE CONFLUENCE OF IRENE GULCH AND PINAL CREEK. IT IS 2000 FT NORTH OF THE IRENE VEIN.

LOCATION COMMENTS: SE 1/4 OF 11 AND NE OF 14 , DOUGHBOY SHAFT LOCATED IN SECTION 11 ON RIDGE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN MO V AG MN

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE, VANADINITE DISCLOIZITE, MOTTRAMITE, MANGANESE OXIDE COPPER CARBONATE AND SILICATE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE
 YEAR OF FIRST PRODUCTION. 1901
 YEAR OF LAST PRODUCTION. 1958
 PRESENT/LAST OWNER..... WRIGHT, SORENSEN, AND SMITH (1958)
 PRESENT/LAST OPERATOR.... GLOBE-MIAMI COPPER SULPHIDE CO. (1952)

EXPLOR. AND DEVELOP. COMMENTS:

DOUGHBOY GROUP CONSISTS OF 12 CLAIMS: CAMERON EXCHANGE, BALTIC, IDA MAY, LITTLE BEAUTY, NELLIE M., JUDGE, SUNSHINE, ACRE, DUNKIRK, KENTUCKY. OWNERS AND OPERATORS OF THE PROPERTY INCLUDE: ARIZONA-COLORADO COPPER BELT GOLD MINING AND MILLING CO. (1901-1913), DOUGHBOY COPPER CO. (GEORGE THAYER) (1924), ANTON TROJANOVICH (1938), COMSTOCK EXTENSION MINING CO. (ANTON TROJANOVICH) (1951) WHICH ALSO OWNED THE ADJACENT IRENE GROUP. TWO OF THE CLAIMS, THE DUNKIRK AND THE KENTUCKY, WERE OPERATED SEPARATELY IN 1950'S AS THE AMERICAN MANGANESE OF NEW DOUGHBOY.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FISSURE VEIN
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 STRIKE OF OREBODY.... NE
 DIP OF OREBODY..... 50SE

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 963 FT
 LENGTH OF WORKINGS..... 1200 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT SUNK ABOUT 1901 HAS CROSSCUT 1200 FT LONG ON 800 LEVEL; 2 EXPLORATORY DRILL HOLES; RETIMBERED TO 350 FT IN 1951. TWO HUNDRED FOOT SHAFT PUT DOWN IN 1950'S ON A MANGANESE VEIN.

SOURCE OF INFORMATION (PRODUCTION).. PETERSON, 1962 P. 128

PRODUCTION COMMENTS.... ORE CONTAINING 2.5 TO 7% COPPER WAS SHIPPED TO OLD DOMINION SMELTER BUT CONTAINED TOO MUCH ZINC FOR ECONOMICAL TREATMENT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
 HOST ROCK TYPES..... DIABASE, DRIPPING SPRING QUARTZITE AND PIONEER FM.

AGE OF MINERALIZATION..... LCRET-TER

PERTINENT MINERALOGY..... VUGGY AND DRUSY QUARTZ FILLS INTERSTICES OF FAULT BRECCIA AND APPEARS TO REPLACE QUARTZITE FRAGMENTS

IMPORTANT ORE CONTROL/LOCUS.. FISSURE VEIN IN DIABASE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

1/2 MILE SW OF DOUGHBOY SHAFT, FAULT AT THE EDGE OF THE DACITE STRIKES NORTHEAST ACROSS A SMALL EMBAYMENT ON THE NORTH EDGE OF THE DACITE MASS THAT OVERLAPS PIONEER FORMATION AND DRIPPING SPRING QUARTZITE

COMMENTS (GEOLOGY AND MINERALOGY):

MULFENITE AND VANADINITE OCCUR AS DISCRETE CRYSTALS OR CLUSTERS OF CRYSTALS ON WALLS OF FRACTURES. QUARTZ CRYSTALS IN VUGS ARE COMPLETELY COVERED BY CRUSTS OF VANADINITE, DESCLOIZITE, AND POSSIBLY MOTTAMITE, WHICH IN TURN ARE COATED BY THIN FILMS OF MANGANESE OXIDES. THE DEPOSIT PROBABLY CONTAINED SOME CERUSSITE AND ZINC SILICATES, BUT NONE COULD BE FOUND ON THE DUMP. MINERALIZATION ASSOCIATED WITH LCRET-

GENERAL REFERENCES

- 1) ABGM1 CLIPPINGS FILES
- 2) PETERSON, N.P., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMO DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P., P. 128.
- 3) ADMR FILE DATA
- 4) ABGM1-USBM FILE DATA

RECORD 00123

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030451
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040076311
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... EL OSD GROUP
SYNONYM NAME..... NEW DISCOVERY

MINING DISTRICT/AREA/SUBDIST. FOUR PEAKS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 BOULDER MTN, ARIZ.

LATITUDE LONGITUDE
33-45-12N 111-22-37W

UTM NORTHING UTM EASTING UTM ZONE NO
3734670. 465100. 12

TWP..... 05N 05N
RANGE.... 10E 09E?
SECTION.. 30
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 6 MILES WEST OF NORTH END OF ROOSEVELT LAKE. 13.6 MILES NORTH FROM
ROOSEVELT DAM UP TANTO CREEK, THEN TURN LEFT (NORTHWEST) ON A MOUNTAIN TRAIL FOR 11.5 MILES TO EL OSD CAMP.
DRAINAGE OF SYCAMORE CREEK LEADS TO TANTO BASIN.

LOCATION COMMENTS: CLAIMS EXTEND INTO MARICOPA COUNTY.

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO

MAIN ORE MINERALS:

WOLFRAMITE, SCHEELITE

MINOR ORE MINERALS:
PYRITE, MOLYBDENITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

TUNGSTEN MINERALS NOT CONCENTRATED SUFFICIENTLY TO CONSTITUTE ORE EXCEPT IN A FEW PLACES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... CLAIMS FIRST LOCATED IN MAY, 1941, BY E.R. AND P.J. AND H.G. HARRISON AND BERN SIVENSK
OF PAYSON.

PRESENT/LAST OWNER..... PRINCIPAL OWNER OF 17 UNPATENTED CLAIMS IN 1961 WAS MARVIN HARRISON OF FRESNO, CALIF.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 30 FT

MAX WIDTH..... 5 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

2 SETS OF VEINS: N PART N 75 W, DIP NORTH; S PART S 24 W, DIP WEST. SOME VEINS HAVE BEEN TRACED ON SURFACE FOR
2000 FT. SHOOTS ARE 30 FT LONG, 5 FT WIDE, BUT IN GENERAL AVERAGE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

LENGTH OF WORKINGS..... 400 FT

COMMENTS(DESCRIP. OF WORKINGS):

ADIT 235 FT LONG WITH ABOUT 200 FT OF CROSSCUTS, SEVERAL SHORT ADITS AND SHALLOW SHAFTS, OPEN CUTS AND TRENCHES.

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. DALE, 1961, P. 12

PRODUCTION COMMENTS.... ONLY RECORD OF PRODUCTION IS 24 UNITS OF W03 IN 1953 AND 1954. OTHER UNRECORDED PRODUCTION
WAS LESS THAN A FEW TONS OF HAND-SORTED ORE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... GRANITE, GRANITE PORPHYRY, APLITE AND PEGMATITE DIKES

AGE OF MINERALIZATION..... PREC

PERTINENT MINERALOGY..... QUARTZ BODIES ARE DISCONTINUOUS AND RANGE FROM 6 INCHES TO 5 FEET WIDE BY 30 FT
LONGCRYSTALS OF TOURMALINE AND FLUORITE SOME CRYSTALS OF TOURMALINE AND FLUORITE.

IMPORTANT ORE CONTROL/LOCUS.. TUNGSTEN DEPOSITS ARE ASSOCIATED WITH INTERSECTIONS OF STEEP FISSURES INTRUDED BY
APLITE OR PEGMATITE DIKES. THESE FISSURES CUT COARSE-GRAINED, PINKISH-GRAY, PRECAMBRIAN GRANITES THAT ARE CUT BY
A MILE-WIDE, NORTH-EAST TRENDING BELT OF GRANITE PORPHYRY CHARACTERIZED BY COARSE PHENOCRYSTS OF PINK FELDSPAR IN
AN APLITIC, SUGARY GROUNDMASS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NUMEROUS STEEPLY DIPPING TO VERTICAL, FISSURES STRIKE N-S, N20-25 E, N 45 E, AND N 65 W.

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL CRYSTALS OF WOLFRAMITE, USUALLY COATED WITH SCHEELITE, ARE SPORADICALLY PRESENT IN QUARTZ ASSOCIATED WITH
AND GRADING INTO PEGMATITE. QUARTZ CONTAINS CONSIDERABLE PYRITE AND MINOR AMOUNTS OF MOLYBDENITE.

GENERAL REFERENCES

- 1) DALE, V.B., 1961. TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION
CIRCULAR I.C. 8078, 104 P., P. 11-13.
- 2) ADMK FILE DATA

RECORD 00124

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030441
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... HOPE DEPOSIT
MINING DISTRICT/AREA/SUBDIST. SIERRA ANCHA DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MCFADDEN PEAK, ARIZ.

LATITUDE LONGITUDE
33-50-08N 110-57-01W

TWP..... 06N
RANGE..... 14E
SECTION.. 30
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON STEEP, NORTHEAST SLOPE OF WORKMAN CREEK ABOUT 1.5 MILES UPSTREAM FROM
GLOBE-YOUNG ROAD.

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... U MO CU PB ZN F

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. U

MAIN COMMOD..... U
MINOR COMMOD..... CU MO PB ZN F

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... CU MD PB ZN F

MAIN ORE MINERALS:

URANINITE, URANIFEROUS HYALITE, URANOPHANE

MINOR ORE MINERALS:

PYRRHOTITE MOLYBDENITE, PYRITE RARE SPHALERITE GALANA DISSEM. CHALCOPYRITE, MARCASITE FLUORITE SECONDARY
URANIUM (URANOPHANE, AND METATOPHERNITE), SECONDARY COPPER MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... CLAIMS STAKED BY CHARLES NICHOLS, MAURICE SHARP, AND CARREL WILBANKS BEFORE 1954

PRESENT/LAST OWNER..... ARIZ. CONTINENTAL URANIUM INC. IN 1959

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NNE

DIP OF OREBODY..... STEEPLY DIPPING

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

3 ADITS AND 1 HAULAGE ADIT, PROSPECT PITS. 2 USBM DIAMOND DRILL HOLES, STOPING OF VEINS (ABM FILE PAGE). IN
JUNE 1955 ADIT WAS 360 FT.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	6.3	TONS	1954-1957	0.24% U

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE PAGE

PRODUCTION COMMENTS.... TOTAL 6,300 TONS-0.24% U3O8 TO CUTTER 1954-1957. 1,380 TONS-0.18% U3O8 FROM ADIT 1 ONLY;
448 TONS OVER 3.2%; 188 TONS OF 0.13% U3O8 ADIT 2. ADIT 3-4,742 TONS OF 0.26% U3O8 (ONLY 1,475 TONS BELOW 0.2%);
2000 TONS OF 0.38% U3O8. MOST PRODUCTIVE DEPOSIT FROM DRIPPING SPRINGS QTZT.

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 268

COMMENTS (RESERVES/POT RESOURCES).. PROBABLY A FEW THOUSAND TONS OF LOW TO MODERATE GRADE STILL PRESENT.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... DRIPPING SPRING QUARTZITE-SIERRA ANCHA DIABASE SHEET

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.
IGNEOUS ROCK TYPES..... APLITE DIKES, SYENTIE BODIES, DIABASE

AGE OF MINERALIZATION..... PREC

PERTINENT MINERALOGY..... CLAY, CHLORITE, HORNFELS; CALCITE, MONTRONITE, LIMONITE, GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. MOST ORE IS IN HORNFELS ADJACENT TO THE ZONE OF TRANSITION-DIKE ROCKS IN BLACK FACIES 10-25 FT ABOVE A BARKEN QUARTZITE (ABOUT 130 FT STRATIGRAPHICALLY ABOVE THE BASE OF THE UPPER MEMBER. SOME URANINITE IS IN NARROW VEINLETS CUTTING TRANSITION DIKES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

RADIOACTIVE VEIN FOLLOWS A ZONE OF BRECCIATION THAT IS FILLED WITH MOBILIZED HORNFELS. THIS BRECCIATION OF VEIN ZONE DOES NOT PENETRATE THE DIABASE DIRECTLY BELOW THE VEIN. (GRANGER AND RAUP, OPENFILE, 1969, P. 47)

SIGNIFICANT ALTERATION:

URANINITE IS CLOSELY ASSOCIATED WITH MATERIAL ALTERED TO A GREENISH CLAY OR CHLORITE. BLACK DEUTERIC VEINLETS.

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE OCCURS IN VUGS IN MOBILIZED HORNFELS AS MINUTE WELL-CRYSTALLIZED FALKES AND ROSETTES PERCHED ON SILICATE MINERALS. A LITTLE MOLYBDENITE WAS SEEN IN A SEGMENTED VEINLET ASSOCIATED WITH PYRITE, PYRRHOTITE, AND ILMENITE (?) (GRANGER AND RAUP, OF 1969, P. 48-9)9

GENERAL REFERENCES

- 1) GRANGER, H.C. AND RAUP, R.B., 1959, URANIUM DEPOSITS OF THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA. USGS BULL. 1046-P. 72 P., ILLUS. P. 464-465.
- 2) GRANGER, H.C. AND RAUP, R.B., 1969, DETAILED DESCRIPTIONS OF URANIUM BEARING DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 145 P. MAPS, P. 44-54.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) GRANGER, H.C. AND RAUP, R.B. 1969 GEOLOGY OF URANIUM DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA, U.S. GEOL. SURVEY PROF. PAPER 595, 109 P., P. 35, 65, 82, 66, 78.
 - 5) GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY BULL. 1147-A, 54 P.
 - 6) FINCH, W.L., 1967, GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. P. 6
 - 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 8) SCHWARTZ, 1954, U.S. ATOMIC ENERGY COMM. PRELIM. RECONN. REPT. PRR-A-P-289, 1 P.
 - 9) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-289, P. 268.

RECORD 00125

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030437
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... IRON SPIKE VEIN

MINING DISTRICT/AREA/SUBDIST. BANNER DIST./DRIPPING SPRING MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

TWP..... 04S
RANGE.... 15E
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 1 MILE ABOVE MCHUR PROSPECT (79 MINE)

LOCATION COMMENTS: LOCATION UNKNOWN

COMMODITY INFORMATION

COMMODITIES PRESENT..... V MO CU

MAIN ORE MINERALS:
WULFENITE, VANADINITE

MINOR ORE MINERALS:
COPPER STAINING

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... FERRUGENOUS QUARTZ

GENERAL REFERENCES

- 1) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., P. 68.

RECORD 00126

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030431
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1, 2
FILE LINK ID..... USBM-004 007 0465
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... LONDON-ARIZONA MINE
SYNONYM NAME..... LONDON-RANGE, LONDON-SHAMROCK, BALL COPPER CO., BRICK GROUP, O'CARROLL CLAIMS

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, AR17.

LATITUDE LONGITUDE
33-03-37N 110-47-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3657800. 519500. +12

TWP..... 04S
RANGE..... 15E
SECTION.. 27 26
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES N. OF HAYDEN ON NW SIDE OF TORNADO PEAK, 1/2 MILE S. OF CHILITO

LOCATION COMMENTS: NE 1/4 OF 27, NW 1/4 OF 26

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN MO AU AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB CU AG
MINOR PRODUCTS.. ZN AU

MAIN COMMOD..... CU PB
 MINOR COMMOD..... AG ZN MO AU

MAIN ORE MINERALS:
 COPPER CARBONATES, MALACHITE, CERUSSITE

MINOR ORE MINERALS:
 ANGLESITE, SMITHSONITE, HEMIMORPHITE, CHALCOCITE, WULFENITE IN LONDON-RANGE SHAFT WITH RHODOCHROSITE, SPARSE
 GALENA.

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY..... LOCATED ABOUT 1880
 BY WHOM..... LOCATED BY WATSON
 YEAR OF LAST PRODUCTION, 1950

EXPLOR. AND DEVELOP. COMMENTS:

THE MCHUR WAS A VANADIUM PROSPECT IN 1917 WHOSE EXACT LOCATION IS NO LONGER KNOWN. IT IS ASSUMED TO BE ON THE
 PROPERTY OF THE 79 MINE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

LIMESTONE REPLACEMENTS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... DEPOSIT HAS BEEN STOPED FOR 150 TO 200 FT DOWNDIP ALONG BEDDING THROUGHOUT A THICKNESS OF
 10 TO 30 FT. (EASTLICK, 1968, P. 1199).

COMMENTS(DESCRIPTION OF DEPOSIT):

LONDON- RANGE GROUND IS LESS THAN 1 MILE SW OF TOWN OF CHILITO; THE LONDON - ARIZONA MINE IS JUST EAST OF CHILITO
 SETTLEMENT; THE O'CARROLL AND BALL SHAFTS ARE STILL FARTHER EAST. THE CURTIN SHAFT OR CURTIN OR HUMPHREY MINE IS
 ABOUT 1 MILE EAST OF LONDON-ARIZONA MINE AND CHILITO SETTLEMENT OR 2 1/2 MILES E OF 79 MINE. IN 1913 THE
 LONDON-ARIZONA CONSOLIDATED COPPER CO. MERGED ALL THE ABOVE, BUT SOME WERE LATER SPLIT.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE, 325 FT
 LENGTH OF WORKINGS..... OVER 3000 FT.

COMMENTS(DESCRIP. OF WORKINGS):

180 FT SHAFT ON LONDON-RANGE; 325 FT CURTIN SHAFT, OF LONDON-ARIZONA PROPERTY; SOME SHALLOW SHAFTS OVER 1500 FT
 OF DRIFTS, TUNNELS, CROSSCUTS

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	ORE EST	1	TONS	1913	16% ORE (RANSOME P. 23)

2 ORE EST 6 TONS 1916 4 1/2% ORE (RANSOME, P 23)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	0.742	TONS		
16	CU ACC	18.449	LBS		
17	PB ACC	123.919	LBS		
18	ZN ACC	1.500	LBS		
19	AG ACC	2.926	OZ		
20	AU ACC	0.002	OZ		
21	ORE ACC	15.443	TONS	BEFORE 1925	2.75-18% CU (ROSS, P. 61)
22	LEAD ORE ACC	1.016	TONS	BEFORE 1925	CURTIN SHAFT (ROSS, P. 61)
23	ZINC ORE ACC	0.051	TONS	BEFORE 1925	CURTIN SHAFT (ROSS, P. 61)
24	ORE EST	15.0	TONS		AVE 4.5% CU (BANKS, KRIEGER, 1979)

PRODUCTION COMMENTS.... EASTLICK, 1968, P. 1193. ABOUT \$1 MILLION PRODUCTION (\$1,050,000 BETWEEN 1912 AND 1928)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV.
HOST ROCK TYPES..... PERCHA SHALE AND MARTIN FM. (3" CARROLL ORE BED)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
IGNEOUS ROCK TYPES..... QUARTZ DIORITE PORPHYRY DIKES (RHYODACITE PORPHYRY OF BANKS)

AGE OF MINERALIZATION..... TERT. (PROB. 63 M.Y.)

PERTINENT MINERALOGY..... ANDRADITE GARNET, SPECULARITE, QUARTZ, VESUVIANITE, ABUNDANT IRON OXIDE, MAGNETITE, ANHYDRITE AND GYPSUM.

IMPORTANT ORE CONTROL/LOCUS.. THE MINERALIZED BED IS IN THE HANGING - WALL (EAST) BLOCK OF THE CHOCOLATE FAULT, APPROXIMATELY 2000 FT SE OF THE CHILITO QUARTZ-MICA DIORITE STOCK. (EASTLICK, 1968, P. 1199).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
CHOCOLATE FAULT OF EASTLICK IS NOT ON BANKS AND KRIEGER'S MAP

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
OXIDATION

COMMENTS (GEOLOGY AND MINERALOGY):

THE EXPOSURES OF THE LONDON-ARIZONA ORE DEPOSIT PROBABLY REPRESENT THE OUTER PERIPHERAL ZONE OF A MAJOR ORE BODY WITH THE PORTIONS TOWARD THE MAIN INTRUSIVE CONTACT BEING ERODED AWAY. (EASTLICK, 1968, P. 1199).

GENERAL COMMENTS

SEE CURTIN OR HUMPHREY FOR INFORMATION ON ADJOINING MINE

GENERAL REFERENCES

- 1) BANKS, N.G., AND KRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP, GQ-1391, P. 3.
- 2) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY, BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: AIME, V. 11, P. 1191-1210, P. 1199, 1204, 1205, 1207, 1208.

- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P., 205.
- 4) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., P. 61-2
- 5) WILLEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY BULL. 1161-E, 64 P., GEOL. MAP.
- 6) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS., P. 23.
- 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P., P. 92.
- 8) WILSON, E.D., 1951, CURTIN OR HUMPHREY MINE, IN ARIZONA ZINC AND LEAD DEPOSITS, PT. II: ARIZ. BUR. MINES BULL. 158, P. 82-83.
- 9) ABOGT USBM FILE DATA

RECORD 00127

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030439
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040070480
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... MADERA PROSPECT
SYNONYM NAME..... ELLIS VEIN

MINING DISTRICT/AREA/SUBDIST. PINAL MTS. DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PINAL RANCH, ARIZ.

LATITUDE LONGITUDE
33-20-08N 110-52-18W

TWP..... 01S 01S
RANGE.... 14 1/2 E 14E
SECTION.. 18 19 14 3 23 24
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES E. OF GIBSON MINE

LOCATION COMMENTS: W 1/2 SEC 19; 5 1/2 SEC 14; N 1/2 23 N1/2 SEC 24; LOCATION NOT CERTAIN

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:

PYRITE, CHALCOHITE, CHALCOPYRITE

MINOR ORE MINERALS:

MOLYBDENITE FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CU POR.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

ONE HOLE SHOWED AN OXIDIZED AND PARTLY LEACHED ZONE OVERLIES A ZONE CHALCOCITE ENRICHMENT ABOUT 125 FT THICK AVERAGING 0.42% COPPER, WHICH GRADES DOWNWARD INTO ROCK CONTAINING ONLY PRIMARY SULFIDES, A ZONE OVER 1000 FT THICK AVERAGING 0.14% COPPER. (PETERSON, 1963, P. 14)

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

5 CHURN-DRILL HOLES SUNK IN 1948 (PETERSON, 1963)

3

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT; PREC

IGNEOUS ROCK TYPES..... BETWEEN SCHULTZE GRANITE AND MADERA DIORITE

AGE OF MINERALIZATION..... TERT. (58 M.Y.) CREASEY AND DISTLER, 1962)

PERTINENT MINERALOGY..... LIMONITE BOXWORK

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

IN NW BENDING FRACTURE

SIGNIFICANT ALTERATION:

CAPPING FORMED BY OXIDATION AND LEACHING OF PYRITE AND COPPER SULFIDES

COMMENTS (GEOLOGY AND MINERALOGY):

THE ELLIS VEIN IS AT THE EAST END OF THE MINERALIZED AREA AND CONTAINS QUARTZ, PYRITE, CHALCOPYRITE, AND ALSO A RELATIVELY LARGE PROPORTION OF BOTH FINE AND COARSE-GRAINED MOLYBDENITE.

GENERAL REFERENCES

- 1) PETERSON, N.P. 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, 19 P., MAP, P. 14.
- 2) ARIZ. FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
- 3) CREASEY, S.C., AND DISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, D1-D5, P. 1.

RECORD 00128

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030436
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... MCHUR PROSPECT
SYNONYM NAME..... PROBABLY PART OF 79 MINE
MINING DISTRICT/AREA/SUBDIST. BANNER DIST/DIPPING SPRING MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

LATITUDE LONGITUDE
33-03-56N 110-48-42W

TWP..... 04S
RANGE.... 15E
SECTION.. 21
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3480 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN 79 GULCH

LOCATION COMMENTS: LOCATION UNKNOWN PROBABLY SE 1/4 SEC 21

COMMODITY INFORMATION

COMMODITIES PRESENT..... V MO FE

MAIN ORE MINERALS:
VANADINITE

MINOR ORE MINERALS:
WULFENITE, SIDERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHALLOW WORKINGS AT INTERVALS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN

HOST ROCK TYPES..... NACO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.

IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY

AGE OF MINERALIZATION..... TERT.

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR MASSES OF GOSSANLIKE MATERIAL CONTAIN SIDERITE, VANADINITE, WULFENITE

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 2) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., MAP, P. 68.

RECORD 00129

CRTB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4003085
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 FILE LINK ID..... USBM-0040070051
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... MIAMI
 MINING DISTRICT/AREA/SUBDIST. MIAMI DISTRICT
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
 1: 24000 GLOBE

LATITUDE LONGITUDE
 32-24-16N 110-52-20W

UTM NORTHING UTM EASTING UTM ZONE NO
 3695944. 511883. +12

TWP..... 01N 01N
 RANGE.... 15E 14E
 SECTION.. 19 30 23 24 25 26

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
 MINOR PRODUCTS.. AU AG

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, MOLYBDENITE, CHALCOHITE

MINOR ORE MINERALS:

MINOR BORNITE, AND TRACES OF GOLD AND SILVER, GALENA AND SPHALERITE; CHRYSOCOLLA, MALACHITE, AZURITE,
 COVELLITE BROCHANTITE, ATACAMITE, LINDGRINITE, LIBETHINITE, POWELLITE, MINOR CUPRITE, COPPER, METATORBERNITE.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED PORPHYRY COPPER; SUPERGENE ENRICHED BLANKET
FORM/SHAPE OF DEPOSIT: BLANKET SHAPED. IN THE EASTERN PART THE STRIKE TRENDS NEARLY EAST. AT THE EASTERN END THE MIAMI FAULT DROPS THE GILA CONGLOMERATE DOWN TO THE EAST ABOUT 1500 FT.

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... THE MIAMI-INSPIRATION ORE BODY IS 12000 FT IN LENGTH AND HAS A MAXIMUM WIDTH OF ABOUT 2500 FT. IN SOME PLACES IT IS 900 FT THICK BUT AVERAGES 200-250 FT. (PETERSON, 1962, P. 86)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... PINAL SCHIST, SCHULTZE GRANITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. 62 M.Y.
IGNEOUS ROCK TYPES..... SCHULTZE GRANITE (PORPHYRITIC QUARTZ MONZONITE)

AGE OF MINERALIZATION..... TERT. (58 M.Y., CREASEY AND KISTLER, 1962)

IMPORTANT ORE CONTROL/LOCUS.. THE DIRECTION OF SCHISTOSITY (N50 DEGREES E DIPPING STEEPLY SE) CONTROLLED INTRUSION OF SCHULTZE GRANITE AND LATER HYDROTHERMAL SOLUTIONS DEPOSITING PRIMARY SULFIDE MINERALS. SUPERGENE ENRICHMENT MADE ORE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE MIAMI FAULT (STRIKING N25 DEGREES E AND DIPPING 50 DEGREES SE) DROPS THE GILA CONGLOMERATE AND UNDERLYING ORE BODY DOWN BETWEEN 2000 AND 3000 FT ON THE EAST. THE FAULT CUTS THE MIAMI ORE BODY ON THE WEST OFF FROM THE VAN DYKE OREBODY ON THE EAST UNDER THE TOWN AND THE MIAMI EAST OREBODY ON THE EAST UNDER THE TAILINGS POND.

SIGNIFICANT ALTERATION:

SILICIFICATION, ORTHOCLAZATION, SERICITIZATION, BITIZATION, HYDROTION, ARGILLIZATION.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

PRIMARY HYDROTHERMAL MINERALIZATION IS BELIEVED TO BE INTIMATELY ASSOCIATED WITH THE PORPHYRITIC INTRUSIONS OF SCHULTZE GRANITE WHERE FAULTS AND RELEVANT CRUSHING CREATED A FAVORABLE ENVIRONMENT FOR SOLUTION EMPLACEMENT. THERE IS SOME EVIDENCE SUGGESTING SIMULTANEOUS ACTION OF FAULTING, CRUSHING, STRETCHING AND FLOWAGE. THE PRIMARY ORE FLUIDS APPEAR TO HAVE SUCCEEDED THE INTRODUCTION OF THE GRANITE PORPHYRY DIFFERENTIATE. THESE FLUIDS CARRIED ELEMENTS THAT FORMED PYRITE, CHALCOPYRITE, AND POSSIBLY BORNITE AND CHALCOCITE, THEY LIKELY WERE INTRODUCED INTO SMALL FRACTURES OPENED BY STRETCHING (.6), THE RESULT OF ACTIVE DIASTROPHISM AND VOLATILE PRESSURE. LATER DIFFERENTIATES PRODUCED PYRITE, QUARTZ, AND MOLYBDENITE.

SUBSEQUENT EROSION AND ALTERATION DECOMPOSED THE PRIMARY MINERALS AND PRODUCED AN ORE OF SUPERGENE ENRICHMENT. BETWEEN THE LEACHED ZONE ABOVE AND THE SUPERGENE SULFIDE ENRICHED ZONE BELOW, THERE IS AN INTERMEDIATE ZONE OF OXIDATION AND HYDRATION CONTAINING MALACHITE, AZURITE, CHRYSOCOLLA, AND FERRIC HYDROXIDE MINERALS. IN THE ZONE OF OXIDATION THERE ARE PRIMARY QUARTZ VEINLETS WITH CHALCOPYRITE AND PYRITE, WHICH HAVE NOT COMPLETED THE ENRICHMENT CYCLE NOR UNDERGONE SIGNIFICANT OXIDATION. SINCE THE SUPERGENE CHALCOCITE REPLACED MAINLY PYRITE, ORE BODIES ARE LOCALIZED IN ZONES OF PRIMARY MINERALIZATION REGARDLESS OF AMOUNT OF PRIMARY COPPER PRESENT

OULMSTEAD AND JOHNSON, 1966, P. 148).

GENERAL COMMENTS

SEE RECORD M899987 FOR REFERENCES

RECORD 00130

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 4030447
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... MIAMI-INSPIRATION DIST.
 SYNONYM NAME..... PART OF LARGER GLOBE - MIAMI-SUPERIOR SULFIDE SYSTEM

MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 INSPIRATION, ARIZ.

LATITUDE LONGITUDE
 33-24- N 110-53-59W

TWP..... 01N 01N
 RANGE.... 14E 13E
 MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3600-3800 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU PB ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO RH?
 MINOR PRODUCTS.. AU AG

MAIN COMMOD..... CU MO
 MINOR COMMOD..... AU AG PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....
 OCCURRENCE..... PB ZN

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, MOLYBDENITE, CHALCOHITE

MINOR ORE MINERALS:

GOLD, SILVER, GALENA, SPHALERITE; BORNITE, COVELLITE, CHRYSOCOLLA, MALACHITE, AZURITE, COPPER PITCH, BROCHANTITE, ATACAMITE, LINDGRENITE, LIBETHINITE, METATORBERNITE, NATIVE COPPER, CUPRITE, WULFENITE, FERRIMOLYBDITE POWELLITE, VANADINITE, CERUSSITE, TURQUOISE, CHALCANTHITE, GOSLARITE, ANGLESITE.

ANALYTICAL DATA(GENERAL)

0.5-1.0% CU, 0.002% MO, TRACES AU AND AG.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED, VEINLETS

FORM/SHAPE OF DEPOSIT: TABULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE AND SMALL

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

PRODUCTION

YES

LARGE PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT, PREC.

HOST ROCK TYPES..... SCHULTZE GRANITE, LOST GULCH QUARTZ MONZONITE, PINAL SCHIST, DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (264 M.Y.)

IGNEOUS ROCK TYPES..... SCHULTZE GRANITE PORPHYRY, LOST GULCH QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT. (58 M.Y., CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY..... QUARTZ, LIMONITE, WAVELLITE, BORITE, FLUORITE; SERICITE, CLAY, GYPSUM, EPIDOITE, CHLORITE, ADULARIA, HALLOYSITE, INDELLITE, CIMOLITE, KADLINITE, CANBYITE, CHALCEDONY, OPAL, BEIDELLITE, ALLOPHANE, LEUCOXENE, RUTILE, CLENOZDISITE, CALCITE, STILBITE.

IMPORTANT ORE CONTROL/LOCUS.. PRIMARY ORE IS ASSOCIATED WITH PORPHYRITIC PHASE OF SCHULTZE GRANITE OR WITH GRANITE PORPHYRY AND LOST GULCH QUARTZ MONZONITE. SECONDARY ENRICHMENT HAS MADE ORE DURING THE EROSIONAL EPISODE BEFORE ERUPTION OF THE MID-TERTIARY VOLCANICS AND DURING THE PRESENT EROSIONAL EPISODE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MANY FAULTS ARE PRE-MINERALIZATION BUT HAVE POST MINERALIZATION MOVEMENT. MAJOR FAULTS INCLUDE THE N25E TRENDING MIAMI FAULT NEAR THE EAST SIDE OF THE DISTRICT, WHICH DROPS THE GILA CONGLOMERATE DOWN 2000-3000 FT TO THE EAST; THE NW STRIKING PINTO FAULT WHICH CUTS THROUGH THE CENTER PART OF THE AREA; OTHER NW TRENDING FAULTS INCLUDE THE KELLY FAULT ON THE WEST, THE GOLD GULCH AND JEWEL HILL FAULTS, THE JOE BUSH AND BULL DOG FAULTS IT INSPIRATION; AND OTHER N TO NE FAULTS OCCUR.

SIGNIFICANT ALTERATION:

A WEAK ZONE OF PROPYLITIC ALTERATION SURROUNDS AN INNER ZONE OF STRONGER CLAY ALTERATION WHICH IS MOST INTENSE IN THE HIGH PYRITE AND CHALCOPYRITE ZONES. AN INNERMOST ZONE OF QUARTZ-SERICITE ALTERATION IS MOST INTENSE IN THE HIGH PYRITE ZONES AND IS RELATED TO NUMEROUS SMALL QUARTZ-PYRITE VEINS.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SUPERGENE ENRICHMENT IS IMPORTANT FACTOR IN ENRICHING PROTORE TO ORE GRADE IN MANY MINES IN DISTRICT

COMMENTS (GEOLOGY AND MINERALOGY):

THE MIAMI-INSPIRATION DISTRICT IS THE CENTRAL PART OF A SULFIDE SYSTEM THAT EXTENDS FROM SUPERIOR IN THE SOUTHWEST TO GLOBE HILLS IN THE NORTHEAST. THE CENTRAL PART (MIAMI-INSPIRATION) CONTAINS THE PORPHYRY INTRUSION (SUCH AS THE SCHULTZE GRANITE AND LOST GULCH QUARTZ MONZONITE) WHICH WAS RESPONSIBLE FOR THE DISSEMINATED COPPER-MOLYBDENUM MINERALIZATION. THE EXTREMITIES OF THE NORTHEASTERLY TRENDING ZONE (AT GLOBE HILLS AND SUPERIOR) CONTAIN NORTHEAST FAULTS AND VEINS WITH COPPER RICH VEINS IN THE CENTERS OF THESE DISTRICTS AND ZN-PB-AG-MN AND THEN PB-ZN-V-MO VEINS IN THE EXTREMITIES OF THE VEIN SWARMS.

THE NORTHEASTERNMOST LOBE OF THE SCHULTZE GRANITE IS THE GRANITE PORPHYRY PHASE AND IS ASSOCIATED WITH A CONTINUOUS BAND OF COPPER-MOLYBDENUM MINERALIZATION IN THE ADJACENT PINAL SCHIST ALONG THE NORTHERN CONTACT OF THE GRANITE PORPHYRY. FROM WEST TO EAST THIS MINERALIZATION HAS BEEN EXPLORED BY THE LIVE OAK PIT THORNTON PIT (INSPIRATION CU CO.) AND MIAMI MINE AND MIAMI EAST UNDERGROUND (CITIES SERVICE).

OF THE MIAMI-INSPIRATION WORKINGS IS ANOTHER COPPER-MOLYBDENUM PORPHYRY DEPOSIT CENTERED ON THE GRANITE PORPHYRY PHASE OF THE LOST GULCH QUARTZ MONZONITE (COPPER CITIES).

SMALL LEAD ZINC VEINS COMPRISE THE NORTHERN FRINGES OF THE MIAMI-INSPIRATION DISTRICT.

THE WESTERN PART OF THE DISTRICT CONTAINS ANOTHER COPPER-MOLYBDENUM PORPHYRY IN THE LOST GULCH QUARTZ MONZONITE. THIS DEPOSIT WAS FORMERLY KNOWN AS THE CASTLE DOME DEPOSIT, BUT CURRENTLY AS THE PINTO VALLEY DEPOSIT.

THE WESTERNMOST PART OF THE DISTRICT CONTAINS A SMALL, SUPERGENE ENRICHED COPPER DEPOSIT IN THE PINAL SCHIST KNOWN AS THE CACTUS DEPOSIT.

GENERAL COMMENTS

SEE RECORD M800114 FOR FURTHER REFERENCES

GENERAL REFERENCES

4) DISTRICT ARTICLES:

ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

5) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN RIDGE, J.D., ED., ORE DEPOSITS OF THE UNITED STATES 1933-1967: AM. INST. MIN. MET. AND PET. ENG., N.W., P. 1163-1190.

6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

7) (ANON.), FLOTATION AT THE INSPIRATION MINE, ARIZ.: MIN. AND SCI. PRESS, VOL. III, PP. 7-10, 1915.

8) BECKETT, P.G., 1917, THE WATER PROBLEM AT THE OLD DOMINION MINE: AM. INST. MIN. ENG. TRANS. (FOR 1916), V. 55, P. 35-66.

9) BIDEAUX, R.A., AND WILLIAMS, S.A., 1960, SOME NEW OCCURRENCES OF MINERALS OF ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 53-56.

10) BJORGE, G.N., AND SHUEMAKER, A.H., 1933, APPLIED GEOLOGY AT THE OLD DOMINION MINE, GLOBE, GILA COUNTY, ARIZ. IN ORE DEPOSITS OF THE WESTERN STATES: AM. INST. MIN. METALL. ENG., LINDGREN VOLUME, P. 709-716.

11) BLAKE, W.P., GEOLOGY OF THE SILVER KING MINE: ENG. AND MIN. JOUR., VOL. 35, PP. 238-239, 254-256, 270-271, 1883.

12) BOWEN, H.P., DATA ON MIAMI CHURN DRILLING: ENG. AND MIN. JOUR., VOL. 97, PP. 903-904, 1914.

13) BOWEN, H.P., ENGINEERING NOTES AND METHODS AT MIAMI ENG. AND MIN. JOUR., VOL. 100, PP. 15-17, 1915.

- 14) BURCH, H.K., CONCENTRATION AT INSPIRATION-I: ENG. AND MIN. JOUR., VOL. 102, PP. 411-415, 1916.
- 15) BURCH, H.K., AND WHITING, M.A., AUTOMATIC OPERATION OF MINE HOISTS AS EXEMPLIFIED BY THE NEW ELECTRIC HOISTS FOR THE INSPIRATION CONSOLIDATED COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 10-23, 1917.
- 16) BURCH, H. KENYON, MINE AND MILL PLANT OF THE INSPIRATION CONSOLIDATED COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 707-740, 1917.
- 17) CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 18) CREASEY, S.C., 1978, CHARACTERISTICS OF A PORPHYRY COPPER STOCK IN GLOBE-MIAM I DISTRICT OF ARIZONA (ABS.) U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 7.
- 19) CREASEY, IN PRESS, AGE DATES OF GLOBE MIAMI DIST.
- 20) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 21) CEANE, E.G., THE BLOCK METHOD OF TOP SLICING OF THE MIAMI COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 240-244, 1917.
- 22) DEMPSEY, W.J., 5. AEROMAGNETIC MAP OF GLOBE QUADRANGLE, GILA COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 23) DEMHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 24) DOUGLAS, JAMES, THE COPPER INDUSTRY OF ARIZONA: MINERAL INDUSTRY, 1897, PP. 231-232.
- 25) EARL, T.A., 1973, A HYDROGEOLOGIC STUDY OF AN UNSTABLE OPEN-PIT SLOPE, MIAMI, GILA COUNTY, ARIZONA (ABS.): UNPUB. PH.D. THESIS, UNIV. ARIZ.
- 26) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 27) EMMONS, S.F., THE SECONDARY ENRICHMENT OF ORE DEPOSITS: AM. INST. MIN. ENG. TRANS., VOL. 30, PP. 192-193, 1901.
- 28) FLETCHER, J.B., 1971, IN PLACE LEACHING AT MIAMI MINE, MIAMI, ARIZONA, IN SPECIAL MINING AND EXPLORATION ISSUE: SOC. MIN. ENG. AIME, TRANS., V. 250, NO. 4, P. 310-314.
- 29) FULD, H.A., PROSPECTING WITH CHURN DRILLS AT MIAMI, ARIZ. ENG. AND MIN. JOUR., VOL. 90, PP. 804-805, 1910.
- 30) GAHL, RUDOLPH, HISTORY OF THE FLOTATION PROCESS AT MIAMI, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 55, P. 576-645, 1917
- 31) GRAYBEAL, F.T. (1972) THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 220 P.
- 32) GREELEY, M.M., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 33) HERRICK, R.L., MINING AT MIAMI, ARIZ.: MINES AND MINERALS, VOL. 30, PP. 751-756, 1910.
- 34) HIGGINS, EDWIN, COPPER DEPOSITS OF THE GLOBE-KELVIN DISTRICTS: ENG. AND MIN. JOUR., VOL. 89, PP. 769-772, 813-816, 870-874, 1910.
- 35) JONES, BOB, 1979, APACHE UPRISING: ROCK AND GEM, V. 9, NO. 2, P. 64-65, 67-69.
- 36) KERNS, R.W., INTERNATIONAL SMELTERY AT MIAMI: ENG. AND MIN. JOUR., VOL. 101, PP. 421-424, 1916.
- 37) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 38) KUELLMER, F.J., 1960, COMPOSITIONAL VARIATIONS OF ALKALI FELDSPARS IN SOME INTRUSIVE ROCKS NEAR GLOBE-MIAM I, ARIZONA: ECON. GEOLOGY, V. 55, P. 557-562.
- 39) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 40) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 41) LAUSEN, C. (1923) GEOLOGY OF THE OLD DOMINION MINE, GLOBE, ARIZONA. UNIV. ARIZONA M.S. THESIS, 155 P.
- 42) LEGGE, J.A., JR. (1939) PARAGENESIS OF THE ORE MINERALS OF THE MIAMI MINE, ARIZONA. UNIV. ARIZONA M.S. THESIS, 47 P.
- 43) LEHMAN, G.R., ORE-DRAWING TESTS AND THE RESULTING MINING METHOD OF INSPIRATION CONSOLIDATED COPPER CO.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 218-231, 1917.
- 44) LOVEMAN, M.H., GEOLOGY OF THE MIAMI COPPER MINE: MIN. AND SCI. PRESS, VOL. 105, PP. 146-148, 1912.
- 45) MEYER, C., 1956, INSPIRATION CONSOLIDATED COPPER CO.: MINES REGISTER, V. XXV, P. 214.
- 46) MIAMI COPPER CO. ANNUAL REPORTS, 1942-1960: MIAMI COPPER CO.
- 47) OLMSTEAD, H.W., AND D.W. JOHNSON (1966) INSPIRATION GEOLOGY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 143-150.

- 48) PARSONS, A.B., 1957, THE PORPHYRY COPPERS IN 1956: AM. INST. MINING METALL. ENGINEERS, P. 137.
- 49) PETERSON, N.P., 1947, PHOSPHATE MINERALS IN THE CASTLE DOME COPPER DEPOSIT, ARIZONA: AMER. MINERAL, V. 32, P. 574-582
- 50) PETERSON, N.P., 1948, GEOLOGY OF CASTLE DOME COPPER DEPOSIT ARIZONA: MIN. TECH., V. 12, NO. 2, TECH. PAPER 2302, 11 P.
- 51) PETERSON, N.P., 1948, GEOLOGY OF THE CASTLE DOME COPPER DEPOSITS, ARIZONA: A.I.M.E. TR., V. 178, P. 195-205
- 52) PETERSON, N.P., 1950, LEAD AND ZINC DEPOSITS IN THE GLOBE-MIAMI DISTRICT, ARIZONA: IN ARIZONA ZINC AND LEAD DEPOSITS, PT. 1, ARIZ. BUR. MINES, GEOL. SER. NO. 18, BULL., NO. 156, P. 98-112
- 53) PETERSON, N.P., 1952, CASTLE DOME COPPER DEPOSIT: ARIZ. GEOL. SOC., GUIDEBOOK SOUTHERN ARIZ., P. 128-131.
- 54) PETERSON, N.P. 11. STRUCTURAL HISTORY OF THE GLOBE-MIAMI DISTRICT: ARIZ. GEOL. SOC. GEOL. SOC. AM., GUIDEBOOK SOUTHERN ARIZ., P. 122-127, MAP (1952)
- 55) PETERSON, N.P., 1954, STRUCTURAL CONTROL OF GLOBE-MIAMI DISTRICT, ARIZONA (ABS.): AIME MIN. GEOL. GEOPHYS. DIV., 1954 ANN. MEETING, ABSTS. TECH PAPERS, P. 17.

RECORD 00131

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030435
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... PREMIER GROUP
SYNONYM NAME..... SANTA MONICA CAMP. (SANTA MONICA CAMP)

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

LATITUDE LONGITUDE
33-04-51N 110-46-17W

UTM NORTHING UTM EASTING UTM ZONE NO
3660070. 521320. +12

TWP..... 04S
RANGE.... 15E
SECTION.. 13
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NW OF CHRISTMAS

LOCATION COMMENTS: SW

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD V AU CU W

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. AU

MAIN COMMOD..... AU

MAIN ORE MINERALS:
CERUSSITE, ANGLESITE, GALENA

MINOR ORE MINERALS:
WULFENITE, VANADINITE, HEMIMORPHITE, COPPER CARBONATES, NATIVE GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED IN 1925 BY S.O. STEWART AS 10 UNPATENTED CLAIMS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT; VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	0.5	MI
MAX WIDTH.....	3	FT
STRIKE OF OREBODY....	E	
DIP OF OREBODY.....	90	

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

LENGTH OF WORKINGS..... 400

COMMENTS(DESCRIP. OF WORKINGS):

ADITS AND DRIFTS: SEVERAL PITS, OPEN CUT ABOUT 25 FT LONG WITH A DRIFT FROM ONE END EXTENDING 20 FT TO THE EAST AND A MINZE 12 FT DEEP AT THE END OF THE DRIFT (ROSS, 1925, P. 69)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. BANKS AND KRIEGER, 1977, P. 3 (EASTLICK, 1975, PERS COMM.)

PRODUCTION COMMENTS.... ABOUT \$70,000 WORTH OF GOLD WAS REPORTED PRODUCED FROM ONE OF THE MAIN WORKINGS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS.

HOST ROCK TYPES..... ESCABROSA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET

IGNEOUS ROCK TYPES..... DIKE OF QUARTZ PORPHYRY (RHYODACITE PORPHYRY)

PERTINENT MINERALOGY..... VEINS AT SURFACE ARE MOSTLY JASPER OR SPONGY QUARTZ HEAVILY STAINED WITH IRON OXIDES (HEMATITE, JAROSITE, AND GOETHITE)

IMPORTANT ORE CONTROL/LOCUS.. COPPER MINERALIZATION OCCURS AS OXIDIZED VEINS AND REPLACEMENT BODIES NEXT TO GOLD

VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ON SOUTH SIDE OF NNW FAULT.

COMMENTS (GEOLOGY AND MINERALOGY):
NATIVE GOLD IN THIN SEAMS WITH IRON AND MANGANESE OXIDES

GENERAL REFERENCES

- 1) BANKS, N.G., AND DRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GOL. QUAD. MAP GQ-1391, P. 4.
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 3) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., MAP, P. 69.

RECORD 00132

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030433
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... REGAN CAMP PROSPECTS
SYNONYM NAME..... KULLMAN - MCCOOL GROUP, LEE REAGAN PROSPECTS

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

LATITUDE LONGITUDE
33-03-05N 110-48-17W

UTM NORTHING UTM EASTING UTM ZONE NO
3758050. 518340. +12

TWP..... 04S
RANGE..... 15E
SECTION.. 28 27
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 KM S OF 79 MINE CLAIMS EXTEND FROM REAGAN CAMP ON THE WEST UP
KEYSTONE GULCH AND LITTLE CHOCOLATE CANYON TO THE SCHNEIDER GROUP ON THE EAST. THEY ARE BOUNDED ON THE NORTH BY
THE 79 LEAD-COPPER CO. CLAIMS AND ON THE SOUTH BY CHOCOLATE CANYON (SCHNEIDER CANYON ON LATER TOPOGRAPHIC MAPS.)

LOCATION COMMENTS: INCLUDES WORKINGS IN SW/4 SEC 27 AS

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU V MO AG AU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB

MINOR PRODUCTS.. CU AG

MAIN COMMOD..... PB
MINOR COMMOD.... CU MO VMAIN ORE MINERALS:
GALENA, ANGLESITE, CERUSSITEMINOR ORE MINERALS:
WULFENITE, VANADINITE, DESCLOIZITE, COPPER CARBONATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... UNKNOWN ORIGINAL LOCATION, BUT ACQUIRED IN 1923 BY LEE REAGAN

PRESENT/LAST OWNER..... OWNER IN 1953 WAS KULLMAN-MCCOOL CO., KELVIN, AZ.

PRESENT/LAST OPERATOR.... MARTIN FISHBACK (1943)

EXPLOR. AND DEVELOP. COMMENTS:

OPERATOR FOR PRODUCTION PERIOD WAS F&G

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT: VEINS

FORM/SHAPE OF DEPOSIT: STREAKS AND POCKETS

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 3000 FT

MAX WIDTH..... 16 FT

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 240 FT

COMMENTS(DESCRIP. OF WORKINGS):

6 TUNNELS WITH OVER 5 FT DRIFTS, 1

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC		0.227	TONS	1944-1950	
16 CU ACC		7.708	LBS	1944-1930	
17 PB ACC		18.078	LBS	1944-1930	
18 AG ACC		0.143	OZS	1944-1930	

PRODUCTION COMMENTS.... SEVERAL CARLOADS OF OXIDIZED LEAD ORE WERE PRODUCED (KIERSCH, 1947, 1951) AND SHIPPED TO EL

PASO SHELTER

COMMENTS (RESERVES/POT RESOURCES).. 1941 OWNER ESTIMATED VEIN WOULD AVERAGE 2% IN COMBINED MOO3 AND V2O5. A 1953 ENGINEER'S REPORT IS OPTIMISTIC ABOUT TONNAGE AND GRADE OF LEAD-MOLYBDENUM-VANADIUM ORE AND ALSO GIVES ASSAYS OF THREE LESS-THAN-TON LOTS OF MOLYBDENUM-VANADIUM CONCENTRATES PRODUCED IN 1934. IN 1943, AN R.F.C. ENGINEER DID NOT RECOMMEND A DEVELOPMENT LOAN BECAUSE OF LOW COPPER AND ZINC VALUES. IT IS POSSIBLE THAT THE LOAN WAS SOUGHT FOR A DIFFERENT VEIN ON A DIFFERENT CLAIM THAN THOSE HAVING THE LEAD VEIN (DEPT. MIN. RES., 1962).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN
 HOST ROCK TYPES..... NACO LIMESTONE
 IGNEOUS ROCK TYPES..... BASALT PORPHYRY PLUG (KIRSCH) DIABASE

IMPORTANT ORE CONTROL/LOCUS.. BEST MINERALIZATION IS ALONG NORTH CONTACT OF THE BASALT PORPHYRY WITH NACO LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 KEYSTONE FAULT

GENERAL REFERENCES

- 1) BANKS, N.G., AND KRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1391, P. 4.
- 2) KIRSCH G.A., 1951, REAGAN CAMP PROSPECTS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 158, P. 81-82.
- 3) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
 - 4) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 5) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY. BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: AIME, V. II, P. 1191-1210, P. 1197.
 - 6) RUSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., MAP
 - 7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., P. 4.
 - 8) KIRSCH, G.A. (1947) THE GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AREA. GILA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 124 P.
- 9) ABGHT-USBM FILE DATA
- 10) ADMR FILE DATA

RECORD 00133

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030511
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... ROSCOE GROUP
MINING DISTRICT/AREA/SUBDIST. SUMMIT DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GILA
POSITION FROM NEAREST PROMINENT LOCALITY: NE OF BRONX PROPERTY

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
COPPER

MINOR ORE MINERALS:
MOLYBDENITE

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... GRANITE
IMPORTANT ORE CONTROL/LOCUS.. IN VEINS IN GRANITE

GENERAL REFERENCES

- 1) U.S.G.S. FILE DATA
- 2) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 235, #19

RECORD 00134

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000364
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SAMSEL MINE

MINING DISTRICT/AREA/SUBDIST. PINAL MOUNTAINS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 24000 PINAL RANCH

LATITUDE LONGITUDE
33-16-43N 110-53-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3681997. 510226.

TWP..... 02S
RANGE.... 14E
SECTION.. 11
MERIDIAN. GCSR

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: TO REACH THE PROPERTY BY ROAD FROM GLOBE, CONTINUE 1.0 MILE FROM THE JUNCTION AT BROAD STREET AND ICE HOUSE ROAD TO THE JUNCTION AT ICE HOUSE AND SIX SHOOTER ROADS, TURN RIGHT ON ICE HOUSE ROAD FOR 1.7 MILES TO THE END OF THE BLACKTOP, TURN SHARPLY RIGHT FOR 5.3 MILES TO THE JUNCTION OF THE SIGNAL PEAK AND MADERA PEAK ROADS, THEN TURN LEFT ON THE SIGNAL PEAK ROAD FOR 0.1 MILE TO THE GOVERNMENT SPRINGS ROAD. FOLLOW THIS ROAD 1.9 MILES TO THE SAMSEL MINE, TURN TO THE RIGHT AND CONTINUE 0.3 MILE TO THE CAMPSITE.

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU AG PB CU MO

MAIN COMMOD..... W
 MINOR COMMOD.... AU AG PB CU MO

MAIN ORE MINERALS:
 PYRITE, WOLFRAMITE, SCHEELITE .

MINOR ORE MINERALS:
 MOLYBDENITE, CHALCOPYRITE, GALENA, GOLD SILVER, LIMONITE, MANGANESE OXIDES, OXIDIZED LEAD MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNER IN 1941 WAS FRANK SAMSEL AND LEASED BY PINAL TUNGSTEN MINES, INC; IN 1953 WAS OWNED BY HENRY E. HUFFMAN OF GLOBE (DALE, 1961) AS 16 UNPATENTED CLAIMS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SHEAR ZONE

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	3500	FT
MAX WIDTH.....	4	FT
STRIKE OF OREBODY....	N25-30E	
DIP OF OREBODY.....	85 NW	

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHALLOW PITS AND OPEN CUT 20 FT DEEP (PETERSEN); 280 FT ADIT COMPLETED IN 1940 (WILSON, 1941)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1941, P. 28-9

PRODUCTION COMMENTS.... SEVERAL TONS OF TUNGSTEN CONCENTRATE HAVE BEEN PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET.
 IGNEOUS ROCK TYPES..... DIABASE IS NEARBY

PERTINENT MINERALOGY..... WHITE OR GRAYISH, GENERALLY GRANULAR QUARTZ CONTAINING MANY SMALL DRUSY CAVITIES

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

PYRITE OCCURS AS DISCRETE CUBIC GRAINS AND COARSELY GRANULAR MASSES AND LOCALLY CONTAINS SCATTERED PLATY AND PRISMATIC CRYSTALS OF WOLFRAMITE PARTLY ALTERED TO SCHEELITE. IN THE MINERALIZED FAULT ZONE PYRITE HAS SELVAGES COMPOSED OF VERY FINE GRAINED QUARTZ AND MOLYBDENITE. CHALCOPYRITE IS PRESENT IN VERY MINOR AMOUNTS (PETERSON, 1963, P. 16-17)

GENERAL REFERENCES

- 1) WILSON, E.D., (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 28-29.
- 2) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 3) PETERSON, N.P., 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, 18 P., MAP., P. 17.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00135

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030450
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... SLEEPING BEAUTY MOUNTAIN
SYNONYM NAME..... MAYBE SLUMBERING BEAUTY MINE OR MONEY METAL MINE

MINING DISTRICT/AREA/SUBDIST. MIAMI - INSPIRATION DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 INSPIRATION, ARIZ.

TWP..... 01N
RANGE.... 14E
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MI. NW OF INSPIRATION MINE

LOCATION COMMENTS: LOCATION UNCERTAIN, SECTIONS UNSURVEYED

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MO W

MAIN ORE MINERALS:

MINOR ORE MINERALS:
WULFENITE (CHILLIGITE)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE AS THE VARIETY CHILLAGITE UAN# 8197 IN U OF A MINERAL MUSEUM

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

RECORD 00136

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030442
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040070637
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... SUCKERITE DEPOSIT

MINING DISTRICT/AREA/SUBDIST. SIERRA ANCHA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MC FADDEN PEAK, ARIZ.

LATITUDE LONGITUDE
33-50-44N 110-58-28W

TWP..... 06N
RANGE.... 13E
SECTION.. 24
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5375 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 300 FT SOUTH OF WORKMAN CREEK AND 1/4 MILE WEST OF GLOBE-YOUNG HIGHWAY
ON WEST FLANK OF RIDGE, 1/2 MILE WEST OF AZTEC LODGE.

LOCATION COMMENTS: SOUTH CENTER, UNSURVEYED

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO

MAIN COMMOD..... U
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
URANINITE, PYRITE, PYRRHOTITE

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOPYRITE, GALENA LASSETITE, COVELLITE, TORBERNITE, URANTFERDUS NYALITE

ANALYTICAL DATA(GENERAL)

MAXIMUM RADIOACTIVITY MEASURED WITH A PORTABLE SCINTILLATION METER IS ABOUT 3.0 MR PER HR; AVERAGE RADIOACTIVITY OF ROCKS IN THE FAVORABLE INTERVALS IS LESS THAN 1.5 MR PER HR. (GRANGER AND RAUP, 1959, P. 470)9

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINLETS AND DISSEMINATED

FORM/SHAPE OF DEPOSIT: SHOOTS, BEDDING PLANTS

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 200 FT X 120 FT

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

2 LEVELS (200 FT AND 250 FT) SHORT DRIFTS, 150 FT ADIT, 100 FT INCLINED SHAFT AND PROSPECT PIT (ABM FILE PAGE).

IN 1955 HAD BEEN EXPLORED BY A BULLDOZED OPEN CUT ABOUT 100 FEET LONG AND BY SEVERAL DRILL HOLES (GRANGER AND RAUP, 1959, P. 469)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMUD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC	2.453	TONS		1955-1970 APPROX	234% U

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 276

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 276

COMMENTS (RESERVES/POT RESOURCES).. PROBABLY ADDITIONAL RESOURCES PRESENT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... DRIPPING SPRING QUARZITE, DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC, ?

IGNEOUS ROCK TYPES..... DIABASE; SYENITE CUT BY PEGMATITE AND MAFIC DIKES

AGE OF MINERALIZATION..... PREC

PERTINENT MINERALOGY..... LIMONITE AND GYPSUM IN JOINTS AND FRACTURES

IMPORTANT ORE CONTROL/LOCUS.. ORE IS IN THIN STRATIGRAPHIC INTERVALS IN DRIPPING SPRING QUARTZITE ABOUT 140 FT ABOVE THE BASE OF THE UPPER MEMBER. THESE 2 THIN INTERVALS ARE JUST ABOVE THE DIABASE AND 15 FT ABOVE THE DIABASE; 45 FT BELOW BUFF UNIT. THE WHOLE TILTED BLOCK IS A XENOLITH IN DIABASES. (GRANGER AND RAUP, 1959, P. 470)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MOST ABUNDANT FRACTURES ARE NEARBY VERTICAL AND STRIKE N70 W. ALL OTHER JOINTS ARE POORLY DEVELOPED EXCEPT FOR A FEW STRONG NORTH-NORTHEAST-TRENDING JOINGS. (GRANGER AND RAUP, 1959, P. 470). BEDDING PLANE FRACTURES HOLD ORE (ABM FILE PAGE).

GENERAL REFERENCES

- 1) GRANGER, H.C. AND RAUP, R.B. 1959, URANIUM DEPOSITS OF THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: USGS BULL. 1046-P, 72 P., ILLUS., P. 469-470
- 2) GRANGER, H.C. AND RAUP, R.B. (1969) GEOLOGY OF URANIUM DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA, U.S. GEOL. SURVEY PROF. PAPER 595, 108 P., P. 86, PL 2, FIG 13
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY BULL. 1147-A, 54 P., P. 12-14
 - 5) FINCH, W.L., 1967, 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P., P. 6.
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 7) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILY, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289.; P. 276.
 - 8) SCHWARTZ, 1954, ATOMIC ENERGY COMM. PRELIM. RECON. REPT. A-P-252, 1 P.
 - 9) GRANGER, H.C., AND RAUP, R.B. 1969, DETAILED DESCRIPTIONS OF URANIUM-BEARING DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 145 P., MAPS, P. 125.

RECORD 00137

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M002858
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 2
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TUNGSTEN NO. 1

MINING DISTRICT/AREA/SUBDIST. MIAMI DIST./DAY PEAKS AREA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 INSPIRATION, ARIZ.

TWP..... 001N
 RANGE.... 014E
 SECTION.. 14
 MERIDIAN. G&SR

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 1.5 MILES N OF INSPIRATION SMELTER

COMMODITY INFORMATION

COMMODITIES PRESENT..... W PB MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE	ACC	0.014	TONS	1936	
2 CU	ACC	0.038	LB	1936	

3 AG ACC 0.236 02 1936

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
MINERALIZED FAULT IN DIABASE.

RECORD 00138

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04076
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... WORKMAN CREEK AREA
SYNONYM NAME..... HOPE WORKMAN, LITTLE JOE, LOST DOG, LUCKY STOP, SUCKERITE

MINING DISTRICT/AREA/SUBDIST. SIERRA ANCHA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MCFADDEN PEAK, ARIZ.

LATITUDE LONGITUDE
33-51-00N 110-57-30W

TWP..... 06N
RANGE..... 14E
SECTION.. 30 19
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE EAST OF GLOBE-YOUNG HIGHWAY UP WORKMAN CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU PB ZN MO

MAIN COMMOD..... U
MINOR COMMOD..... CU PB ZN MO

MAIN ORE MINERALS:

URANINITE, AUTUNITE, TORBERNITE, COFFINITE

MINOR ORE MINERALS:

MOLYBDENITE, PYRITE URANOPHANE, URANIFEROUS OPAL, PYRRHOTITE, GALENA, LASSETITE COVELLITE, CHALCOPYRITE,
MARCASITE, SPHALERITE, FLUORITE, SECONDARY COPPER AND URANIUM MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS/SHEAR ZONES

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... DRIPPING SPRING QUARTZITE (HORNFELS); DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.

IGNEOUS ROCK TYPES..... DIABASE, APLITE DIKES

PERTINENT MINERALOGY..... LIMONITE AND GYPSUM IN FRACTURES; CLAY AND CHLORITE

IMPORTANT ORE CONTROL/LOCUS.. MOLYBDENITE OCCURS IN MOBILIZED HORNFELS NEAR DIABASE (BLACK FACIES OF HORNFELS)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIATED ZONE IS FILLED WITH MOBILIZED HORNFELS

GENERAL REFERENCES

- 1) GRANGER, H.C. AND RAUP, R.B., 1959, URANIUM DEPOSITS OF THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: USGS BULL. 1046-P, 72 P., ILLUS., P. 463-472.
- 2) GRANGER, H.C. AND RAUP, R.B. (1969) GEOLOGY OF URANIUM DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA, U.S. GEOL. SURVEY PROF. PAPER 595, 108 P., P. 86, PL. 2, FIG. 13
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) GRANGER, H.C. AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY BULL. 1147-A, 54 P., P. 12-14
 - 5) FINCH, W.L. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967), P. 6.
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 7) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-269, P. 268-277
 - 8) GRANGER, H.C. AND RAUP, R.B., JR., 1969, DETAILED DESCRIPTIONS OF URANIUM DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 145 P.

RECORD 00139

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030440
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040070697
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... WORKMAN DEPOSIT
MINING DISTRICT/AREA/SUBDIST. SIERRA ANCHA DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MCFADDEN PEAK, ARIZ.

LATITUDE LONGITUDE
33-50-45N 110-57-12W

TWP..... 06N
RANGE..... 14E
SECTION.. 19
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: N SIDE WORKMAN CREEK AT ABOUT 6000 FT ELEV, 400 FT ABOVE CREEK

LOCATION COMMENTS: CENTER

COMMODITY INFORMATION

COMMODITIES PRESENT..... U CU MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. U

MAIN COMMOD..... U
MINOR COMMOD.... CU MO

MAIN ORE MINERALS:

URANINITE, COFFINITE, PYRRHOTITE, CHALCOPYRITE, MOLYBDENITE, URANOPHANE, METATORBERNITE, MARCASITES, PYRITE
CHALCOPYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

YEAR OF DISCOVERY..... C. NICHOLS AND OTHERS LOCATED 16 CLAIMS EARLY IN 1954

PRESENT/LAST OWNER..... OWNED BY ARIZONA CONTINENTAL URANIUM, INC. IN 1955 AS 16 CLAIMS (GRANGER AND RAUP, 1959, P. 470)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM. SULFIDES, VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 3 FT

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 360 FT

COMMENTS(DESCRIP. OF WORKINGS):

BENCHES, 3 ADITS (360 FT) ADIT #1 WAS 105 FT LONG IN A N19E DIRECTION (LATER EXTENDED TO 155 FT) SECOND ADIT WAS
SHORTER (GRANGER AND RAUP, 1959, P. 470)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	.2	TONS	1954-1957	FROM ADIT 1

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE PAGE.

PRODUCTION COMMENTS.... LESS THAN 200 TONS SHIPPED

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 277

COMMENTS (RESERVES/POT RESOURCES).. PROBABLY SMALL AMOUNT OF LOW-GRADE MINERALIZATION REMAINS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... DRIPPING SPRING QUARTZITE AND HORNFELS, DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.

IGNEOUS ROCK TYPES..... APLITE DIKES, DIABASE

AGE OF MINERALIZATION..... PREC

PERTINENT MINERALOGY..... LIMONITE AND GYPSUM IN FRACTURES

IMPORTANT ORE CONTROL/LOCUS.. DEPOSITS ARE IN MOBILIZED HORNFELS IN DRIPPING SPRING QUARTZITE NEAR CONTACT WITH DIABASE IN A ZONE ABOUT 110 TO 140 FT. ABOVE THE BASE OF THE UPPER MEMBER OF THE QUARTZITE. OREBODY IS FOR FIRST 60 FT. IN HORNFELS IN AND ADJACENT TO AN IRREGULARLY SHAPED ZONE OF TRANSITION DIKELETS AND BRECCIA. SULFIDE MINERALS ARE DISSEMINATED THROUGHOUT THE HOST ROCK AND ESPECIALLY ABUNDANT IN AND NEAR TRANSITION DIKES (GRANGER AND RAUP, 1959, P. 472)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NEARBY VERTICAL FRACTURES STRIKE N60-80W ARE COMMON AND CONTAIN LIMONITE; NORTH-NORTHEAST FRACTURES ARE LESS COMMON.

COMMENTS (GEOLOGY AND MINERALOGY):

FLAKES OF MOLYBDENITE AS MUCH AS 1.0 MM ACROSS AND 0.02 MM THICK ARE ENCLOSED BY THE GANGUE OR SULFIDE MINERALS. IN ONE POLISHED SECTION (GRANGER AND RAUP, 1959, FIG. 53) A FLAKE OF MOLYBDENITE ENCLOSED BY PYRRHOTITE WAS BORDERED BY A NARROW IRREGULAR BAND OF CHALCOPYRITE THAT EVIDENTLY PARTLY REPLACED THE PYRRHOTITE ALONG THE MOLYBDENITE GRAIN BOUNDARY.

THE MOLYBDENITE APPARENTLY FITS THE PARAGENETIC SEQUENCE BETWEEN THE DEPOSITION OF URANINITE AND URANINITE 2 AND IT PROBABLY FORMED ABOUT THE SAME TIME AS PYRRHOTITE. (GRANGER AND RAUP, 1969, P. 86)

GENERAL REFERENCES

- 1) GRANGER, H.C. AND RAUP, R.B., 1959, URANIUM DEPOSITS OF THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: USGS BULL. 1046-P, 72 P., ILLUS. (1959), P. 470-472.
- 2) GRANGER, H.C. AND RAUP, R.B. (1969) GEOLOGY OF URANIUM DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 595, 108 P., P. 86, PL. 2, FIG. 13.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY BULL. 1147-A, 54 P., P. 12-14.
 - 5) FINCH, W.L., 1967, 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P., P. 6.
 - 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 7) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289.; P. 277.
 - 8) GRANGER, H.C., AND RAUP, R.B., JR., 1969, DETAILED DESCRIPTIONS OF URANIUM BEARING DEPOSITS IN THE DRIPPING SPRING QUARTZITE, GILA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT, P. 140-144.
 - 9) WEATHERS, 1954, U.S. ATOMIC ENERGY COMM. PRELIM RECON. REPT. PRR-AP-221, 1P.

RECORD 00140

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030430
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
FILE LINK ID..... USBM-004007 0701
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... 79 MINE

MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA

QUAD SCALE QUAD NO OR NAME
1: 0024000 HAYDEN, ARIZ.

LATITUDE LONGITUDE
33-03-54N 110-48-51W

UTM NORTHING UTM EASTING UTM ZONE NO
3658320. 517400. +12

TWP..... 04S
RANGE.... 15E
SECTION.. 21 SE
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 1/2 MILES NNW OF HAYDEN; 2 MILES NW OF TORNADO PEAK

LOCATION COMMENTS: SE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG MO SB AU V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB ZN

MAIN COMMOD..... PB ZN
 MINOR COMMOD..... CU AG SB AU

MAIN ORE MINERALS:
 GALENA, SPHALERITE, PYRITE, CERUSSITE

MINOR ORE MINERALS:
 CHALCOPYRITE, VERY RARE MOLYBDENITE, TETRAHEDRITE, SILVER PROBABLY CARRIED IN GALENA; SECONDARY MINERALS
 INCLUDE COVELLITE, CHALCOCITE, SULFUR, COPPER, TENORITE, GOETHITE, HEMATITE, MURDOCHITE, PLATTNERITE,
 HETAEROLITE, CUPRITE (?), MALACHITE, SMITHSONITE, AURICHALCITE, ROSASITE, AZURITE, HYDROZINCITE,
 CHALCANTHITE, ANGLESITE, PISANITE, PLUMBOJAROSITE, BROCHANTITE, LINARITE (?), WULFENITE, MIMETITE,
 DESCLOIZITE, MOTTRAMITE, OLIVENITE, CLINOCLASE, AUSTINITE (?), PYROMORPHITE, VANADINITE, HEMIMORPHITE,
 CHRYCOCOLLA, WILLEMITE, DIOPHASE (KEITH, 1972, P. 249), ALSO TENNANTITE AND BORNITE.

COMMODITY COMMENTS:
 AG OCCURS IN GALENA

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 YEAR OF DISCOVERY..... 1879
 BY WHOM..... MIKE AND PAT O'BRIEN
 YEAR OF FIRST PRODUCTION. 1920
 YEAR OF LAST PRODUCTION. 1962

EXPLOR. AND DEVELOP. COMMENTS:
 PREVIOUS OWNERS AND OPERATORS INCLUDE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 LIMESTONE REPLACEMENT, VEINS.
 FORM/SHAPE OF DEPOSIT: TABULAR

SIZE/DIRECTIONAL DATA
 SIZE OF DEPOSIT..... THE DISCOVERY ORE BODY AND MASSIVE PYRITE ORE BODY ARE BEDDED DEPOSITS AVERAGING 50 FT
 THICK AND GENERALLY EXTENDING 200 TO 300 FT Laterally ALONG BEDDING STRIKE. FIVE OTHER BEDDED ZONES WERE MINED
 (EASTLICK, 1967, P. 1199)

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
 PRINCIPAL DEVELOPMENT IS BY A SHAFT

PRODUCTION
 YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC 210.977	TONS	1920-1962	
16	CO ACC 1445.026	LBS	1920-1962	

17	PB ACC	34573.47	LBS	1920-1962
18	ZN ACC	4940.783	LBS	1920-1962
19	AG ACC	362.751	OZS	1920-1962
20	AU ACC	3.148	OZS	1920-1962

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PTNN, TERT.
 HOST ROCK TYPES..... NACO LIMESTON; DIKE OF RHYOLITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (PROBABLY ABOUT 62 M.Y.)
 IGNEOUS ROCK TYPES..... RHYOLITE PORPHYRY; QUARTZ DIORITE STOCK TO EAST

AGE OF MINERALIZATION..... TERT. (PROBABLY ABOUT 62 M.Y. CHRISTMAS)

PERTINENT MINERALOGY..... QUARTZ IS UBIQUITOUS - IN VEINLOCKS AND STRINGERS, AS CRYSTALS IN DRUSES AND CAVITIES AND IN MASSIVE SILICA BODIES. HEMATITE AND GOETHITE ARE MOST ABUNDANT OXIDES WITH WAD, A MIXTURE OF HOLLANDITE, MANGANITE, AND PYROLUSITE, IN MANY FAULT ZONES. OTHER NON-ORE BEARING MINERALS INCLUDE LEPIDOCROCITE, CALCITE, SIDERITE, DOLOMITE, HALOTRICHITE, MELANTERITE, JAROSITE, GYPSUM, SCORODITE; AND THE SILICATES INCLUDE MONTMORILLONITE, SAUCONITE, (?) KAOLINITE, ILLITE (?), THE CA-MG SILICATES IN SKARN (ANDRADITE, DIOPSIDE, TREMOLITE, EPIDOTE, VESUVIANITE). (KEITH, 1972, P. 249)

IMPORTANT ORE CONTROL/LOCUS.. ORE CONTROLLED BY FRACTURES AND PRE ORE CHANNELWAYS, BY FAVORABLE ROCK TYPE IN LIMESTONES AND SHALES (BEDDED REPLACEMENT), AND BY SILICATE ALTERATION OF RHYOLITE (VEIN REPLACEMENT). SPECTACULAR OXIDIZED MINERALS OCCUR ALONG SOLUTION CHANNELS IN BRECCIATED ZONES IN LIMESTONE (KEITH, 1972, P. 248)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

PRE-ORE FAULTING PRODUCED SHEAR ZONES N60-70E LATER INTRUDED BY GRANITIC PORPHYRY DIKES AND SILLS. SECOND PRE-ORE FAULTING CONSISTED OF RENEWED ACTIVITY ON N-S. FAULTS WHICH FAULTED, FRACTURED, AND SHEARED THE LIMESTONE AND DIKES, ALLOWING UPWARD MIGRATION OF ORE SOLUTIONS (KTERSCH, 1951, P. 76). ONE OF THESE POST-MINERAL STRUCTURES, THE MAIN FAULT, WHICH STRIKES ABOUT N40W AND DIPS 60 NORTHEAST DIRECTLY AFFECTED THE OREBODIES AT THE 79 MINE BY DISPLACING THEM ABOUT 500 FEET DOWN ON THE EAST. AT THE TIME THE MAIN FAULT WAS FORMED A SERIES OF CONJUGATE NORMAL FAULTS OF MUCH SMALLER DISPLACEMENT WERE ALSO CREATED. THESE SYMPATHETIC SMALL FAULTS, CALLED THE 79 BRECCIA SYSTEM, ROUGHLY PARALLEL THE MAIN FAULT STRIKING NORTH-SOUTH TO N25W AND DIPPED 55 TO 85 SOUTHWEST. THESE STRUCTURES INFLUENCED OF THE FAMOUS SECONDARY MINERAL ASSEMBLAGE. (KEITH, 1972, P. 249).

SIGNIFICANT ALTERATION:

A STRONG GOSSAN IS DEVELOPED ABOVE THE DISCOVERY ORE BODY. OXIDATION AT THE 79 MINE IS FAIRLY DEEP, BEING NEARLY COMPLETE ABOVE THE 5TH LEVEL AND PRACTICALLY ABSENT BELOW THE 6TH LEVEL ABOUT 400 FEET BELOW THE GROUND SURFACE. IN THE OXIDIZED ZONE SOLUTION CHANNELS ALONG THE BRECCIATED ZONES IN THE LIMESTONE ARE NUMEROUS AND IT IS ALONG THESE THAT MIGRATING SUPERGENE SOLUTIONS DEPOSITED A SPECTACULAR ARRAY OF OXIDIZED SECONDARY MINERALS. AT THE 79 MINE THE SUPERGENE ENRICHED ZONE IS RESTRICTED TO A PORTION OF THE VEIN DEPOSITS IN THE NORTH DIKE NEAR THE WATER TABLE. HERE A RELATIVELY NEUTRAL HOST RHYOLITE ALLOWED A LOW "PH" AND THEREBY PERMITTED THE STABILITY OF SPECIES LIKE COVELLITE, CHALCOCITE AND NATIVE SULFUR. (KEITH, 1972, P. 256).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

A RHYOLITE DIKE WAS INTRUDED IN EARLY TERTIARY TIME INTO PENNSYLVANIAN SHALES AND LIMESTONES OF THE LOWER NACO FORMATION RESTING UNCONFORMABLY ON MISSISSIPPIAN ESCABROSA LIMESTONE. THE RHYOLITE INTRUSIONS PRODUCED CONSIDERABLE CONTACT METAMORPHIC EFFECTS IN THE ADJACENT SEDIMENTS, PRINCIPALLY GARNITIZED SKARNS. SHORTLY AFTER THE INTRUSION OF EARLY TERTIARY RHYOLITE AND LATITE, METALIFEROUS HYDROTHERMAL SOLUTIONS - PROBABLY A LOWER TEMPERATURE PHASE OF THE RECENTLY SOLIDIFIED RHYOLITE MELT - MOVED INTO THE COUNTRY ROCK DEPOSITING BASE METAL SULFIDES. MINERALIZERS CLOSELY FOLLOWED ALONG DIKE CONTACTS AND EAST-WEST FRACTURES AND FAULTS

DEPOSITING BASE METAL SULFIDES IN FAVORABLE HORIZONS OF THE ADJACENT SEDIMENTS AND IN BRECCIATED PORTIONS OF THE RHYOLITE DIKES. THESE SOLUTIONS REACTED WITH AND REPLACED FAVORABLE ENCLOSING ROCKS UNDER MODERATE TEMPERATURES (200 TO 300 C) AND PRESSURES (ONE TO TEN ATM) AT MODERATE DEPTHS, REPLACEMENT WAS OF TWO TYPES: BEDDED AND VEIN REPLACEMENT. BEDDED REPLACEMENT IN THE HOST LIMESTONE AND SHALE WAS MOLECULE FOR MOLECULE. REPLACEMENT IN A HOST RHYOLITE DIKE, CALLED THE NORTH DIKE, WAS RESTRICTED TO DEPOSITION OF SULFIDES AS VEINLETS ALONG ANTECEDANT FRACTURES AND EXTENSIVE SILICATE ALTERATION OF THE RHYOLITE. FOLLOWING DEPOSITION OF THE SULFIDES THE AREA WAS NOT EXPOSED TO PREMINE OXIDATION PROCESSES UNTIL UPLIFT DURING MIOCENE TIME BROUGHT THE DEPOSIT INTO CONTACT WITH METEORIC WATER AND AIR. (KEITH, 1972, P. 248, 255-256).

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS AS BRILLIANT ORANGE, TRANSPARENT, UNFLAWED CRYSTALS UP TO TWO INCHES ON AN EDGE. (ANTHONY, AND BIDEAUX, 1977, P. 141, 205). WULFENITE IS FREQUENTLY CHARACTERIZED BY A UNIQUE RED SPOT IN THE CENTER OF THE YELLOW CRYSTAL PLATES (WILSON, 1972, P. 265). WULFENITE CRYSTALS ARE OFTEN LIBERALLY SPRINKLED ON EQUALLY BRILLIANT ORANGE MAMMILLARY CRUSTS OF MIMETITE (KEITH, 1972, P. 248).

MOLYBDENITE IS NOT FOUND IN THE VEIN DEPOSITS BUT HAS BEEN NOTED COATING VEINLETS IN THE NORTH DIKE ALONG WITH PYRITE AND CHALCOPYRITE (KEITH, 1972, P. 250).

FAMOUS SECONDARY MINERAL SPECIMENS INCLUDE AURICHALCITE, ROSASITE, SMITHSONITE, HEMIMORPHITE, DISCLOIZITE, CHRYSOCOLLA, TENORITE AND MALACHITE (KEITH, 1972, P. 248).

THE LEAD-ZINC RELATIVE TO THE COPPER DEPOSITS OF THE CHRISTMAS AND CHILITO MINES SUGGEST A DISTRICT ZONING ALONG THE E-W TRENDING FAULT AND DIKE SYSTEMS (EASTLICK, 1967, P. 1204).

GENERAL REFERENCES

- 1) KEITH, STANLEY B., 1972, MINERALOGY AND PARAGENESIS OF THE 79 MINE LEAD ZINC COPPER DEPOSIT: MINERAL. RECORD, V. 3, NO. 6, P. 247-264.
- 2) WILSON, W.E., FOLIO, THE 79 MINE: MINERAL. RECORD, V. 3, NO. 6, P. 265-272.
- 3) KIERSCH, G.A., 1951, GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AND ARIZONA, IN ARIZONA ZINC AND LEAD DEPOSITS, PT. II: ARIZ. BUR. MINES, BULL. 158, P. 66-83.
- 4) KIERSCH, G.A., (1949) STRUCTURAL CONTROL AND MINERALIZATION AT THE SEVENTY-NINE MINE, GILA COUNTY, ARIZONA. ECON. GEOL. 44: 24-39.
- 5) KIERSCH, G.A. (1947) THE GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AREA. GILA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 124 P.
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) EASTLICK, J.T., 1968, GEOLOGY OF THE CHRISTMAS MINE AND VICINITY, BANNER MINING DISTRICT, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: AIME, V. II, P. 1191-1210.
- 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 205.
- 9) RUSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P., P. 66-67.
- 10) WILCOX, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY BULL. 1161-E, P., GEOL. MAP.
- 11) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 12) ELSING, M.J., AND HEINEMAN, R.F.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P., P. 92.
- 13) CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, K1-D5.
- 14) BANKS, N.G., AND KRIEGER, M.H., 1977, GEOLOGIC MAP OF THE HAYDEN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP, G2-1391.
- 5) ABGHT-USBM FILE DATA
- 6) ADMR FILE DATA

RECORD 00141

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4002677
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... PINTO VALLEY MINE
SYNONYM NAME..... CASTLE DOME MINE

MINING DISTRICT/AREA/SUBDIST. GLOBE-MIAMI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GILA CO.

QUAD SCALE QUAD NO OR NAME
1: 0024000 INSPIRATION

LATITUDE LONGITUDE
33-24-40N 110-57-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3696600. 504000. +12

TWP..... 01N
RANGE.... 14E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: S. SIDE OF PORPHYRY MTN.

LOCATION COMMENTS: UNSURVEYED, APPROXIMATE LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU

MINOR PRODUCTS.. AG AU

MAIN COMMOD..... CU MO
MINOR COMMOD.... AU AG PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... MO
OCCURRENCE..... PB ZN

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, MOLYBDENITE

MINOR ORE MINERALS:
HYPOGENE VEIN MINERALS: SPHALERITE, GALENA, GOLD, SILVER, SPECULARITE, BARITE, WAVELLITE, METATORBERNITE,
FLUORITE. SUPERGENE MINERALS: CHALCOHITE, COVELLITE, CUPRITE, MALACHITE, AZURITE, COPPER (NATIVE),
CHALCANTHITE, MOLYBDITE, SILVER (NATIVE), GOSLARITE, ANGLESITE, SULFUR (NATIVE), LIMONITE, JAROSITE, TURQUOISE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS ACTIVE
NATURE OF DISCOVERY..... A
YEAR OF FIRST PRODUCTION. 1974
PRESENT/LAST OWNER..... CITIES SERVICE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEMINATED COPPER; VEINS

DESCRIPTION OF WORKINGS

SURFACE
OVERALL LENGTH OF MINED AREA.... 6000 FT
OVERALL WIDTH OF MINED AREA..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):
HIGHEST CUT IS 500 FT, HAVE MINED TOP OF PORPHYRY MTN.

PRODUCTION
YES
MEDIUM PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE	EST	13777	ST	1974	.45% CU, .02% MO
2 CU	EST	62	ST	1974	
3 MO	EST	3	ST	1974	
19 ORE	ACC	46599.18	TONS	1928-1978	PINTO VALLEY
20 CU	ACC	522802.5	LBS	1928-1978	
21 AG	ACC		OZS	1928-1978	
22 AU	ACC	20.966	OZS	1928-1978	
23 MO	ACC	946.384	LBS	1948-1975	

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. MINES FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. 64 M.Y.
 HOST ROCK TYPES..... LOST GULCH QUARTZ MONZONITE DIABASE SILLS, GRANITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
 IGNEOUS ROCK TYPES..... LOST GULCH QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT. 64 M.Y.

PERTINENT MINERALOGY..... HYPOGENE VEIN MINERALS: QUARTZ, SERICITE, ADULARIA. SUPERGENE MINERALS: HALLOYSITE, ENDELLITE, CIMOLITE, KAOLINITE, CANBYITE, QUARTZ, CHALCEDONY, OPAL, GYPSUM. MINERALS FORMED BY HYDROTHERMAL ALTERATION OF THE HOST ROCK: QUARTZ, SERICITE, PYRITE, BEIDELLITE, HYDROUS MICA, ALLOPHANE, BLEACHED BIOTITE, LEUCOXENE, RUTILE, CHLORITE, EPIDOITE, CLINOZOISITE, CALCITE, STILBITE, FERRIMOLYBDITE, WULFENITE AND LINDGRINITE ARE VERY RARE. MINERALS OF THE QUARTZ MONZONITE HOST ROCK: QUARTZ, ORTHOCLASE, OLIGOCASE, BIOTITE, APATITE, SPHENE, ZIRCON, ILMENITE, MAGNETITE. (PETERSON, GILBERT, AND QUICK, 1951, P. 66)

IMPORTANT ORE CONTROL/LOCUS.. HYPOGENE MINERALIZATION OCCURS IN THE GRANITE PORPHYRY AND QUARTZ MONZONITE AND OCCURS MAINLY IN AND ASSOCIATED WITH A SET OF NARROW, CLOSELY SPACED, APRALLEL QUARTZ VEINS STRIKING N75E AND DIPPING STEEPLY SOUTH. RARE LATER VEINS OF SPHALERITE AND GALENA CROSS CUT EARLIER COPPER-BEARING VEINS. COPPER MINERALIZATION WAS STRONGER IN THE DIABASE SILLS AND IN THE QUARTZ MONZONITE ADJACENT TO THE SILLS. SUPERGENE ENRICHMENT HAS AFFECTED THE UPPER PART OF THE ORE BODY AND IS IMPORTANT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

DOMINANT STRUCTURE IS A NNW TRENDING HORST CONSISTING OF QUARTZ MONZONITE, BOUNDED ON EAST AND WEST BY STEEPLY DIPPING NORMAL FAULTS. LATER DISPLACEMENTS ALSO OCCURRED ALONG THESE EARLY FAULTS.

SIGNIFICANT ALTERATION:

THE HYDROTHERMAL ALTERATION OF THE HOST ROCK CONSISTS OF THREE PHASES: A WEAK PROPYLITIC PHASE, A CLAY PHASE, AND A QUARTZ-SERICITE PHASE. THE AREAL DISTRIBUTION OF THE VARIOUS PHASES AND THEIR RELATIVE INTENSITIES ARE CLEARLY REALTED TO THE ZONING PATTERN OF THE HYPOGENE METALLIZATION.

VERY WEAK ALTERATION OF THE PROPYLITIC TYPE OCCURS IN AN OUTER ZONE, WHERE METALLIZATION ALSO IS WEAK. IT EXTENDS SOMEWHAT BEYOND WHERE METALLIZATION AND ALTERATION CAN BE RECOGNIZED IN THE FIELD.

THIS ZONE OF FEEBLE ALTERATION SURROUNDS AN AREA OF STRONGER ALTERATION. THE CLAY ALTERATION IS MOST INTENSE IN THE HIGH-PYRITE AND CHALCOPYRITE ZONES AND DIMINISHES GRADUALLY TOWARD THE NORTH AND SOUTH, WHERE MORE FRESH PLAGIOCLASE TOGETHER WITH ALTERATION PRODUCTS OF THE PROPYLITIC PHASE IS EVIDENT.

THE QUARTZ-SERICITE PHASE OF ALTERATION IS RELATED TO NUMEROUS SMALL QUARTZ-PYRITE VEINS ALONG WHICH THE WALL ROCK IS REPLACED BY QUARTZ, SERICITE, AND A LITTLE PYRITE AND ADULARIA.

THIS TYPE OF ALTERATION IS GENERAL THROUGHOUT THE MINERALIZED AREA BUT IS MOST INTENSE IN THE HIGH-PYRITE ZONE, WHERE PYRITE VEINS ARE LARGEST AND MOST NUMEROUS. THE QUARTZ-SERICITE ZONE MIGHT BE CONSIDERED AS FORMING AN INNERMOST ZONE OF ALTERATION COINCIDING WITH THE ZONE OF HIGH-PYRITE METALLIZATION, ALTHOUGH ACTUALLY IT IS SUPERIMPOSED ON THE CLAY AND PROPYLITIC PHASES WHEREVER PYRITE VEINS OCCUR IN THEM. (PETERSON, 1952, P. 130)

COMMENTS (GEOLOGY AND MINERALOGY):

A DISTINCT ZONING PATTERN. IN ONE ZONE THAT PASSES THROUGH THE SUMMIT OF PORPHYRY MOUNTAIN AND EXTENDS ACROSS THE QUARTZ MONZONITE IN A DIRECTION PARALLEL TO THE STRIKE OF THE VEINS, THE MINERALIZATION IS MAINLY PYRITE AND QUARTZ WITH VERY LITTLE CHALCOPYRITE. NORTHWARD, THE MINERALIZATION IN THE HIGH-PYRITE ZONE GRADUALLY FADES OUT WITH NO APPARENT CHANGE IN CHARACTER. ADJACENT TO THIS ZONE ON THE SOUTH, AND PARALLEL TO IT, IS A ZONE IN WHICH THERE IS LESS PYRITE AND MORE CHALCOPYRITE. THE COPPER CONTENT IN THE FORM OF HYPOGENE MINERALS IN THIS ZONE WAS ABOUT 0.3 PERCENT. MOLYBDENITE IS MOST ABUNDANT ALONG THE SOUTHERN MARGIN OF THE HIGH-PYRITE ZONE AND IN THE NORTHERN PART OF THE CHALCOPYRITE ZONE. (PETERSON, 1952, P. 129)

RARE WULFENITE OCCURS CLOSELY ASSOCIATED WITH LIBETHENITE AS SMALL PRISMS ATTACHED TO WALLS OF OPEN FRACTURES.

SURFACES OF ROCK AND WULFENITE ARE COATED WITH LIMONITE, JAROSITE, CANBYITE, AND MALACHITE (PETERSON, 1947, P. 578) RARE WULFENITE OCCURS AS SMALL, POINTED PRISMS RARELY OVER 3 MM. LONG IN THE DOME FAULT ZONE (ANTHONY, ETAL, 1977, P. 101, 141, 205).

GENERAL REFERENCES

- 1) PETERSON, N.P., GILBERT, C.M., AND QUICK, G.L., 1951, GEOLOGY AND ORE DEPOSITS OF THE CASTLE DOME AREA, GILA COUNTY, ARIZONA: USGS BULL. 971, 134 P., MAPS
- 2) PETERSON, N.P., ET AL., 1946, HYDROTHERMAL ALTERATION IN THE CASTLE DOME COPPER DEPOSIT, ARIZONA: ECON. GEOL., V. 41, P. 820-840.
- 3) PETERSON, N.P., GILBERT, C.M., AND QUICK, G.L., 1945, HYDROTHERMAL ALTERATION ON THE CASTLE DOME COPPER DEPOSIT (MIAMI, ARIZONA) (ABS.): GEOL. SOC. AMERICA BULL., V. 56, NO. 12, PT. 2, P. 1190.
- 4) PETERSON, N.P., GILBERT, C.M., AND QUICK, G.L., 1945, HYDROTHERMAL ALTERATION ON THE CASTLE DOME COPPER DEPOSIT (MIAMI, ARIZ.): ECON. GEOL., V. 40, NO. 8, P. 602.
- 5) PETERSON, N.P., 1952, CASTLE DOME COPPER DEPOSIT: ARIZ. GEOL. SOC., GUIDEBOOK SOUTHERN ARIZ., P. 128-131.
- 6) PETERSON, N.P., 1947, PHOSPHATE MINERALS IN THE CASTLE DOME COPPER DEPOSIT, ARIZONA: AMER. MINERAL., V. 32, P. 574-582
- 7) PETERSON, N.P., 1948, GEOLOGY OF CASTLE DOME COPPER DEPOSIT, ARIZONA: MIN. TECH., V. 12, NO. 2, TECH. PAPER 2302, 11 P.
- 8) PETERSON, N.P., 1948, GEOLOGY OF THE CASTLE DOME COPPER DEPOSIT, ARIZONA: A.I.M.E. TR., V. 178, P. 195-205
- 9) PETERSON, N.P. 19. GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: USGS PROF. PAPER 342, 151 P. (1962)
- 10) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 11) STEPHENS, E.C., 1950, GEOLOGY OF THE MIAMI INSPIRATION AND CASTLE DOME DEPOSITS, GILA COUNTY, ARIZONA: PRIVATE REPORT.
- 12) PETERSON, HAMILTON AND MEYERS 1959 P. 259 MINING ENG. ARTICLE 1976-7 ?

RECORD 00142

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030459
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 79 12

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-52-58N 110-00-20W

TWP..... 05S 06S
RANGE..... 19E 20E
MERIDIAN. G & SR

ALTITUDE.. 5000 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG AU MO CU

MAIN COMMOD..... PB
MINOR COMMOD..... AG AU CU

MAIN ORE MINERALS:
CERUSSITE, GALENA

MINOR ORE MINERALS:
WULFENITE, ARGENTITE, ANGLESITE, MALACHITE, AZURITE, CHRYSOCOLLA, PLUMBOJAROSITE, SPHALERITE, CHALCOPYRITE,
ANGLESITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PB EST	9500	LBS		1915-1930	

SOURCE OF INFORMATION (PRODUCTION).. ELSING AND HEINEMAN, 1936, P. 93

PRODUCTION COMMENTS.... 105,000 AG AND \$710,000 AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ. TERT
HOST ROCK TYPES..... PALEOZOIC LIMESTONES, HORSE MOUNTAIN VOLCANICS, DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (?)
IGNEOUS ROCK TYPES..... TERTIARY VOLCANICS, AND INTRUSIVE DIKES

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... QUARTZ FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. FAULT ZONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONES - GRAND REEF, IRON CAP ETC.

SIGNIFICANT ALTERATION:
SILICIFICATION

COMMENTS (GEOLOGY AND MINERALOGY):

DISTRICT ZONING - COPPER RICH AREA FROM LANDSMAN CAMP TO COBRE GRANDE MTN. NORTH THROUGH THE HEAD CENTER - IRON CAP AREA IS A LEAD - ZINC ZONE. SOUTHEAST OF THERE AT GRAND REEF, DOGWATER AND TENSTRIKE, BEN HUR AND LEAD KING IS A SOUTHERN LEAD - ZINC ZONE. DISTRICT MINERALIZATION IS PROBABLY RELATED TO NORTH TO NORTH - NORTHWEST TRENDING RHYOLITE AND QUARTZ MONZONITE DIKES WHICH CUT THE SANTA TERESA GRANITE AND HORSE MOUNTAIN VOLCANICS (GALIURO VOLCANICS EQUIVALENT). AGE OF MINERALIZATION IS PROBABLY EARLY MIOCENE. (KEITH, PERS. COMM.)

GENERAL REFERENCES

- 1) SIMONS, FRANK S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP
- 2) ROSS, C.P. (1925) A GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P.
- 3) DENTON, T.C. (1947) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL

- COUNTIES, ARIZONA; UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57P.
- 5)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 6)ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 7)SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 8)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 9)SIMONS, F.S. 2. DEVITRIFICATION . 180, P. 230-238.
- 9)SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 10)SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 11)CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES 6 (1), P. 115-131.
- 12)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION; ARIZ. BUR. MINES BULL 140, 112 P.
- 13)DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 14)WILSON, E.D., 1950, ARAYAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 15)CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 16)REHRIG, W.A., AND REYNOLDS, S.J. IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939 USGS MF 238 USGS PROF PAPER 655-D USGS BULL 1027-N USGS WSP 450

RECORD 00143

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030456
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... BROOKER T. WASHINGTON CLAIM (?)

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-58-35N 110-20-15W

TWP..... 05S
RANGE.... 02E
SECTION.. 30
MERIDIAN. 6 & SR

ALTITUDE.. 5000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH OF HEAD CENTER MINE

LOCATION COMMENTS: NW 1/4 (LAT AND LONG. GENERAL)

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU MO

MAIN ORE MINERALS:
GALENA

MINOR ORE MINERALS:
MALACHITE, CHRYSOCOLLA, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FRACTURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N50W
DIP OF OREBODY..... 80 SW

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 20 FT

COMMENTS(DESCRIP. OF WORKINGS):
20 FT SHAFT AND PIT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN
HOST ROCK TYPES..... HORQUILLA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (?)
IGNEOUS ROCK TYPES..... RHYOLITE DIKES NEARBY

AGE OF MINERALIZATION..... TERT. (?)

PERTINENT MINERALOGY..... QUARTZ AMETHYST

IMPORTANT ORE CONTROL/LOCUS.. ALONG FRACTURE IN HORQUILLA LIMESTONE

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964 GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA. USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 143
- 2) ARIZ. BUR. MINES FILE DATA
- 3) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P.
- 4) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA, U.S. BUR. MINES REPT. INV. 4007.
- 5) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA; UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 8) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 9) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, USGS J. OF RES 6 (1), P. 115-131.
- 10) DAVIS W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 11) WILSON, E.D., 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51

- 12) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 13) REHRIG, W.A., AND REYNOLDS, S.J., IN PRESS, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS. M.F. 939, USGS MF 238, USGS PROF. PAPER 655-D, USGS BULL 1027-N, USGS WSP 450

RECORD 00144

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030460
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... DOGWATER MINE
SYNONYM NAME..... NEAR SILVER CABLE MINE

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLUNDYKE

LATITUDE LONGITUDE
32-52-22N 110-18-50W

TWP..... 06S
RANGE.... 20E
SECTION.. 33
MERIDIAN. G & SR

ALTITUDE.. 3900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE S OF GRAND REEF MINE

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO

MAIN ORE MINERALS:
GERUSSITE, GALENA

MINOR ORE MINERALS:
WULFENITE, ARGENTITE, ANGLESITE, MALACHITE, AZURITE, CHRYSOCOLLA, PLUMBOJAROSITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN IN BRECCIATED FAULT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 5 FT
STRIKE OF OREBODY.... N12W
DIP OF OREBODY..... 80SW

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
DOGWATER WORKING INCLUDE S10-25E ADIT ABOUT 140 FT LONG WITH A SMALL STOPE TO THE SURFACE AND A SHORT WINZE.
SILVER CABLE MINE WAS OPENED BY AN ADIT A FEW HUNDRED FEET LONG WITH STOPES ABOVE. THE SILVER CABLE ADIT IS 250 FT NNE OF MAIN ADIT

PRODUCTION
YES
SMALL PRODUCTION

PRODUCTION COMMENTS..... 160 TONS OF CONCENTRATES; 117 TONS OF ORE FROM GRAND REEF, ARAVAIPA AND DOGWATER.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT - PREC
HOST ROCK TYPES..... HORSE MOUNTAIN VOLCANICS PINAL SCHIST
AGE OF ASSOC. IGNEOUS ROCKS.. 25 M.Y. TERT.
IGNEOUS ROCK TYPES..... HORSE MOUNTAIN VOLCANICS, GODDWIN CANYON QUARTZ MONZONITE (?)
AGE OF MINERALIZATION..... 25 M.Y. (REHRIG AND REYNOLDS IN PRESS)
PERTINENT MINERALOGY..... LIMONITE STAINED OUTCROP; GANGUE IS QUARTZ, CHALCEDONY, AND PURPLE-WHITE FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. DOGWATER VEIN CONSISTS OF SILICIFIED FAULT BRECCIA OF GRAND REEF STRUCTURE. SILVER CABLE ADIT IS IN FAULT ZONE BETWEEN SANTA TERESA GRANITE AND PINAL SCHIST WHERE FAULT ZONE IS CUT BY NARROW, FINE GRAINED PORPHYRITIC DIKES PARALLELING THE FAULT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
IS FAULT OF GRAND REEF STRUCTURE

SIGNIFICANT ALTERATION:
STRONG ALTERATION TO WHITE CLAY MINERALS

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE IS ABUNDANT IN VEINS AS MUCH AS AN INCH THICK AND IN VUGS; NO SOURCE OF MO IS APPARENT

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 147-8.
- 2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P., P. 79, 85.
- 3) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 8) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 9) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIARO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA: U.S.G.S. J. OF RES. V6, NO. 1, P. 115-131.
- 10) DAVIS W.M. 14. (AND BROOKS, B.) THE GALIARO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 11) WILSON E.D., 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 61.
- 12) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 13) REHRIG, W.A., AND REYNOLDS, S.J., IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939 USGS MF 238 USGS PROF PAPER 655-D USGS BULL 1027-N USGS WSP 450

RECORD 00145

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030453
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... FAIRVIEW PROSPECT

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE, ARIZ.

LATITUDE LONGITUDE
32-58-02N 110-21-45W

TWP..... 05S
RANGE.... 19E
SECTION.. 25 26
MERIDIAN. G & SR

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4000 FT NW OF ARAVAIPA

LOCATION COMMENTS: 1500 FT N OF S EDGE OF SECTIONS, UNSURVEYED, ON LINE BETWEEN SECTIONS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB MO AU AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
MINOR PRODUCTS.. AG AU

MAIN COMMOD..... PB AG AU
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
CHRYSOCOLLA, ANGLESITE, CERUSSITE

MINOR ORE MINERALS:
WULFENITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... ATHLETIC MINING CO. (CHARLES BUSH AND PAUL MORRILL, 1950)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FRACTURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 250 FT

MAX WIDTH..... 3 FT

STRIKE OF OREBODY.... N

DIP OF OREBODY..... 80 E

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

PROSPECT SHAFT, 2 COMPART, DEPTH UNKNOWN; OPEN CUT

PRODUCTION

YES

SMALL PRODUCTION

PRODUCTION COMMENTS.... 5 CARLOADS PB-AG-AU ORE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... TURKEY TRACK ANDESITE OF HORSE MOUNTAIN VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT

IGNEOUS ROCK TYPES..... HORSE MOUNTAIN VOLCANICS MAYBE EQUIVALENT TO GALUIRD VOLC.

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... VEIN IS 10-14 INCHES THICK IN OPEN CUT WITH AMETHYST, QUARTZ, SPECULAR HEMATITE

IMPORTANT ORE CONTROL/LOCUS.. FRACTURE ZONE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

VERY SCARCE WULFENITE

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964 1. GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA. USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 133
- 3) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P.
- 4) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 5) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA; UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) ARIZ. BUR. MINES FILE DATA
- 8) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 9) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 10) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES. 6 (1), P. 115-131.
- 11) DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 12) WILSON, E.O., 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 13) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 14) REHRIG, W.A., AND REYNOLDS, S.J., IN PRESS, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939 USGS MF 238, USGS PROF. PAPER 655-D, USGS BULL 1027-N, USGS WSP 450

RECORD 00146

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030461
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS.
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... GRAND REEF MINE
SYNONYM NAME..... GRAND REEF AREA INCLUDES GRAND REEF, ARAVAIPA, DOG WATER, AND SILVER CABLE CLAIMS

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-53-00N 110-58-58W

TWP..... 06S
RANGE.... 20E
SECTION.. 29
MERIDIAN. G & SR

ALTITUDE.. 3950 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN LAUREL CANYON 4 MILES NE OF KLONDYKE BY ROAD

LOCATION COMMENTS: 4NE 1/4 SEC. 29

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU AU ZN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB CU
MINOR PRODUCTS.. ZN AG AU

MAIN COMMOD..... PB AG ZN CU
MINOR COMMOD..... AU MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... NO

MAIN ORE MINERALS:

GALENA, SPHALERITE, CHALCOPYRITE

MINOR ORE MINERALS:

WULFENITE, ANGLESITE, CERUSSITE, MALACHITE, AZURITE, CHRYSOCOLLA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED BY AMERICAN ZINC, LEAD, AND SMELTING CO. OF ST. LOUIS, MO. (IN 1950)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 770 FT

MAX LENGTH..... 120 FT

MAX WIDTH..... 30 FT

STRIKE OF OREBODY.... N12W

DIP OF OREBODY..... 85W

COMMENTS(DESCRIPTION OF DEPOSIT):

BRECCIA FORMS A REEF 100 FT WIDE BY 200 FT HIGH STRIKING N12W AND DIPPING FROM 70 W TO ALMOST VERTICAL. THE MAIN ORE SHOOT ON ADIT LEVEL WAS 120 FT LONG BY 15-30 FT WIDE; AT 70 FT BELOW ADIT WAS 40-50 FT LONG BY 10-15 FT WIDE; SLOPE NEAR NORTH END MAY HAVE BEEN 200 FT LONG.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 300 FT

LENGTH OF WORKINGS..... 4000 FT

COMMENTS(DESCRIP. OF WORKINGS):

BETWEEN 1890-1900 JW MACKAY OPENED MINE TO DEPTH OF 300 FT. HAULAGE LEVEL IN 1950 WAS ADIT 1400 FT LONG AND WINZE EXTENDED (IN 1950) 300 FT BELOW ADIT WITH 3 LEVELS OF DRIFTS AT 100 FT INTERVALS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	30		TONS	1915-1920	40.9% PB, 2.83% CU, 1.4% ZN, 20 OZ AG/T, TRACE AU ROSS
16 CONC. EST	2.613		TONS	1915-1920	
17 ORE EST	40		TONS	1915-1964	8-9% PB, 1-2% CU, 7 OZ AG/T
18 ORE ACC	10.4		TONS	1920-1943	

19	CU	ACC	169.57	LBS	1920-1943
20	PB	ACC	1980.12	LBS	1920-1943
21	AG	ACC	64.85	OZ	1920-1943
22	AU	ACC	.091	OZ	1920-1943

SOURCE OF INFORMATION (PRODUCTION).. SIMONS 1964

PRODUCTION COMMENTS.... 1915-1920 SOME ORE AND CONCENTRATES SHIPPED; INACTIVE 1921-1929; 1929-31 PRODUCED MAINLY OXIDIZED ORE. RANKED 2ND AS PRODUCER OF LEAD IN ARIZONA IN 1931. (WILSON, 1950)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. PREC.
HOST ROCK TYPES..... HORSE MOUNTAIN VOLCANICS AND PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. 25 M.Y.
IGNEOUS ROCK TYPES..... HORSE MOUNTAIN VOLCANICS, GOODWIN CANYON QUARTZ MONZONITE (?)

AGE OF MINERALIZATION..... 25 M.Y. (REHRIG AND REYNOLDS IN PRESS)

PERTINENT MINERALOGY..... QUARTZ AND FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. IN SILICIFIED BRECCIA ALONG THE GRAND REEF FAULT WITHIN RHYOLITE PORPHYRY WHICH IS INTRUDED BY GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
GRAND REEF FAULT

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 146-147.
- 2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P., P. 82.
- 3) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 5) KING, R.R., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 235, #16.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 8) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 9) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES. 6 (1), P. 115-131. 10) AZ. BUR. GEOL., FILE DATA.
- 11) DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 12) WILSON, E.D., 1950, ARAVAIPA DISTRICT IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 13) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 14) REHRIG, W.A., AND REYNOLDS, S.J. IN PRESS, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939 USGS MF 238 USGS PROF PAPER 655-D USGS BULL 1027-N USGS MSP 450

RECORD 00147

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030458
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... TONIA CLAIM

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-58-40N 110-19-40W

TWP..... 05S
RANGE.... 20E
SECTION.. 30
MERIDIAN. G AND S.R.

ALTITUDE.. 5000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON CREST AND WEST SIDE OF RIDGE S OF IRON CAP MINE

LOCATION COMMENTS: NE 1/4 (LAT AND LONG GENERAL)

COMMODITY INFORMATION

COMMODITIES PRESENT..... MN PB CU MO

MAIN ORE MINERALS:
JOHANNSENITE, GALENA, SPHALERITE

MINOR ORE MINERALS:
ANGLESITE, WULFENITE, COPPER STAIN CHALCOPYRITE, PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
LS REPLACEMENT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
ADITS, PITS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB, DEV, MISS
HOST ROCK TYPES..... BOLSA QUARTZITE, MARTIN FM, ESCABROSA LS.

PERTINENT MINERALOGY..... QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. CONTACT OF BOLSA QUARTZITE AND MARTIN FORMATION OR ESCABROSA LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MAP SHOWS IRON CAP FAULT (THRUST) NEARBY

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964 GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 144
- 2) ARIZ. BUR. GEOL. FILE DATA
- 3) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P.
- 4) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 5) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 8) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AND KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 6, P. 1049-1056 (1963)
- 9) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES. 6 (1), P. 115-131.
- 10) DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 11) WILSON E.D., 1950 ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 12) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 13) REHRIG, W.A., AND REYNOLDS, S.J. IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939, USGS MF 238, USGS PROF. PAPER 655-D, USGS BULL. 1027-N, USGS WSP 450

RECORD 00148

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W016113
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LONE STAR-SAFFORD
SYNONYM NAME..... SAFFORD DISTRICT

MINING DISTRICT/AREA/SUBDIST. LONE STAR DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500

LATITUDE LONGITUDE
32-50 TO 59 N 109-30 TO 40W

TWP..... 05S 07S
RANGE.... 26E 28E
MERIDIAN. G&SR

ALTITUDE.. 4000-6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 8 MILES NE OF SAFFORD

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU PB ZN

MAIN COMMOD..... CU
MINOR COMMOD..... MO BU AG

MAIN ORE MINERALS:

CHALCOPYRITE, PYRITE, CHALCOCLITE

MINOR ORE MINERALS:

MOLYBDENITE, CHRYSOCULLA, BORNITE GALENA SPHALERITE, COVELLITE, MALACHITE, BROCHAYTITE CUPRITE TETRAHEDRITE,
TENORITE, TURQUOISE, GOLD, ANTIFERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... DISCOVERY OF SMALL VEINS IN 1886. 1949 CONSOLIDATED COPPER MINES AND AMERICAN METAL CO.
 DRILLED AND ABANDONED; IN 1955 BEAR CREEK MIN. CO. (KENNECOTT) REDRILLED AND DISCOVERED ORE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

COPPER PORPHYRY

FORM/SHAPE OF DEPOSIT: 4 OR 5 SMALL PORPHYRY SYSTEMS IN A NORTHWEST ZONE

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 15 MILES BY 2 MILES WIDE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 800 FT

LENGTH OF WORKINGS..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):

1886-1907 SEVERAL SMALL SHAFTS LESS THAN 500 FT DEEP; FROM 1958-62 ADDITIONAL EXPLORATION OF 804 FT SHAFT AND
 1500 FT OF DRIFING AND 1500 FT OF CROSSCUTTING (ROBINSON AND COOK, 1966)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	FST 110	LBS		1886-1910	

SOURCE OF INFORMATION (PRODUCTION).. ROBINSON AND COOK, 1966

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... EOCENE (58 M.Y.)
 HOST ROCK TYPES..... QUARTZ BIORITE STOCKS, ANDESITE FLOWS AND BRECCIAS, QUARTZ MONZ.

AGE OF ASSOC. IGNEOUS ROCKS.. EOCENE (58 M.Y.)
 IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY STOCKS

AGE OF MINERALIZATION..... EOCENE (53 M.Y.), COOK AND ROBINSON

IMPORTANT ORE CONTROL/LOCUS.. NORTHEAST FRACTURES AND DIKES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE NORTHWEST STRIKING BUTTE FAULT DIPS 65-80 SW AND PARALLELS THE LENGTH OF THE DISTRICT WITH PREMINERAL ROCKS

EXPOSED ON THE NORTHEAST, UP THROWN BLOCK. IT HAS BETWEEN 3000 AND 4000 FT OF VERTICAL DISPLACEMENT. OTHER NORTHWEST FAULTS HAVE OFFSET THE SANCHEZ DEPOSIT AND CONTROLLED DISTRIBUTION OF OXIDE AND SUPERGENE ORE AT THE KENNECOTT DEPOSIT.

AT INDIVIDUAL DEPOSITS THE MOST IMPORTANT STRUCTURES STRIKE NE TO ENE AS THESE FRACTURES AND DIKES ARE MINERALIZED. (DUNN, 1978)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT: SECONDARY ENRICHMENT

COMMENTS (GEOLOGY AND MINERALOGY):

THE SAFFORD DEPOSIT IS COVERED BY YOUNGER VOLCANIC ROCKS WHICH OVERLIE A LEACHED CAPPING 0-950 FT. THICK (AVE. 440 FT). OXIDE, MIXED OXIDE-SULFIDE, AND SULFIDE ORES ARE PRESENT. PYRITE IS MOST ABUNDANT PRIMARY SULFIDE.

GENERAL REFERENCES

- 1) ROBINSON, R.F., AND COOK, ANNAN, 1966, THE SAFFORD COPPER DEPOSIT, LONE STAR MINING DISTRICT, GRAHAM COUNTY, ARIZONA, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: UNIVERSITY OF ARIZONA PRESS, P. 250-266.
- 2) DUNN, P.G., 1978, REGIONAL STRUCTURE OF THE SAFFORD DISTRICT, ARIZONA, IN PROC. PORPHYRY COPPER SYMP., JENNEY, J.P., AND HAUCK, H.R., EDS.: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 9-15.
- 3) BLAKE, D.W., 1971, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE SAN JUAN MINE AREA, GRAHAM COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 85 P.
- 4) COOK, ANNAN, AND ROBINSON, R.F., 1962, GEOLOGY OF KENNECOTT COPPER CORPORATION'S SAFFORD COPPER DEPOSIT: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOGOLLON RIM, EAST-CENTRAL ARIZONA.
- 5) COOK, ANNAN, AND SMYTH, S.K., 1959, THE DRILLING OF KENNECOTT COPPER CORPORATION'S SAFFORD PROJECT, GRAHAM COUNTY, ARIZONA, WITH EMPHASIS ON CORE RECOVERY: MIN. INDUSTRIES EXPT. STA. BULL., COLLEGE MIN. INDUSTRIES, PENNSYLVANIA STATE UNIV.
- 6) HORSNAIL, R.F., 1978, SAFFORD DISTRICT, GRAHAM COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: J. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 241-243.
- 7) DAVIDSON, E.S., 1961, 1961, FACIES DISTRIBUTION AND HYDROLOGY OF INTERMONTANE BASIN FILL, SAFFORD BASIN, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1961: U.S. GEOL. SURVEY PROF. PAPER 424-C, P. 151-153.
- 8) ANDREASON, G.E. 3. (AND GALOT, G.A.) AEROMAGNETIC MAP OF SAFFORD AND VICINITY, GRAHAM AND GREENLEE COUNTIES, ARIZONA: USGS OPEN-FILE REP., SCALE 1:125,000 (1966)
- 9) YARDER, W., IN PROGRESS GEOLOGY OF SUL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 10) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 11) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES AND ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 5) BOLIN, D.S., 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 186 P.
- 6) DEWHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 7) VALENTINE, IN PROGRESS PHD THESIS IN PROGRESS, UNIV. UTAH.

RECORD 00149

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030455
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LOS PABRES
SYNONYM NAME..... PHELPS DODGE

MINING DISTRICT/AREA/SUBDIST. LONE STAR (SAFFORD) DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAFFORD, ARIZ.

LATITUDE LONGITUDE
32-58- N 109-41- W

UTM NORTHING UTM EASTING UTM ZONE NO
3649000. 623000. +12

TWP..... 05S
RANGE..... 26E
SECTION.. 28
MERIDIAN. G & SR

ALTITUDE.. 4100 FT

LOCATION COMMENTS: LOCATION GENERALIZED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PRESENT/LAST OWNER..... PROPERTY IS ACTIVE
 PHELPS DODGE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 COPPER PORPHYRY (DISSEM)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE OR USE
1	SULFIDE ORE EST	400000	TONS	1977	0.72% CU
2	CU EST	2988	TONS	1976	20.2% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREGGEELEY, 1978 P. 86; KEITH, UNPUB. DATA, AZ. BUR. GEOL.

GENERAL REFERENCES

- 1) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 4) KING, R.B., 1969, MOLYBENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 5) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 6) BOLIN, D.S., 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 186 P.
- 7) DEWHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 8) VALENTINE, IN PRESS, PHD THESIS IN PROGRESS, UNIV. UTAH.

RECORD 00150

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030454
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... SAN JUAN MINE
MINING DISTRICT/AREA/SUBDIST. LONE STAR (SAFFORD) DIST
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAFFORD, ARIZ.

LATITUDE LONGITUDE
32-56-50N 109-39-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3646000. 626000. +12

TWP..... 06S 05S
RANGE.... 26E 26E
SECTION.. 02 35
MERIDIAN. G6SR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILES NORTH OF SAFFORD

LOCATION COMMENTS: LINE BETWEEN SECTIONS AND ADJACENT 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG AU

MAIN COMMOD..... CU
MINOR COMMOD.... AG AU

MAIN ORE MINERALS:
PYRITE AND CHALCOPYRITE

MINOR ORE MINERALS:
AZURITE, BROCHANTITE, CHRYSOCOLLA, CUPRITE, CHALCOCITE, MALACHITE, ANTTERITE(?), AND MELACONITE (TENORITE)

EXPLORATION AND DEVELOPMENT
PRESENT/LAST OWNER..... PRODUCERS MINERALS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY (DISSEM.), A FRACTURE-FILLING

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 425 FT
LENGTH OF WORKINGS..... 500 FT

COMMENTS(DESCRIP. OF WORKINGS):

DEVELOPMENT INCLUDED SHAFTS OF 130, 325, AND 425 FT AND TUNNELS OF 90, 100, AND 300 FT (STEVENS, 1904, P. 376)

PRODUCTION

YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 CU ACC		110.858	LBS	1905	STEVENS, 1904
2 AG ACC		.223	OZ	1905	STEVEN, 1904
3 AU ACC		.006	OZ	1905	STEVENS, 1904

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC		289		1967-1968	
16 CU ACC		315.8	LBS	1967-1968	

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. MINES FILE DATA

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE OR USE
1 OXIDE ORE	EST	20000	TONS		0.50% CU
2 CU	EST	48	TONS	1976	30.2% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1978, P. 87; KEITH, UNPUB. DATA, AZ. BUR. MINES

COMMENTS (RESERVES/POT RESOURCES).. UNPUBLISHED ESTIMATE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... EOCENE
 HOST ROCK TYPES..... SNA JUAN STOCK (QUARTZ MONZONITE PORPHYRY, GRANODIORITE PORPHYRY AND GRANODIORITE)

AGE OF ASSOC. IGNEOUS ROCKS.. EOCENE
 IGNEOUS ROCK TYPES..... SAN JUAN QUARTZ MONZONITE PORPHYRY STOCK

AGE OF MINERALIZATION..... EOCEN (53 M.Y. ROBINSON AND COOK, 1966, SERICITE, K-AR)

PERTINENT MINERALOGY..... LIMONITE BOXWORKS HEMATITE

IMPORTANT ORE CONTROL/LOCUS.. MOST MINERALIZATION IS CONFINED TO VEINS OR FRACTURES IN QUARTZ MONZONITE PORPHYRY WITH SOME DISSEMINATED SULFIDES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SAN JUAN SHEAR ZONE IS THREE THOUSAND FT. OXIDE AND 9-10,000 FT LONG WITH 450-65E STRIKE AND VERTICAL OR STEEP NORTH DIP. SHEAR ZONES OF LESS INTENSITY STRIKE NW, E-W, AND NNE INTERSECT THE SAN JUAN SHEAR ZONE AND MAY HAVE HELPED LOCALIZE THE DEPOSIT.

SIGNIFICANT ALTERATION:

POTASSIC, PHYLIC, ARGILLIC AND PROPYLITIC ALTERATION TYPES ARE FOUND IN SUCCESSIVE ZONES OUTWARD FROM THE STOCK. THE CORE ZONE POTASSIC ALTERATION CONTAINS HIGH CHALCOPYRITE TO PYRITE RATIOS.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE PRECAMBRIAN ROCKS OF ARIZONA HAVE DEVELOPED A REGIONAL NORTHEASTERLY GRAIN. AFTER THE CRETACEOUS (?) ANDESITE AND AGGLOMERATE WERE EXTRUDED IN THE SAFFORD AREA, THE NORTHEAST SHEARING AND FAULTING TOOK PLACE IN EARLY TERTIARY TIMES ALONG THE LONE STAR AND SAN JUAN SHEAR ZONES WERE PROBABLY A CONTINUATION OF MOVEMENT ALONG THIS OLD DIRECTION OF WEAKNESS. IN THE EOCENE PERIOD THE LONE STAR AND THE SAN JUAN STOCKS WERE INTRUDED IN THE STRONGLY SHEARED VOLCANIC ROCKS IN BOTH THESE ZONES. AS THE NORTHEAST SHEARING CONTINUED, PLUGS AND DIKES WERE INTRUDED ALONG THE SAME DIRECTION, AND THE FORMATION OF A VOLCANIC VENT TOOK PLACE. RECURRING ADJUSTMENT ALSO RESULTED IN THE SHEARING OF THE INTRUSIVE BODIES AND VOLCANIC VENT. LATER, SOME OF THE DIKES AND PLUGS AND ADJOINING PORPHYRITIC ANDESITE WERE ALTERED AND MINERALIZED BY ORE-FORMING SOLUTIONS. THE LONE STAR STOCK ITSELF WAS NOT, HOWEVER, APPRECIABLY SHEARED, FRACTURED, ALTERED, OR MINERALIZED BY THESE CRUSTAL ADJUSTMENTS.

OXIDATION, LEACHING, AND ENRICHMENT THEN TOOK PLACE, TO BE FOLLOWED AGAIN BY ONE OR MORE PERIODS OF UPLIFT AND OXIDATION OF THE ENRICHED ZONES. THE MAJOR PART OF THE UPLIFT IS CONSIDERED TO HAVE TAKEN PLACE ALONG THE NORTHWESTERLY TRENDING BASIN-AND-RANGE TYPE BUTTE FAULT. (ROBINSON AND COOK, 1966)

GENERAL REFERENCES

- 1) ROBINSON, R.F., AND COOK, ANNAN, 1966, THE SAFFORD COPPER DEPOSIT, LONE STAR MINING DISTRICT, GRAHAM COUNTY, ARIZONA, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: UNIVERSITY OF ARIZONA PRESS, P. 250-266.
- 2) DUNN, P.G., 1978, REGIONAL STRUCTURE OF THE SAFFORD DISTRICT, ARIZONA, IN PROC. PORPHYRY COPPER SYMP., JENNEY, J.P., AND HAUCK, H.R., EDS.: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 9-15
- 3) BLAKE, D.W., 1971, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE SAN JUAN MINE AREA, GRAHAM COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 85P.
- 4) COOK, ANNAN, AND ROBINSON, R.F., 1962, GEOLOGY OF KENNECOTT COPPER CORPORATION'S SAFFORD COPPER DEPOSIT: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOGOLLON RIM, EAST-CENTRAL ARIZONA
- 5) COOK, ANNAN, AND SMYTH, S.K., 1959, THE DRILLING KENNECOTT COPPER CORPORATION'S SAFFORD PROJECT, GRAHAM

COUNTY, ARIZONA, WITH EMPHASIS ON CORE RECOVERY: MIN. INDUSTRIES EXPT. STA. BULL., COLLEGE MIN. INDUSTRIES, PENNSYLVANIA STATE UNIV.

6)MORSNAIL, R.F., 1978, SAFFORD DISTRICT, GRAHAM COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY; THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: J. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 241-243.

7)DAVIDSON, E.S., 1961, FACIES DISTRIBUTION AND HYDROLOGY OF INTERMONTANE BASIN FILL, SAFFORD BASIN, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1961: U.S. GEOL. SURVEY PROF. PAPER 424-C, 151-153.

8)ARIZ. BUR. MINES FILE DATA.

9)ANDREASON, G.E. 3. (GALOT, G.A.) AEROMAGNETIC MAP OF SAFFORD AND VICINITY, GRAHAM AND GREENLEE COUNTIES, ARIZONA: USGS OPEN-FILE REP., SCALE 1:125,000 (1966)

10)YARDER, W., IN PRESS, GEOLOGY OF SCL PROSPECT, LONE STAR DISTRICT, GRAHAM CO. ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.

11)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.

12)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

13)VALENTINE, IN PRESS, PH.D. THESIS IN PROGRESS, UNIV. UTAH.

14)STEVENS, H.J., 1904, THE COPPER HANDBOOK, V. IV: HAUGHTON, MICHIGAN, 779 P., P. 376. (SAN JUAN MINE)

RECORD 00151

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030463
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... SANCHEZ DEPOSIT
SYNONYM NAME..... CARPENTER

MINING DISTRICT/AREA/SUBDIST. LONE STAR (SAFFORD) DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAFFORD, ARIZ.

LATITUDE LONGITUDE
32-53-00N 109-32-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3639000. 636000. +12

TWP..... 06S
RANGE..... 27E
SECTION.. 25 26
MERIDIAN. G & SR

ALTITUDE.. 3600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 1 MILE NORTH OF SANCHEZ UNIT.

LOCATION COMMENTS: APPROXIMATE LOCATION, UNSURVEYED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE

PRESENT/LAST OWNER..... INSPIRATION

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY (DISSEM.)

PRODUCTION

YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE	REMARKS
15 ORE ACC	.173	TONS		1969-1972		TEST
16 CU ACC	21.4	LBS		1969-1972		TEST

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. MINES FILE DATA

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 OXIDE ORE EST	9362	TONS		1977	0.13% CU
2 CU EST	438	TONS		1976	20.2% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1978 P. 85

GENERAL REFERENCES

- 2) DUNN, P.G., 1978, REGIONAL STRUCTURE OF THE SAFFORD DISTRICT, ARIZONA, IN PROC. PORPHYRY COPPER SYMP., JENNEY, J.P., AND HAUCK, H.R., EDS.: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 9-15.
- 3) ROBINSON, R.F., AND COOK, ANNAN, 1966, THE SAFFORD COPPER DEPOSIT, LONE STAR MINING DISTRICT, GRAHAM COUNTY, ARIZONA, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: UNIVERSITY OF ARIZONA PRESS, P. 250-266.
- 4) BLAKE, D.W., 1971, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE SAN JUAN MINE AREA, GRAHAM COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 85 P.
- 5) COOK, ANNAN, AND ROBINSON, R.F., 1962, GEOLOGY OF KENNECOTT COPPER CORPORATION'S SAFFORD COPPER DEPOSIT: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOGOLLON RIM, EAST-CENTRAL ARIZONA
- 6) COOK, ANNAN, AND SMYTH, S.K., 1959, THE DRILLING OF KENNECOTT COPPER CORPORATION'S SAFFORD PROJECT, GRAHAM COUNTY, ARIZONA, WITH EMPHASIS ON CORE RECOVERY: MIN. INDUSTRIES EXPT. STA. BULL., COLLEGE MIN. INDUSTRIES, PENNSYLVANIA STATE UNIV.
- 7) HORSNAIL, R.F., 1978, SAFFORD DISTRICT, GRAHAM COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: J. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 241-243.
- 8) DAVIDSON, E.S., 1961, FACIES DISTRIBUTION AND HYDROLOGY OF INTERMONTANE BASIN FILL, SAFFORD BASIN, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1961: U.S. GEOL. SURVEY PROF. PAPER 424-C, P. 151-153.
- 9) ANDREASON, G.E. 3. (AND GALOT, G.A.) AEROMAGNETIC MAP OF SAFFORD AND VICINITY, GRAHAM AND GREENLEE COUNTIES, ARIZONA: USGS OPEN-FILE REP., SCALE 1:125,000 (1966)
- 10) YARDER, W., IN PRESS, GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 11) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER

INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.

12)KING, R.B.. 1969. MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

13)LAINE, R.P.. 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.

14)BOLIN, D.S.. 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 186 P.

15)DEWHURST, J.A.. 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.

16)VALENTINE, IN PRESS, M.S. THESIS IN PROGRESS, UNIV. UTAH.

RECORD 00152

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M002194
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... SILVER COIN MINE
SYNONYM NAME..... QUINN

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-50-16N 113-01-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3633325. 567550. +12

TWP..... 07S
RANGE.... 20E
SECTION.. 11
MERIDIAN. G6SR

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES E OF KLONDYKE

LOCATION COMMENTS: E 1/2 SEC 11

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD AG

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB

MAIN COMMOD..... PB
MINOR COMMOD..... MD AG

MAIN ORE MINERALS:
GALENA, ANGLESITE, CERRUSSITE

MINOR ORE MINERALS:
WULFENITE, PLUMBOJAROSITE (?), SPARSE COPPER STAIN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... VERDUN MINERS CO., VILLCOX AZ. 10/1942

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FAULT BRECCIA VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N30W

DIP OF OREBODY..... STEEP E

DESCRIPTION OF WORKINGS

SURFACE

DEPTH OF WORKINGS BELOW SURFACE. 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT 105 FT DEEP, ADIT CONNECTING WITH SHAFT AND A LEVEL 40 FT BELOW ADIT LEVEL (SIMONS); TUNNEL 180 FT LONG
WITH CROSSCUTS OFF IT AND WINZE 50 FT DEEP AT END OF TUNNEL, AND SHAFT MORE THAN 200 FT DEEP CONNECTING WITH
WINZE (ROSS)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	.294	TONS	1927-1957	
16 CU	ACC	.733	LBS	1927-1957	
17 PB	ACC	62.103	LBS	1927-1957	
18 AG	ACC	.374	OZ	1927-1957	
19 AU	ACC	.003	OZ	1927-1957	

SOURCE OF INFORMATION (PRODUCTION).. SIMONS 1964 P. 148; AZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... SMALL LOTS OF ORE HAD BEEN SHIPPED UP TO 1925. AN UNKNOWN TONNAGE WAS PRODUCED IN 1947.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES - CEN. (CRET)

HOST ROCK TYPES..... BUFORD CANYON FORMATION VOLCANIC MEMBER POSSIBLY CORR. WITH WILLIAMSON CANYON

VOLCANICS RHYOLITE DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. MES -CEN
 IGNEOUS ROCK TYPES..... RHYOLITE

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... RIBBON BANDED AND DRUSY QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. VEIN IS ALONG A FAULT BETWEEN A SMALL PLUG OF BIOTITE QUARTZ LATITE (?) TO THE NORTH
 AND THE VOLCANIC MEMBER OF THE BUFORD CANYON FORMATION TO THE SOUTH. WALLROCK EXPOSES SLIVERS OF PINAL SCHIST.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT STRIKES N70E, DIPS STEEPLY NORTH AND HAS BEEN TRACED ALONG STRIKE FRO ABOUT 700 FT, IT MAY BE A
 SOUTHWESTERLY EXTENSION OF QUARTZ HILL FAULT.

SIGNIFICANT ALTERATION:

THOROUGHLY SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):

SO CALLED VANADATE WAS PROBABLY WULFENITE (ROSS, 1925, P. 85)

GENERAL REFERENCES

- 1) SIMONS, FRANK S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP P. 148.
- 2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA, U.S. GEOL. SURVEY BULL. 763, 120 P., P. 82, 85, 87
- 3) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA; UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 6) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 7) MINING WORLD JAN; 1948
- 8) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 9) AZ. BUR. GEOL. FILE PAGE
- 10) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 11) CREASEY, S.C. AND M.H. KRIEGER (1976), GALIURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES 6 (1), P. 115-131.
- 12) DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 13) WILSON, E.D., 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 14) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 15) REHRIG, W.A., AND REYNOLDS, S.J., IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR
- 4) USGS M.F. 939 USGS MF 238, USGS PROF PAPER 655-D, USGS BULL 1027-N, USGS MSP 450

RECORD 00153

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030462
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... SINN FEIN MINE

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GRAHAM

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-58-20N 110-20-30W

TWP..... 05S
RANGE.... 20E
SECTION.. 19 30
MERIDIAN. G & SR

ALTITUDE.. 5000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: N SIDE OF WILLIAMSON CANYON, OVER 1 MILE NE OF ARAVAIPA; IS A SHORT
DISTANCE WEST AND SOUTHWEST OF HEAD CENTER MINE

LOCATION COMMENTS: ON LINE BETWEEN 19 & 30

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG CU AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
MINOR PRODUCTS.. CU AG AU

MAIN COMMOD..... PB
MINOR COMMOD.... AG AU ZN CU MO

MAIN ORE MINERALS:
 GALENA, CHALCOPYRITE, FLUORITE SPHALERITE

MINOR ORE MINERALS:
 ANGLSITE, CERUSSITE, AZURITE, MALACHITE PYRITE, WULFENITE, SPECULARITE

EXPLORATION AND DEVELOPMENT
 PRESENT/LAST OWNER..... BALBOA MINING AND DEV. CO. (1957) OF GRAND JUNCTION

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FAULT VEIN
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 MAX WIDTH..... 4 FT
 STRIKE OF OREBODY.... NNW
 DIP OF OREBODY..... 45-60E

DESCRIPTION OF WORKINGS
 UNDERGROUND
 DEPTH OF WORKINGS BELOW SURFACE. 50 FT

COMMENTS(DESCRIP. OF WORKINGS):
 SINN FEIN HAS ADIT, WINZE AND WINZE LEVEL 50 FT BELOW; NEW SINN FEIN HAS INCLINED SHAFT WITH LEVELS A FEW HUNDRED FEET NORTH, AN INCLINED SHAFT WAS SUNK 50 FT IN 1958-1959 OPPOSITE THE ADIT

PRODUCTION
 YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC	8.217	TONS		1947-1953	17% PB, 1.3% CU, 2.3 OZ/T AG, 3.2 OZ/T AU
16 ORE ACC	8.275	TONS		1937-1960	
17 CU ACC	134.987	LBS		1937-1960	
18 PB ACC	2505.468	LBS		1937-1960	
19 ZN ACC	318.800	LBS		1937-1960	
20 AG ACC	19.221	OZ		1937-1960	
21 AU ACC	1.512	OZ		1937-1960	

SOURCE OF INFORMATION (PRODUCTION).. SIMONS, 1964; ARIZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... 3 CARLOADS SHIPPED PRIOR TO 1925

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS-PENN. TERT.
 HOST ROCK TYPES..... ESCABROSA LS, HORQUILLA LS AND HORSE MTN VOLCANICS, AND QUARTZ PORPHYRY DIKE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (?)
 IGNEOUS ROCK TYPES..... QUARTZ PORPHYRY DIKE INTRUSION

AGE OF MINERALIZATION..... TERT. (?) (20-30 M.Y. IF HORSE MTN VOLC. ARE EQUIVALENT TO GALIURD VOLC. (KEITH,)

PERTINENT MINERALOGY..... QUARTZ, IRON OXIDE IN BRECCIA VEIN WITH TRACES OF PURPLE FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. FAULT CONTACT BETWEEN HORQUILLA LS TO E IN HANGING WALL AND LATITE (?) DIKE TO W.
 BRECCIA VEIN, FAULT IS INTRUDED BY PORPHYRITIC DACITE OR QUARTZ PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NEW MINE ON HEAD CENTER FAULT (NW STRIKE, 30-45 N DIP); VEIN CUT OFF BY NW TRENDING, STEEP FAULTS

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE IS FAIRLY COMMON AS SMALL CRYSTALS IN OPEN SPACES IN THE UPPER PARTS OF THE MINE

GENERAL REFERENCES

- 1) SIMONS, FRANK S. 1964, 1. GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP, P. 138-141
- 2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 763, 120 P., P. 100
- 3) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4007.
- 4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA; UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
- 5) SIMONS, F.S. 1. GEOLOGIC MAP AND SECTIONS OF THE KLONDYKE QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 2 P., MAP, SECTIONS (1961)
- 6) SIMONS, F.S. 2. DEVITRIFICATION DIKES AND GIANT SPHERULITES FROM KLONDYKE, ARIZONA: AM. MINERAL., V. 47, NO. 7-8, P. 871-885 (1962)
- 7) AZ. BUR. GEOL. FILE DATA.
- 8) SIMONS, F.S. 3. COMPOSITE DIKE OF ANDESITE AND RHYOLITE AT KLONDYKE, ARIZONA: GEOL. SOC. AM. BULL., V. 74, NO. 8, P. 1049-1056 (1963)
- 9) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIURD VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA, U.S.G.S. J. OF RES 6 (1), P. 115-131.
- 10) KEITH, S.B., UNPUB. DATA.
- 11) DAVIS, W.M. 14. (AND BROOKS, B.) THE GALIURD MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
- 12) WILSON F.D., 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
- 13) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 14) REHRIG, W.A., AND REYNOLDS, S.J. IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 4) USGS M.F. 939 USGS MF 238 USGS PROF. PAPER 655-D USGS BULL 1027-N USGS MSP 450

RECORD 00154

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04095
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 12
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SAFFORD DEPOSIT
MINING DISTRICT/AREA/SUBDIST. LONE STAR (SAFFORD) DIST/GILA MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... GRAHAM CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAFFORD

LATITUDE LONGITUDE
32-56-15N 109-36-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3645000. 630750. +12

TWP..... 06S
RANGE.... 27E
SECTION.. 05
MERIDIAN. GCSR

ALTITUDE.. 4500-5500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 9 MI. NE OF SAFFORD

LOCATION COMMENTS: GENERAL LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB ZN

MAIN COMMOD..... CU MO
MINOR COMMOD.... AU AG PB ZN

MAIN ORE MINERALS:

CHRYSOCOLLA, PYRITE, CHALCOPYRITE, BORNITE, MOLYBDENITE

MINOR ORE MINERALS:

TETRAHEDRITE, GALENA, SPHALERITE; CHALCOCITE, COVELLITE; MALACHITE, BROCHANTITE, CUPRITE, TENORITE, PSEUDOMALACHITE, CHALCANTHITE, ANTLERITE, TURQUOISE, GOLD

ANALYTICAL DATA(GENERAL)

PYRITE IS 0.2-1.0% OF ORE BY VOLUME. IN ADJOINING PYRITE HALO PYRITE IS 4-8% CHALCOPYRITE IN PRIMARY ORE IS ABOUT 2%. IN PROTIRE IS ONLY 0.7%, AND IN PYRITE HALO AVERAGES ABOUT 0.4%; IN PRIMARY ORE ZONE CHALCOPYRITE TO PYRITE RATIO IS 2:1 (ROBINSON AND COOK, 1966)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE
PRESENT/LAST OWNER..... KENNECOTT

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PORPHYRY COPPER (DISSEM.)
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... MEDIUM

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... EOCENE

HOST ROCK TYPES..... OLDER VOLCANIC SERIES (PORPHYRITIC ANDESITE AND FLOW BRECCIA); DIKE SWARM OF RHYOLITE, QUARTZ LATITE, LATITE, DACITE, AND QUARTZ DIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. EOCENE (58 M.Y.)

IGNEOUS ROCK TYPES..... DIKE SWARM OF RHYOLITE, QUARTZ LATITE, LATITE, DACITE AND QUARTZ DIORITE; LONE STAR PLUTON TO SOUTH OF QUARTZ DIORITE, QUARTZ MONZONITE AND GRANODIORITE

AGE OF MINERALIZATION..... EOCENE (53 M.Y., ROBINSON AND COOK, 1966, ON SERICITE, K-AR)

PERTINENT MINERALOGY..... MAGNETITE; GOLTHITE, JAROSITE, LIMONITE, HEMATITE, ALUMITE, KAOLINITE-HALLOYSITE; QUARTZ AND CALCITE GANGUE

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION OCCURS IN OLDER VOLCANICS (PORPHYRITIC ANDESITE) WHERE NE FAULTS AND SHEARS WERE INTRODUCED BY NUMEROUS SMALL DIKES OF RHYOLITE, QUARTZ LATITE, LATITE, DACITE, AND QUARTZ DIORITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

LONE STAR SHEAR ZONE IS SIX THOUSAND FT WIDE BETWEEN LONE STAR AND AT EASE FAULTS AND 16,000 FT LONG AND STRIKES N50-65E WITH VERTICAL OR STEEP DIP TO NORTH.

SIGNIFICANT ALTERATION:

A CENTRAL AREA OF INTENSE ALTERATION IS COMPOSED OF A STRONGLY DEVELOPED QUARTZ SERICITE ZONE ON THE SOUTHWEST, WHICH ADJOINS AND IS PARTIALLY SUPERIMPOSED ON A LARGE AREA OF PERVASIVE SECONDARY BIOTITIZATION ON THE NORTHEAST. THE ORE BODY IS IN THESE TWO ZONES AROUND WHICH ARE ARRANGED THE CHLORITIC AND PROPYLITIC ZONES IN A ROUGHLY CONCENTRIC PATTERN. SUPERGENE ENRICHMENT HAS TAKEN PLACE TO AN AVERAGE DEPTH OF 440 FT OVER THE

OREBODY (ROBINSON AND COOK, 1966)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE PRECAMBRIAN ROCKS OF ARIZONA HAVE DEVELOPED A REGIONAL NORTHEASTERLY GRAIN. AFTER THE CRETACEOUS (?) ANDESITE AND AGGLOMERATE WERE EXTRUDED IN THE SAFFORD AREA, THE NORTHEAST SHEARING AND FAULTING THAT TOOK PLACE IN EARLY TERTIARY TIMES ALONG THE LONE STAR AND SAN JUAN SHEAR ZONES WERE PROBABLY A CONTINUATION OF MOVEMENT ALONG THIS OLD DIRECTION OF WEAKNESS. IN THE EOCENE PERIOD THE LONE STAR AND THE SAN JUAN STOCKS WERE INTRODUCED IN THE STRONGLY SHEARED VOLCANIC ROCKS IN BOTH THESE ZONES. AS THE NORTHEAST SHEARING CONTINUED, PLUGS AND DIKES WERE INTRODUCED ALONG THE SAME DIRECTION, AND THE FORMATION OF A VOLCANIC VENT TOOK PLACE. RECURRING ADJUSTMENT ALSO RESULTED IN THE SHEARING OF THE INTRUSIVE BODIES AND VOLCANIC VENT. LATER, SOME OF THE DIKES AND PLUGS AND ADJOINING PORPHYRITIC ANDESITE WERE ALTERED AND MINERALIZED BY ORE-FORMING SOLUTIONS. THE LONE STAR STOCK ITSELF WAS NOT, HOWEVER, APPRECIABLY SHEARED, FRACTURED, ALTERED, OR MINERALIZED BY THESE CRUSTAL ADJUSTMENTS.

OXIDATION, LEACHING, AND ENRICHMENT THEN TOOK PLACE, TO BE FOLLOWED AGAIN BY ONE OR MORE PERIODS OF UPLIFT AND OXIDATION OF THE ENRICHED ZONES. THE MAJOR PART OF THE UPLIFT IS CONSIDERED TO HAVE TAKEN PLACE ALONG THE NORTHWESTERLY TRENDING BASIN-AND-RANGE TYPE BUTTE FAULT. DURING ONE OF THESE PERIODS OF ADJUSTMENT THE INTERMEDIATE VOLCANIC SERIES WAS EXTRUDED. (ROBINSON AND COOK, 1966, P. 262.)

GENERAL REFERENCES

- 1) ROBINSON, R.F., AND COOK, ANNAN, 1966, THE SAFFORD COPPER DEPOSIT, LONE STAR MINING DISTRICT, GRAHAM COUNTY, ARIZONA, IN TITLEY, S.R., AND HICKS, C.L., EDS., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: UNIVERSITY OF ARIZONA PRESS, P. 250-266.
- 2) DUNN, P.G., 1978, REGIONAL STRUCTURE OF THE SAFFORD DISTRICT, ARIZONA, IN PROC. PORPHYRY COPPER SYMP., JENNEY, J.P., AND HAUCK, H.R., EDS.: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 9N15
- 3) BLAKE, D.W., 1971, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE SAN JUAN MINE AREA, GRAHAM COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA, TUCSON, 85 P.
- 4) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 5) COOK, ANNAN, AND ROBINSON, R.F., 1962, GEOLOGY OF KENNECOTT COPPER CORPORATION'S SAFFORD COPPER DEPOSIT: NEW MEXICO GEOL. SOC. FIELD CONF., 13TH, 1962, GUIDEBOOK OF THE MOGOLLON RIM, EAST-CENTRAL ARIZONA.
- 6) COOK, ANNAN, AND SMYTH, S.K., 1959, THE DRILLING OF KENNECOTT COPPER CORPORATION'S SAFFORD PROJECT, GRAHAM COUNTY, ARIZONA, WITH EMPHASIS ON CORE RECOVERY: MIN. INDUSTRIES EXPT. STA. BULL., COLLEGE MIN. INDUSTRIES, PENNSYLVANIA STATE UNIV.
- 7) HORSNAIL, R.F., 1978, SAFFORD DISTRICT, GRAHAM COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: J. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 241-243.
- 8) DAVIDSON, E.S., 1961, FACIES DISTRIBUTION AND HYDROLOGY OF INTERMONTANE BASIN FILL, SAFFORD BASIN, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1961: U.S. GEOL. SURVEY PROF. PAPER 424-C, P. 151-153.
- 9) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 10) ANDREASON, G.F. 3. (AND GALOT, G.A.) AEROMAGNETIC MAP OF SAFFORD AND VICINITY, GRAHAM AND GREENLEE COUNTIES, ARIZONA: USGS OPEN-FILE REP., SCALE 1:125,000 (1966)
- 11) YARTER, W., IN PRESS, GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 12) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 13) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 14) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
- 15) BOLIN, D.S., 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 186 P.
- 16) DEWHURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 128 P.
- 17) VALENTINE, IN PRESS, M.S. THESIS IN PROGRESS, UNIV. UTAH.

RECORD 00155

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4002681
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... MORENCI OPEN PIT MINE

MINING DISTRICT/AREA/SUBDIST. MORENCI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... GREENLEE

QUAD SCALE QUAD NO OR NAME
1: 0062500 CLIFTON

LATITUDE LONGITUDE
33-05-30N 109-22-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3662500. 652750. +12

TWP..... 04S
RANGE.... 29E
SECTION.. 08 09 15 16 17
MERIDIAN. GCSR

ALTITUDE.. 4300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES NW OF CLIFTON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU ZN MO PB AU AG U

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU

MINOR PRODUCTS.. MO AU AG

MAIN COMMOD..... CU ZN MO

MINOR COMMOD..... PB AU AG U

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... U

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, CHALCOCITE, MOLYBDENITE, SPHALERITE

MINOR ORE MINERALS:

GALENA, GOLD, SILVER, RARE STIBNITE, TURBERNITE; SECONDARY CHALCOCITE, COVELLITE, NATIVE COPPER, TURQUOISE, CHRYSOCOLLA, MALACHITE; SMALLER AMOUNTS OF TENORITE, CUPRITE, BROCHANTITE, AZURITE, CHALCANTHITE (MOOLICK AND DUREK 1966).

ANALYTICAL DATA(GENERAL)

0.10 TO 0.15% COPPER AND 3.5 TO 8% PYRITE IN PROTONE. AVERAGE AU: AG RATIO IS 1:80 BUT MINED RATIO IS 1:50 AND RATIO IN WESTERN PART WHERE PRIMARY ALTERATION IS LESS INTENSE (1:30).

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

NATURE OF DISCOVERY..... A

YEAR OF FIRST PRODUCTION. 1942

PRESENT/LAST OPERATOR.... PHELPS DODGE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

COPPER PORPHYRY; SECONDARY ENRICHMENT

FORM/SHAPE OF DEPOSIT: ELLIPTICAL LACCOLITH AND STOCK

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

COMMENTS(DESCRIPTION OF DEPOSIT):

LARAMIDE INTRUSIVE IS 10 MILES LONG IN NE DIRECTION AND 1 TO 4 MILES WIDE IN A STOCKLIKE AND LACCOLITHIC CONTACTS INTO GRANITIC BASEMENT AND ARCHED OVERLYING SEDIMENTS. THE MAIN OREBODY IS 1 1/3 BY 1 MILE, ELLIPTICAL IN A NE DIRECTION, AND ENCOMPASSING 2/3 OF THE QUARTZ MONZONITE INTRUSION. THE ENRICHMENT BLANKET RANGES FROM 50 TO 1000 FT THICK AND IS HIGH ON THE WEST AND THICKENS AS IT DIPS TO THE EAST. THE EASTERN 2/3 OF THE BLANKET HAS BEEN DISPLACED 200 FT DOWN BY THE COPPER MOUNTAIN FAULT (MOOLICK AND DUREK, 1966). BRECCIA PIPES ARE ELLIPTICAL (1900 BY 2400 FT) IN THE YOUNGEST GRANITE PORPHYRY AND ARE DEEPLY OXIDIZED.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

PRODUCTION

YES

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE	ACC	950.46	TONS		PRE 1941 MOOLICK & DUREK
2 ORE	ACC	942.876	TONS	1941	
3 ORE	ACC	7713.896	TONS	1942	
4 CU	ACC	54.126	TONS	1942	

5	ORE	ACC	9652.316	TONS	1943
6	CU	ACC	78.537	TONS	1943
7	ORE	ACC	11328.10	TONS	1944

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	43352	TONS	1872-1932	UNDERGROUND
16 CU	ACC	1108	TONS	1872-1932	UNDERGROUND
17 ORE	ACC	310548.6	TONS	1937-1963	OPEN PIT
18 CU	ACC	2474.592	TONS	1937-1963	OPENPIT

SOURCE OF INFORMATION (PRODUCTION).. MODLICK AND DUREK, 1966, P. 222

PRODUCTION COMMENTS.... CU ACC 104.567 TONS 1944

ORE	ACC	10432.65	TONS	1945
CU	ACC	100.522	TONS	1945

ORE	ACC	9604.67	TONS	1946
-----	-----	---------	------	------

CU	ACC	95.245	TONS	1946
ORE	ACC	14875.14	TONS	1947
CU	ACC	148.086	TONS	1947
ORE	ACC	15637.93	TONS	1948
CU	ACC	149.028	TONS	1948
ORE	ACC	14555.59	TONS	1949
CU	ACC	139.395	TONS	1949
ORE	ACC	16094.86	TONS	1950
CU	ACC	151.503	TONS	1950
ORE	ACC	15537.92	TONS	1951
CU	ACC	139.981	TONS	1951
ORE	ACC	15655.99	TONS	1952
CU	ACC	119.036	TONS	1952
ORE	ACC	16180.06	TONS	1953
CU	ACC	119.713	TONS	1953
ORE	ACC	15463.15	TONS	1954
CU	ACC	110.501	TONS	1954
ORE	ACC	15899.41	TONS	1955
CU	ACC	121.242	TONS	1955
ORE	ACC	16794.29	TONS	1956
CU	ACC	123.470	TONS	1956
ORE	ACC	14767.61	TONS	1957
CU	ACCC	103.829	TONS	1957
ORE	ACC	13039.19	TONS	1958
CU	ACC	93.136	TONS	1958
ORE	ACC	10513.02	TONS	1959
CU	ACC	73.308	TONS	1959
ORE	ACC	14499.83	TONS	1960
CU	ACC	103.221	TONS	1960
ORE	ACC	16285.69	TONS	1961
CU	ACC	108.622	TONS	1961

			ORE	ACC	1683.18	TONS	1962	
			CU	ACC	118.748	TONS	1962	
			ORE	ACC	17140.75	TONS	1963	
			CU	ACC	118.776	TONS	1963	
			ORE	ACC	16173.66	TONS	1975	MORENCI (GREELEY)
CU	ACC	177767.7	LBS	1975				MOTENCI (GREELEY)
ORE	ACC	5556.145	TONS	1975				METCALF (GREELEY)
CU	ACC	92166.93	LBS	1975				METCALF (GREELEY)
ORE	ACC	18705.45	TONS	1976				MORENCI (GREELEY)
CU	ACC	208986.3	LBS	1976				MORENCI (GREELEY)
ORE	ACC	11327.51	TONS	1976				METCALF (GREELEY)
CU	ACC	158452.5	LBS	1976				METCALF (GREELEY)

TOTAL MATERIAL	ACC	30242.16	TONS	PRE 1941	
TOTAL MATERIAL	ACC	21269.21	TONS	1941	
TOTAL MATERIAL	ACC	30611.73	TONS	1942	
TOTAL MATERIAL	ACC	40756.35	TONS	1943	
TOTAL MATERIAL	ACC	31237.58	TONS	1944	
TOTAL MATERIAL	ACC	22018.82	TONS	1945	
TOTAL MATERIAL	ACC	21441.22	TONS	1946	
TOTAL MATERIAL	ACC	35137.7	TONS	1947	
TOTAL MATERIAL	ACC	36006.84	TONS	1948	
TOTAL MATERIAL	ACC	35016.44	TONS	1949	
TOTAL MATERIAL	ACC	42629.67	TONS	1950	
TOTAL MATERIAL	ACC	43986.41	TONS	1951	
TOTAL MATERIAL	ACC	44650.52	TONS	1952	
TOTAL MATERIAL	ACC	46350.87	TONS	1953	
TOTAL MATERIAL	ACC	47201.32	TONS	1954	
TOTAL MATERIAL	ACC	49048.2	TONS	1955	
TOTAL MATERIAL	ACC	54562.55	TONS	1956	
TOTAL MATERIAL	ACC	47376.12	TONS	1957	
TOTAL MATERIAL	ACC	39939.04	TONS	1958	
TOTAL MATERIAL	ACC	29443.02	TONS	1959	
TOTAL MATERIAL	ACC	35713.85	TONS	1960	
TOTAL MATERIAL	ACC	43460.08	TONS	1961	
TOTAL MATERIAL	ACC	43522.46	TONS	1962	
TOTAL MATERIAL	ACC	45126.39	TONS	1963	

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SULFIDE ORE	A665970		TONS	1975	0.77% CU METCALF
2 SULFIDE ORE	A662462		TONS	1975	0.8% CU MORENCI

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1976, P. 36

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (55.2 +/- 1.7 M.Y. BENNETT, 1975)

HOST ROCK TYPES..... QUARTZ MONZONITE PORPHYRY IS OREBODY, BRECCIA PIPES ARE IN GRANITE PORPHYRY, SUPERGENE ENRICHMENT IS IN QUARTZ MONZONITE PORPHYRY AND ADJACENT PRECAMBRIAN GRANITE AND LATER SEDIMENTARY ROCKS. HIGH GRADE OXIDIZED COPPER WAS IN LIMESTONE NEAR NONREACTIVE GARNET, SHALE, OR QUARTZITE ABUTTING A

PORPHYRY DIKE.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (55-56 M.Y. BENNETT 1975)
 IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY GRANITE PORPHYRY

AGE OF MINERALIZATION..... TERT. (51.3 +/- M.Y. BENNETT, 1975)

PERTINENT MINERALOGY..... GOETHITE AND HEMATITE ARE MAJOR OXIDATION PRODUCTS, JAROSITE IS WIDESPREAD. OPAL, GRAYISH-BLUE ALLOPHANE, GYPSUM, MANGANESE OXIDES, BASIC FERRIC SULFATES, AND NONTRONITE OCCUR AROUND PERIPHERY OF ORE BODY IN SHEETS OR PODS IN FRACTURES IN OXIDIZED ZONE. MELANITERITE, ALUM, AND COPIAPITE (?) ARE PRESENT LOCALLY (MOOLICK AND DUREK, 1966). RUTILE, MAGNETITE, PYROLUSITE, CORONADITE, WILLEMITE, CALAMINE, MORENCITE, SMITHSONITE, LIBETHINITE, ALUNITE, SPANGOLITE, GOSLARITE, EPSOMITE, GERHARDTITE, DIOPSIDE, TREMOLITE, GARNET, EPIDOTE, MUSCOVITE, CHLORITE, SERPENTINE, ASBESTOS, KAOLIN, DIOPHASE (LINDGREN, 1905)

IMPORTANT ORE CONTROL/LOCUS.. INTENSE FRACTURING OF QUARTZ MONZONITE PORPHYRY HOST WAS PROBABLY CAUSED BY SUCCESSIVE INTRUSIONS OF GRANITE PORPHYRY INTO THE CENTRAL PART OF THE SLIGHTLY EARLIER QUARTZ MONZONITE PORPHYRY, WHICH HAD BEEN IMPLACED ALONG A NE TREND OF A PRECAMBRIAN ZONE OF WEAKNESS CENTERED OBLIQUILY ACROSS E-W CONTACT OF BASEMENT GRANITE AND GRANODIORITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NORTHWEST TRENDING COPPER MOUNTAIN FAULT DISPLACES ENRICHMENT BLANKET 200 FEET AND IS LATE TERTIARY IN AGE AS IT DISPLACED GILA CONGLOMERATE. THE DOMINANT TREND OF THE MAIN INTRUSIVE, ASSOCIATED DIKES, VEINS, AND EARLY FAULTS IS NORTHEAST, POSSIBLY A PRECAMBRIAN ZONE OF WEAKNESS. MOST PERSISTENT AND BEST MINERALIZED FRACTURES DIP NORTH AND STRIKE BETWEEN N45 E AND N65 E. THE PRINCIPAL NE JOINTS, SHEETING AND VEINS MAY REPRESENT BOTH TENSIONAL AND SHEAR FRACTURING ASSOCIATED WITH REGIONAL SOUTH-DIPPING FAULTS, WHICH MAY HAVE LOCALIZED THE EMPLACEMENT OF THE PORPHYRY AND PERSISTED THROUGH THE EARLY PHASES OF THE INTRUSION (MOOLICK AND DUREK, 1966, P. 226)

SIGNIFICANT ALTERATION:

INTENSE HYDROTHERMAL ALTERATION WITH ATTENDANT GENERAL KAOLINIZATION. MONTMORILLONITE OCCURS IMMEDIATELY BELOW CHALCOCITE ZONE. SERICITIZATION. CONTACT ALTERATION OF PALEOZOIC SEDIMENTS TO CALC-SILICATE OR HORNFELS AND SKARN.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

A COMPLEX INTRUSION OF DIORITE, QUARTZ MONZONITE, AND GRANITE PORPHYRY IN PROGRESSIVELY MORE ACID PHASES CARRIED SULFIDE MINERALIZATION IN THE LATER STAGES INTO FRACTURES CREATED DURING SLIGHTLY OLDER PULSES ALONG NE TRENDS COINCIDENT WITH A PRECAMBRIAN ZONE OF WEAKNESS. DURING EARLY MIDDLE TERTIARY TIME A LEACHED CAPPING AND SECONDARY ENRICHMENT BLANKET DEVELOPED. MIDDLE TERTIARY VOLCANISM COVERED PART OF THE AREA BUT EROSION LATER EXPOSED THE OREBODY AND CONTINUED THE LEACHING PROCESS.

COMMENTS (GEOLOGY AND MINERALOGY):

DISTRICT ZONING: AN AREA OF CHALCOPYRITE MINERALIZATION IS SURROUNDED BY A PYRITIC ENVELOPE WHICH IS, IN TURN, SURROUNDED BY A LARGE ENVELOPE OF WEAK PROTORE. THE CENTER OF MINERALIZATION IS APARENTLY EAST OF CHASE CREEK AND OFFSET BY KINGBOLT FAULT. SILVER AND GOLD ARE MORE ABUNDANT IN LESS ALTERED AREAS AWAY FROM HIGHER TEMPERATURE MOLYBDENITE-CHALCOPYRITE MINERALIZATION.

MOLYBDENITE GENERALLY OCCURS AS THIN FILMS ON FRACTURES DEVOID OF OTHER SULFIDES; IT ALSO OCCURS AS FLAKES AND PARALLEL STREAKS IN SMALL QUARTZ VEINLETS. THE GREATEST CONCENTRATION OF MOLYBDENITE OCCURS ASSOCIATED WITH GRANITE PORPHYRY AND TO A LESSER EXTENT WITH THE PRECAMBRIAN GRANITE. (MOOLICK AND DUREK, 1966, P. 227).

GENERAL COMMENTS

SEE RECORD NUMBER M899995 FOR REFERENCES

RECORD 00161

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800238
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... FLYING SAUCER GROUP
SYNONYM NAME..... LA MINA

MINING DISTRICT/AREA/SUBDIST. VULTURE DIST/VULTURE MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VULTURE MOUNTAINS, ARIZ

LATITUDE LONGITUDE
33-52-40N 112-50-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3749900. 329800. +12

TWP..... 06N
RANGE.... 06W
SECTION.. 12
MERIDIAN. 66SR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.6 MILES WEST FROM THE CENTER OF WICKENBURG ON U.S. HIGHWAY 60-70 TO THE VULTURE MINE ROAD, SOUTH 7.8 MILES TO THE TRAIL IN A CANYON BOTTOM THAT BRANCHES NORTHWESTERLY FROM THE ROAD, AND ON THIS TRAIL, 0.6 MILE TO THE EASTERN PART OF THE CLAIMS.

LOCATION COMMENTS: NW 1/4 APPROX LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO

MAIN COMMOD..... W MO

MAIN ORE MINERALS:
POWELLITE, SCHEELITE

ANALYTICAL DATA(GENERAL)
0.01 TO 0.22% WO3 ASSAYS ON 8 SAMPLES (DALE)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... 5 UNPATENTED LOSE CLAIMS OWNED IN 1950 BY J FRANK HENDERSON, IN 1959 BY W.C. KINNON OF PHOENIX (DALE)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

DISCOVERY SHAFT & SOME TRENCHING

PRODUCTION

NO PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. (68.4 +/- 1.7 M.Y)

HOST ROCK TYPES..... BIOTITE GRANITE, PORPHYRY INTRUSIONS (GRANODIORITE OF REHRIG)

PERTINENT MINERALOGY..... QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATIONS IN GRANITIC ROCKS & DIKE ROCKS IN ROUGHLY ROUNDED FORMS FROM PINHEAD TO MARBLE SIZE.

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

AREAS OF BRILLIANT FLUORESCENCE ARE NOT CRITERIA OF WO3 CONTENT

GENERAL REFERENCES

1) DALL, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP.

INVEST., R.I. 5516, 68 P., P. 37.

2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156.

3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

- ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U. S. GEOL. SURVEY BULL. 725
- IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58
1980. GEOCHRONOLOGY OF THE VULTURE MOUNTAINS, MARICOPA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 4) BROWNE, J. ROSS, 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, D.C., P. 477
- G. M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- ARIZONA: UNPUB. MANUSCRIPT SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- MINING IN THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, P. 257-258.
- G. MINING JOUR., V. 111, NO. 7, P. 298-302, FEB. 12, 1921.
- 9-11, 28-30.
- MIN. JOUR. V. 93, P. 1044-1045.
- ARIZONA: ITS PAST AND PRESENT: MIN. ENGR. WORLD, V. 35, P. 645-646.
- HASSAYAMPA: MINING WORLD, V. 34, P. 1233-1234.
- MCCLINTOCK, J.H., 1928, HIGH GRADING AT THE OLD VULTURE AND SILVER KING: MIN. JOUR., V. 11, NO. 19, P. 14.
- ARIZONA: UNIV. ARIZ. MONTHLY, V. 4, P. 227-232.
- THE VULTURE MINE, ARIZONA: AM. JOUR. SCI., 3RD SER., V. 21, P. 160.
- WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF
- HESS, F.L., 1917, TUNGSTEN MINERALS AND
- HESS, F. L. AND E. S. LARSEN, 1921,
- LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN
- MEEVES, H. C., 1966, NONPEGMATITIC BERYLLIUM
- REHRIG, W.A., SHAFIQUILLAH M. AND DAMON, P.E.,
- WILSON, E. D., CUNNINGHAM, J. B., AND BUTLER,
- TENNEY, J.B., 1927-29, HISTORY OF MINING IN
- RAYMOND, R.W., 1872, STATISTICS OF MINES AND
- HUTCHINSON, W.S., 1921, THE VULTURE MINE: ENG.
- THOMPSON, A.P., 1930, MIN. JOUR., V. 14, P.
- DEFTY, W.E., 1912, VULTURE MINE, ARIZONA: ENG.
- DINSMORE, C.A., 1911, THE VULTURE MINE,
- HAFFER, C., 1911, VULTURE MINE AND OTHERS IN THE
- MOORE, K.T., 1902, VULTURE; A MINING CAMP IN
- PENFIELD, S.L., 1881, ANALYSIS OF JAROSITE FROM

ARIZONA: MIN. SCI. PRESS, V. 94, P. 308-310.

LODE: MIN. JOUR., V. 14, NO. 13, P. 9-11, 28-30.

CONCERNING EXPLORATIONS AND SURVEYS PRINCIPALLY IN NEVADA AND ARIZONA, 1871: WASHINGTON, 96 P.

ARIZONA METAL PRODUCTION: ARIZ. BUT. MINES BULL. 140, 112 P.

PURINGTON, C.W., 1907, THE VULTURE MINE,

THOMPSON, A.P., 1930, FINDING THE LOST VULTURE

WHEELER, G.M., 1972, PRELIMINARY REPORT REPORT

ELSING, M.J., AND HEINEMAN, R.E.S., 1936,

RECORD 00162

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800116
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 12
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... FLYING SAUCER GROUP
MINING DISTRICT/AREA/SUBDIST. VULTURE DIST/VULTURE MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VULTURE MOUNTAINS, ARIZ.

LATITUDE LONGITUDE
33-52-40N 112-50-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3749900. 329800. +12

TWP..... 06N
RANGE.... 06W
SECTION.. 12
MERIDIAN. GCSR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.6 MILES WEST FROM THE CENTER OF WICKENBURG ON U.S. HIGHWAY 60-70 TO THE VULTURE MINE ROAD, SOUTH 7.8 MILES TO THE TRAIL IN A CANYON BOTTOM THAT BRANCHES NORTHWESTERLY FROM THE ROAD, AND ON THIS TRAIL, 0.6 MILE TO THE EASTERN PART OF THE CLAIMS.

LOCATION COMMENTS: NW 1/4 APPROX LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO

MAIN COMMOD..... W MO

MAIN ORE MINERALS:
POWELLITE, SCHFELITE

ANALYTICAL DATA(GENERAL)
0.01 TO 0.22% WO3 ASSAYS ON 6 SAMPLES (DALE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED IN 1950 BY J. FRANK HENDERSON, IN 1959 BY W.C. KINNON OF PHOENIX (DALE, 1959)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

DISCOVERY SHAFT AND SOME TRENCHING

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. (68.4 +/- 1.7 M.Y.)

HOST ROCK TYPES..... BIOTITE GRANITE, PORPHYRY INTRUSIONS (GRANODIORITE OF

PERTINENT MINERALOGY..... QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATIONS IN GRANITIC ROCKS AND DIKE ROCKS IN ROUGHLY ROUNDED FORMS FROM
PINHEAD TO MARBLE SIZE.

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

AREAS OF BRILLIANT FLUORESCENCE ARE NOT CRITERIA OF WO3 CONTENT

GENERAL REFERENCES

- 1) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P., P. 37.
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156
- 3) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 5) HESS, F.L., 1917, TUNGSTEN MINERALS AND DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- 6) HESS, F.L., AND E.S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725
- 7) LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- 8) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR

ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58

9)REHRIG, W.A., SHAFIQUDDIN M. AND DAMON, P.E., 1980, GECHRONOLOGY OF THE VULTURE MOUNTAINS, MARICOPA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 12.

4) VULTURE MTS:

BROWNE, J. ROSS, 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, D.C., P. 477

5)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

6)TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.

7)RAYMOND, R.W., 1872, STATISTICS OF MINES AND MINING IN THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, P. 257-258.

8)HUTCHINSON, W.S., 1921, THE VULTURE MINE: ENG. AND MINING JOUR., V. 111, NO. 7, P. 298-302, FEB. 12, 1921.

9)THOMPSON, A.P., 1930, MIN. JOUR., V. 14, P. 9-11, 28-30.

10)DEFTY, W.E., 1912, VULTURE MINE, ARIZONA: ENG. MIN. JOUR. V. 93, P. 1044-1045.

11)DINSMORE, C.A., 1911, THE VULTURE MINE, ARIZONA; ITS PAST AND PRESENT: MIN. ENGR. WORLD, V. 35, P. 645-646.

12)HAFFER, C., 1911, VULTURE MINE AND OTHERS IN THE HASSAYAMPA: MIN. WORLD, V. 34, P. 1233-1234.

13)MCCLINTOCK, J.H., 1928, HIGH GRADING AT THE OLD VULTURE AND SILVER KING: MIN. JOUR., V. 11, NO. 19, P. 14.

14)MOORE, K.T., 1902, VULTURE; A MINING CAMP IN ARIZONA: UNIV. ARIZ. MONTHLY, V. 4, P. 227-232.

15)PENFIELD, S.L., 1881, ANALYSIS OF JAROSITE FROM THE VULTURE MINE, ARIZONA: AM. JOUR. SCI., 3RD SER., V. 21, P. 160.

16)PURINGTON, C.W., 1907, THE VULTURE MINE, ARIZONA: MIN. SCI. PRESS, V. 94, P. 308-310.

17)THOMPSON, A.P., 1930, FINDING THE LOST VULTURE LOSE: MIN. JOUR., V. 14, NO. 13, P. 9-11, 28-30.

18)WHEELER, G.M., 1972, PRELIMINARY REPORT CONCERNING EXPLORATIONS AND SURVEYS PRINCIPALLY IN NEVADA AND ARIZONA, 1871: WASHINGTON 96 P.

19)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

RECORD 00163

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 0000773
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... GOLD CLIFF MINE
 SYNONYM NAME..... GOLDEN REEF; POCAHONTAS, NATA, DIAZ

MINING DISTRICT/AREA/SUBDIST. CAVE CREEK

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 NEW RIVER MESA, ARIZ.

LATITUDE LONGITUDE
 33-53-00N 111-54-45W

UTM NORTHING UTM EASTING UTM ZONE NO
 3749400. 415600. +12

TWP..... 06N
 RANGE.... 04E
 SECTION.. 11
 MERIDIAN. G. C. SK

ALTITUDE.. 3120-3160

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES N OF CAVE CREEK P.D. BY DART RANCH ROAD, WILLOW SPRINGS WASH, W.
 SIDE OF CONTINENTAL MOUNTAIN

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... WO AU CU MO NB TA F

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. W AU
 MINOR PRODUCTS.. MO CU F

MAIN COMMOD..... W CU AU
 MINOR COMMOD..... MO NB TA

MAIN ORE MINERALS:
 FERBERITE, AURIFEROUS PYRITE

MINOR ORE MINERALS:
 CHALCOPYRITE, CLUORITE, MINOR MOLYBDENITE; COPPER CARBONATES, IRON OXIDES, TUNGSTITE, AND CUPROTUNGSTITE; GOLD

ANALYTICAL DATA(GENERAL)
 FERBERITE CONTAINS 2.20% OF COLUMBIUM-TAN OXIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... DISCOVERED ABOUT 1912

PRESENT/LAST OWNER..... OWNED IN 1941 BY GOLD CLIFF MINING CO. AND LEASED BY JACK LEMONS IN 1934 OWNED BY DAN STEELE AND WORKED BY STUART GOLD REEF MINES, INC., OWNED IN 1959 BY RUSSELL TALBOTT, MRS. STEELE'S SON-IN-LAW

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 3 FT

STRIKE OF OREBODY.... N45E

DIP OF OREBODY..... 65SE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SEVERAL OPEN STOPES, SURFACE CUTS, AND SHORT ADITS

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 FERBERITE CONC.	005T		TONS	1936	60-67% WO3

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	ACC	0.009	TONS	1941	
16	AG ACC	0.00020ZS			
17	AU ACC	0.003	OZS		

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1941, P. 26

PRODUCTION COMMENTS.... WORKED DURING WORLD WAR I BY PITTSBURGH TUNGSTEN CO., BUT PRODUCTION FIGURES ARE NOT

AVAILABLE; 4-5 TONS CONCENTRATE PRODUCED 1936-1941

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... SLATY TO SERICITIC SCHIST; GRANITIC STOCK, PEGMATITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. -CRET (?) ON STATE MAP
IGNEOUS ROCK TYPES..... REDDISH GRANITIC STOCK AND PEGMATITE

PERTINENT MINERALOGY..... QUARTZ VEINS WITH BLACK HEMATITE

IMPORTANT ORE CONTROL/LOCUS.. ORE SHOOT SUM TO BE RELATED TO THE INTERSECTIONS OF THE FISSURES, AS IF THE N45E ZONES WERE PERMEABLE STRUCTURES MINERALIZED BY THE N25-30E FISSURES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
N45E (DIPPING 65 SE) FISSURE SYSTEM IS INTERSECTED BY N25-30E (DIPPING 60 SE) FISSURE SYSTEM.

SIGNIFICANT ALTERATION:
COARSE SERICITIZATION AND SILICIFICATION

COMMENTS (GEOLOGY AND MINERALOGY):
GOLD IS FINE GRAINED AND OCCURS MAINLY IN CAVITIES

GENERAL COMMENTS
UPDATE US04072 BY DRIPPING IT AS IT DUPLICATES 0000773

GENERAL REFERENCES

- 1) SCHALLER, W.L., (1932) CHEMICAL COMPOSITION OF CUPROTUNGSTITE, AMER. MIN., V. 17 P. 234-237.
- 2) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 26.
- 3) LEWIS, A.S. (1920) ORE DEPOSITS OF DAVE CREEK DISTRICT, ARIZONA, ENGR. MINING JOUR., V. 110, P. 713-716.
4) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58
- 5) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 164-5.
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P., P. 37-40.
- 8) LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- 9) HESS, F.L., 1917, TUNGSTEN MINERALS AND DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P., P. 33, 64.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.

RECORD 00164

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4800237
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LITTLE SAN DOMINGO MINE
SYNONYM NAME..... TAMARACK GROUP (?)

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ.

LATITUDE LONGITUDE
33-56-66N 112-33-43W

UTM NORTHING UTM EASTING UTM ZONE NO
3756770. 355670. 412

TWP..... 07N
RANGE.... 03W
SECTION.. 15 22
MERIDIAN. GCSR

ALTITUDE.. 2920 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE E OF LITTLE SAN DOMINGO WASH; 3/4 MILE S. OF YAVAPAI COUNTY
LINE

LOCATION COMMENTS: SW 1/4 15.

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU AU

MAIN COMMOD..... W
MINOR COMMOD.... MO CU AU

MAIN ORE MINERALS:
SCHEELITE, POWELLITE

MINOR ORE MINERALS:
PYRITE, HEMATITE, LIMONITE, CHALCOPYRITE, AZURITE, & MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 460 FT
MAX WIDTH..... 10 FT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SEVEN SMALL OPEN CUTS AND AN INCLINED SHAFT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC (?)
HOST ROCK TYPES..... HORNBLENDE-BIOTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)
IGNEOUS ROCK TYPES..... GRANITE & PEGMATITE DIXES CUT VEIN

PERTINENT MINERALOGY..... QUARTZ VEINS; EPIDOTE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE, AND ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS.. IN GARNET EPIDOTE ZONE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):
INCLINED SHAFT AT THE LITTLE SAN DOMINGO DEPOSIT WAS DRIVEN TO CROSS-CUT A FEW GOLD-QUARTZ STRINGERS

GENERAL REFERENCES

- 1) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 2) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P., P. 33-34.

JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF

THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS.
3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.

CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS

ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF

RECORD 00165

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4800119
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER

NAME..... MILY, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LITTLE SAN DOMINGO MINE
SYNONYM NAME..... TAMARACK GROUP (?)

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 REOPICACHO, ARIZ.

LATITUDE LONGITUDE
33-56-66N 112-33-43W

UTM NORTHING UTM EASTING UTM ZONE NO
3756770. 355670. +12

TWP..... 07N
RANGE.... 03W
SECTION.. 15 22
MERIDIAN. G & SR

ALTITUDE.. 2920 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE E OF LITTLE SAN DOMINGO WASH; 3/4 MILE S. OF YAVAPAI COUNTY LINE

LOCATION COMMENTS: SW 1/4 15.

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU AU

MAIN COMMOD..... W
MINOR COMMOD..... MO CU AU

MAIN ORE MINERALS:
SCHEELITE, POWELLITE

MINOR ORE MINERALS:
PYRITE, HEMATITE, LIMONITE, CHALCOPYRITE, AZURITE AND MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
CONTACT METAMORPHIC

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SEVEN SMALL OPEN CUTS AND AN INCLINED SHAFT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC (?)
HOST ROCK TYPES..... HORNBLENDE-BIOTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)
IGNEOUS ROCK TYPES..... GRANITE AND PEGMATITE DIKES CUT VEIN

PERTINENT MINERALOGY..... QUARTZ VEINS; EPIDOTE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE AND ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS.. IN GARNET EPIDOTE ZONE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):
INCLINED SHAFT AT THE LITTLE SAN DOMINGO DEPOSIT WAS DRIVEN TO CROSS-CUT A FEW GOLD-QUARTZ STRINGERS

GENERAL REFERENCES

- 1) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 2) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

RECORD 00166

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800240
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... MARICOPA MINE

MINING DISTRICT/AREA/SUBDIST. CAVE CREEK DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 NEW RIVER MESA, ARIZ

LATITUDE LONGITUDE
33-52-47N 111-57-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3749040. 411070. +12

TWP..... 06N
RANGE.... 04E
SECTION.. 08
MERIDIAN. 66SR

ALTITUDE.. 2330 FT-2400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MI. N OF CAVE CREEK ALONG E SIDE OF CAVE CR., ADJACENT & SOUTH OF OLD PHOENIX MINE

LOCATION COMMENTS: E 1/2

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB MO V AG

MAIN COMMOD..... AU

MAIN ORE MINERALS:

GOLD WITH OXIDIZED LEAD MINERALS

ANALYTICAL DATA(GENERAL)

GOLD, 0.5% MO, & A LITTLE VANADIUM (LEWIS, 1934)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... MANAGED BY ALFRED STRONG LEWIS OF CAVE CREEK IN 1939

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: PINCH & SWELL RAPIDLY

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 8 FT

STRIKE OF OREBODY.... N

DIP OF OREBODY..... STEEP

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

25-TON MILLING PLANT IN 19 ; IN 1934 WAS REPORTED TO HAVE BEEN OPENED BY SOME 600 FT OF WORKINGS EXTENDING TO DEPTH OF 100 FT

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ABM CLIPPING FILE; WILSON ETAL, 1934, P. 164

PRODUCTION COMMENTS.... MAY 13, 1939 IS PRODUCING SMALL AMOUNTS OF GOLD ORE; ACCORDING TO LEWIS, THE OWNER, IT PRODUCED ABOUT 5,000 TONS OF \$1500

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. ABM CLIPPING FILE

COMMENTS (RESERVES/POT RESOURCES).. OLD FILLED STOPES CONTAINING SEVERAL THOUSAND TONS OF 8 GOLD ORE IN 1939

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (?) PREC

HOST ROCK TYPES..... ALTERED SCHIST, INTRUDED BY DIKES OF GRANITE PORPHYRY & RHYOLITE PORPHYRY (WILSON ET AL 1934); VOLCANIC ROCK, POSSIBLY ANDESITE; YAVAPAI SCHIST INTRUDED BY COARSE-GRAINED BIOTITE GRANITE WITH SMALL STOCKS OF DIORITE (CLIPPING FILE)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (?) PREC

IGNEOUS ROCK TYPES..... DIKES OF GRANITE PORPHYRY & RHYOLITE PORPHYRY (WILSON, ETAL, 1934); COARSE-GRAINED GRANITE WITH SMALL STOCKS OF CIORITE, ALTERED VOLCANICS-POSSIBLY ANDESITE (CLIPPING FILE)

IMPORTANT ORE CONTROL/LOCUS.. GOLD APPARENTLY ASSOCIATED WITH FINE-GRAINED, GRAYISH QUARTZ IN SILICIFIED BRECCIATED ZONES OF NORTHWARD STRIKE AND STEEP DIP.

LOCAL GEOLOGY

**SIGNIFICANT ALTERATION:
SILICIFIED**

GENERAL REFERENCES

- 1) WILSON, E. D., CUNNINGHAM, J. B., AND BUTLER, G. M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 164.
 - 2) ADM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 3) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.
- R.A., 1977. MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U. S. GEOL. SURVEY BULL. 725
- IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- CUPRO-TUNGSTITE. AMER. MIN. 17: 234-237.
- DISTRICT ARIZONA, ENGR. MINING JOUR. 110: 713-716.
- ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- HESS, F.L., 1917, TUNGSTEN MINERALS AND DEPOSITS, U.S. GEOL. SURVEY, BULL. 652, 85 P.
- HESS, F. L. AND E. S. LARSEN, 1921, TUNGSTEN DEPOSITS OF THE UNITED STATES, U. S. GEOL. SURVEY BULL. 725
- LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN DEPOSITS OF THE UNITED STATES, U.S. GEOL. SURVEY MAP MR-25.
- SCHALLER, W.T., 1937, CHEMICAL COMPOSITION OF TUNGSTEN DEPOSITS, AMER. MIN. 17: 234-237.
- LEWIS, A.S., 1920, ORE DEPOSITS OF CAVE CREEK DISTRICT ARIZONA, ENGR. MINING JOUR. 110: 713-716.

RECORD 00167

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4900117
RECORD TYPE..... X?
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 12
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... MARICOPA MINE

MINING DISTRICT/AREA/SUBDIST. CAVE CREEK DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 NEW RIVER MESA, ARIZ.

LATITUDE LONGITUDE
33-52-47N 111-57-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3749040. 411070. +12

TWP..... 06N
RANGE..... 04E
SECTION.. 09
MERIDIAN. GCSR

ALTITUDE.. 2330 FT-2400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MI. N OF CAVE CREEK ALONG E SIDE OF CAVE CR. ADJACENT AND SOUTH OF OLD PHOENIX MINE

LOCATION COMMENTS: E 1/2

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB MO V AG

MAIN COMMOD..... AU

MAIN ORE MINERALS:

GOLD WITH OXIDEIZED LEAD MINERALS

ANALYTICAL DATA(GENERAL)

GOLD, 0.5% MO AND A LITTLE VANADINITE (LEWIS, 1934)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... MANAGED BY ALFRED STRONG LEWIS OF CAVE CREEK IN 1939

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: PINCH AND SWELL RAPIDLY

SIZE/DIRECTIONAL DATA

FT

STRIKE OF OREBODY.... N

DIP OF OREBODY..... STEEP

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

25-TON MILLING PLANT IN 19 ; IN 1934 WAS REPORTED TO HAVE BEEN OPENED BY SOME 600 FT OF WORKINGS EXTENDING TO DEPTH OF 100 FT

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ABM CLIPPING FILE; WILSON ET AL, 1934, P. 164

PRODUCTION COMMENTS.... MAY 13, 1939 IS PRODUCING SMALL AMOUNTS OF GOLD ORE; ACCORDING TO LEWIS, THE OWNER, IT PRODUCED ABOUT 5,000 TONS OF \$15 ORE

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. ABM CLIPPING FILE

COMMENTS (RESERVES/POT RESOURCES).. OLD FILLED STOPES CONTAINING SEVERAL THOUSAND TONS OF \$8 GOLD ORE IN 1939

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (?) PREC

HOST ROCK TYPES..... ALTERED SCHIST, INTRUDED BY DIKES OF GRANITE PORPHYRY AND RHYOLITE PORPHYRY (WILSON, ET AL 1934); VOLCANIC ROCK, POSSIBLY ANDESITE; YAVAPAI SCHIST INTRUDED BY COARSE-GRAINED BIOTITE GRANITE WITH SMALL STOCKS OF DIORITE (CLIPPING FILE)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT (?) PREC.

IGNEOUS ROCK TYPES..... DIKES OF GRANITE PORPHYRY AND RHYOLITE PORPHYRY (WILSON, ET AL, 1934), COARSE-GRAINED GRANITE WITH SMALL STOCKS OF DIO-ITE, ALTERED VOLCANICS-POSSIBLY ANDESITE (CLIPPING FILE)

IMPORTANT ORE CONTROL/LOCUS.. GOLD APPARENTLY ASSOCIATED WITH FINE-GRAINED, GRAYISH QUARTZ IN S L3CIFIED BRECCIATED ZONES OF NORTHWARD STRIKE AND STEEP DIP.

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

SILICIFIED

GENERAL REFERENCES

- 1) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 164
- 2) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 3) WILSON, E.D., (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 5) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.
- 6) LEMMON, D.M., AND TWETD, D.L., 1962, TUNGSTEN IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- 7) HESS, F.L. AND E.S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725
- 8) HESS, F.L., 1917, TUNGSTEN MINERALS AND DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- 9) SCHALLER, W.T., (1932) CHEMICAL COMPOSITION OF CUPROTUNGSTITE. AMER. MIN. 17: 234-237.
- 10) LEWIS, A.S. (1920) ORE DEPOSITS OF CAVE CREEK DISTRICT, ARIZONA. ENGR. MINING JOUR. 110: 713-716.

RECORD 00168

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000243
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... PRINCE OF ARIZONA MINE
SYNONYM NAME..... PRINCE

MINING DISTRICT/AREA/SUBDIST. HIEROGLYPHIC MTS/WEST SIDE OF BRADSHAW MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 NEW RIVER MESA, ARIZ

LATITUDE LONGITUDE
33-46-37N 112-21-53W

UTM NORTHING UTM EASTING UTM ZONE NO
3738070. 373620. +12

TWP..... 05N
RANGE.... 01W
SECTION.. 16
MERIDIAN. GCSR

ALTITUDE.. 1760 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE WEST OF WHITE PEAK; 5 MILES W. OF AGUA FRIA RIVER

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AN V MO AG AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
MINOR PRODUCTS.. AG AU

MAIN COMMOD..... PB AG AU
MINOR COMMOD..... V MO ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... ZN
OCCURRENCE..... MO V

MAIN ORE MINERALS:
LEAD & ZINC OXIDATION PRODUCTS:

MINOR ORE MINERALS:
LEAD & ZINC SULFIDES, HORN SILVER, RUBY SILVER VANADINITE, WULFINITE, BISMUTH & URANIUM OXIDES, DESCLOIZITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
YEAR OF DISCOVERY..... 2
BY WHOM..... PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... 3 CLAIMS STAKED IN 1901
STAKED FIRST BY D.B. MORGAN
17 ADDITIONAL CLAIMS WERE LOCATED IN 1920 BY C.C. MCGINNIS & W.E. THOMAS

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 1360 FT
STRIKE OF OREBODY.... E-W

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
OVERALL LENGTH OF MINED AREA.... 200 FT

COMMENTS(DESCRIP. OF WORKINGS):
2 INCLINED SHAFTS ONE TO 40 FT, ANOTHER TO 120 FT DRIVEN ABOUT 1901; OPEN PITS (OR SHALLOW BENCHES ABOUT 200 FT LONG)

PRODUCTION
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. WILLIS, 1920, P. 38

PRODUCTION COMMENTS.... SHIPPED 1 CARLOAD OF ORE IN 1920 WHICH RAN 52.7% PB, 39.7 OZ AG/T AND \$5 IN GOLD

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... YAVAPAI SCHIST

PERTINENT MINERALOGY..... LIME GANGUE; MANGANESE STAINING

IMPORTANT ORE CONTROL/LOCUS.. SERIES OF PARALLEL E-W LEDGES IN YAVAPAI SCHIST RUN INTO A LARGE N-S QUARTZ LEDGE

GENERAL REFERENCES

- 1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 2) WILLIS, C.F., 1920, PRINCE OF ARIZONA: ARIZ. MINING JOUR., APRIL, 1920, P. 36.
 - 4) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.
- R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.
- CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U. S. GEOL. SURVEY BULL. 725
- IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.
- G. M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- CUPRO-TUNGSTITE. AMER. MIN. 17: 234-237.
- MINING JOUR. 110: 713-716.
- ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF HESS, F.L., 1917, TUNGSTEN MINERALS AND HESS, F. L. AND E. S. LARSEN, 1921, LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN WILSON, E. D., CUNNINGHAM, J. B., AND BUTLER, SCHALLER, M.T., 1932, CHEMICAL COMPOSITION OF LEWIS, A.S., 1920, ORE DEPOSITS OF CAVE CREEK DISTRICT ARIZONA, ENGR.

RECORD 00169

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M001909
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 12
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... ROWLEY MINE
SYNONYM NAME..... RELIANCE; "ROWLEY" THEBA, RAINBOW

MINING DISTRICT/AREA/SUBDIST. PAINTED -OCK/PAINTED ROCK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0062500 DINDORA VALLEY, ARIZ.

LATITUDE LONGITUDE
33-02-55N 113-02-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3658350. 311000. +12

TWP..... 04S
RANGE.... 08W
SECTION.. 25 24
MERIDIAN. G&SR

ALTITUDE.. 600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: FROM GILA BEND FROM THE JUNCTION OF STATE HWY 85 AND U.S. HWY 80 TRAVEL WEST ON US 80; AT 14.5 MILES TURN RIGHT ON PAINTED ROCK DAM ROAD; AT 27.1 MILES TURN RIGHT (EAST) ONTO DESERT ROAD; AT 28.0 MILES ARRIVE AT MINE. (STEWART AND PFISTER, 1960). 28 MILES NW OF GILA BEND

LOCATION COMMENTS: E 1/2 SEC 25

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB MO AU AG V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB CU

MINOR PRODUCTS.. AG AU MO

MAIN COMMOD..... MO PB
MINOR COMMOD..... AG CU AU

MAIN ORE MINERALS:
BARITE, WULFENITE, CERRUSSITE

MINOR ORE MINERALS:
GALENA, FLUORITE, HEMATITE, CHALCOCITE, COVELLITE, ANGLESITE, CHRYSOCOLLA, MALACHITE, CALIDONITE, LINARITE,
ATACAMITE, DIABOLEITE, BOLEIT, LEADHILLITE, MIMETITE, VANADINITE, DESCLOIZITE, WILLEMITE, MINUM, PYRITE,
WOLFRAMITE, PYROMORPHITE, FERRIMOLYBDITE, ECDENITE (?)

ANALYTICAL DATA(GENERAL)
QUARTZ VEIN AVERAGES LESS THAN 1% CU, 1 OZ AG/TON, AND TRACE AU. BARITE VEIN CONTAINS LESS THAN 1% PB, AND LESS
THAN 1% MO O3. (MACKALLOR, IN KIRKENIO ET AL, 1965, P. 10).

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... FIRST LOCATED AROUND TURN OF CENTURY
PRESENT/LAST OWNER..... OWNED BY CHARLES A. ROWLEY FROM 1927 THROUGH 1970 AND POSSIBLY LATER (WILSON AND MILLER)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FAULT VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 30 FT
STRIKE OF OREBODY.... N30-37W
DIP OF OREBODY..... 37-50E

COMMENTS(DESCRIPTION OF DEPOSIT):
QUARTZ VEIN HAS 5 FT WIDTH FOR DISTANCE OF 370 FT ON 125 FT LEVEL WITH NO GANGE ON FOOTWALL. BARITE VEIN ON
HANGING WALL RANGES FROM 15 TO 30 FT. THICK WITH GANGE SEPARATING BARITE FROM FRACTURED ANDESITE. (MACKALLOR IN
KIRKENIO, ET AL, 1965 P. 7)

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 280 FT
LENGTH OF WORKINGS..... 1850 FT

COMMENTS(DESCRIP. OF WORKINGS):
INCLINED SHAFT TO 292'; 700' OF CROSSCUTS AND DRIFTS; MAIN OR VERTICAL SHAFT IS 280 FT. DEEP (1918). INCLINED
SHAFT TO 160 FT. LEVEL IS NOW BACK FILLED TO 100 FT LEVEL; WATER AND BACKFILLING NOW FILL MINE TO WITHIN 15 FT OF
100 FT LEVEL. (WILSON AND MILLER, 1974)

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	ACC	0.109	TONS	1921	
16 CU	ACC	7.177	LBS	1921	
17 PB	ACC	10.594	LBS	1921	
18 AC	ACC	0.293	OZS	1921	
19 AU	ACC	0.002	OZS	1921	

SOURCE OF INFORMATION (PRODUCTION).. AZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... TOTAL PRODUCTION OF \$10,000 (WILSON AND MILLER, 1974). ONLY 1 SMALL CAR OF ORE AVERAGING 15% COPPER WAS RECOVERED; 30 TONS OF WULFENITE CONCENTRATE WAS SHIPPED TO A BUYER IN CALIFORNIA CONTAINING 18.26% MO O3

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
 HOST ROCK TYPES..... ANDESITE AND RHYOLITE FLOWS OVERLIE BIOTITE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
 IGNEOUS ROCK TYPES..... ANDESITE PORPHYRY DIKE

PERTINENT MINERALOGY..... WULFENITE ASSOC. WITH MIMETITE AND BARITE

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ VEINS CUTTING ANDESITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

N30-37W FAULT ZONE 4000 FT LONG HAS SEGMENTS MINERALIZED BY QUARTZ VEIN ON FOOTWALL AND BARITE VEIN ON HANGING WALL SEPARATED FROM ANDESITE BY 4 INCHES OF GANGE

SIGNIFICANT ALTERATION:

ALTERATION PRODUCTS OF MASSIVE SULFIDES FORM PART OF BARITE VEIN, NO GOSSAN OR ENRICHED ZONE

COMMENTS (GEOLOGY AND MINERALOGY):

EXCELLENT, BRIGHT ORANGE CRYSTALS OF WULFENITE UP TO 2 CM ON AN EDGE (BRITISH MUSEUM 1970, 59) (ANTHONY ETAL 1977).

THE PRIMARY MINERAL SUITE APPARENTLY CONSISTED OF BARITE, QUARTZ, FLUORITE, GALENA, PYRITE, AND POSSIBLY CHALCOPYRITE, AND SPHALERITE.

THERE ARE AT LEAST FOUR SECONDARY MINERAL SUITES IN AND NEAR THE ORE BODY. SEGREGATION INTO SPECIFIC AREAS, POSSIBLY AS A RESULT OF EH-PH DIFFERENCES DURING FORMATION, HAS LEFT LITTLE, IF AN, OVERLAP OF SPECIES BETWEEN THE SUITES.

SUITE 1: THE CERUSSITE-ANGLESITE SUITE CONSISTS OF CERUSSITE AND ANGLESITE WITH MINOR GALENA, CHRYSOCOLLA, AND VERY MINOR WULFENITE.

SUITE 2: THE WULFENITE SUITE CONSISTS OF ABUNDANT WULFENITE AND MIMETITE, USUALLY ON A MATRIX OF BARITE. A SINGLE SPECIMEN IN THE SMITHSONIAN COLLECTION WAS FOUND TO HAVE DESCLOIZITE SUBSTITUTED FOR MIMETITE; THE WULFENITE DISPLAYED A RARE CRYSTAL FORM (3.4.75). ANOTHER SINGLE SPECIMEN IN THE SMITHSONIAN COLLECTION HAD WHITE ACICULAR WILLEMITE IN PLACE OF MIMETITE.

SUITE 3: THE CALEDONITE SUITE CONSISTS OF CALEDONITE, LINARITE, LEADHILLITE, ATACAMITE, CERUSSITE, ANGLESITE, DIABOLEITE, AND BOLEITE. THIS SUITE IS RESTRICTED TO SMALL VFINS NEAR THE CEILING OF THE JOBS SHAFT. WHERE LEADHILLITE IS PRESENT, LINARITE AND CERUSSITE ARE USUALLY ABSENT.

SUITE 4: THE VANADINITE SUITE CONSISTS OF VANADINITE AND DESCLOIZITE ON BARITE.

IN GENERAL THE MINERALOGY IS REMINISCENT OF THE MORE FAMOUS DEPOSIT AT TIGER, ARIZONA, ALTHOUGH TIGER HAS PRODUCED A SOMEWHAT WIDER VARIETY OF RARE SECONDARY MINERALS. (WILSON AND MILLER, 1974, P. 14).

FERRIMOLYBDITE FORMS A THIN PARTIAL COATING ON THE WALL OF THE MAIN SHAFT FROM THE SURFACE TO A DEPTH OF 50 FT. AT A GREATER DEPTH, SMALL STRINGERS CONTAINING MINUTE CRYSTALS OF WULFENITE ARE PRESENT IN THE SHAFT WALLS. ON THE 125 LEVEL, WULFENITE OCCURS IN PATCHES AND STRINGERS OF MINUTE CRYSTALS AND IN CLUSTERS OF LARGE CRYSTALS ALONG SMALL FRACTURES (MAC KALLOR, IN KIRKMO ETAL, 1965).

GENERAL COMMENTS

M00229 IS PROBABLY SAME AS M001909 SO M00229 SHOULD BE DROPPED.

GENERAL REFERENCES

- 1) WILSON, W.E. AND D.K. MILLER (1974) MINERALS OF THE ROWLEY MINE. MINERAL RECORD V. 5; P. 10-30.
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., 205.
- 3) THE MINES HANDBOOK AND COPPER HANDBOOK, VOL. XII-XIV, 1916-1924, BY W.H. WEED, 1918, 1920; THE MINES HANDBOOK CO., 1925 (1918, P. 508).
- 4) STEWART, L.A., AND PFISTER, A.J., 1960, BARITE DEPOSITS OF ARIZONA: U.S. BUR. MINES RI 5651
- 5) KIRKMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1192-E, 90 P., P. 6-10 BY J.A. MAC KALLOR.
- 6) HEIKES, V.C., 1921, GOLD, SILVER, COPPER, LEAD, AND ZINC IN ARIZONA IN MINERAL RESOURCES OF THE UNITED STATES, 1918: U.S. GEOL. SURVEY PT. 1, P. 329-368.
- 7) HESS, F.L., 1921, MOLYBDENUM, IN MINERAL RESOURCES OF THE UNITED STATES, 1918: U.S. GEOL. SURVEY, PT. 1, P. 795-805.
- 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 9) WILLIAMS, 1966, THE SIGNIFICANCE OF HABIT AND MORPHOLOGY IN WULFENITE: AMER. MINER. V. 51, P. 1212-1217.

RECORD 00170

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800121
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... TAMARACK GROUP
SYNONYM NAME..... NEAR BUT NOT THE SAME AS MORNING STAR PROSPECTS AND SUNSET PROSPECTS POSSIBLY WHITE
CLOUD MINE

MINING DISTRICT/AREA/SUBDIST. MORRISTOWN-AREA/WHITE PICACHO DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ.

LATITUDE LONGITUDE
33-57- N 112-34- W

UTM NORTHING UTM EASTING UTM ZONE NO
3757500. 355300. 412

TWP..... 07N 06N
RANGE.... 03W 03W
SECTION.. 15 16 22
MERIDIAN. G & SR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 13 MILES FROM MORRISTOWN ON UPPER SANTA DOMINGO WASH.

LOCATION COMMENTS: UNCERTAIN LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU

MAIN COMMOD..... W AU

MAIN ORE MINERALS:
SCHEELITE

MINOR ORE MINERALS:
POWELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... CLAIMS RELOCATED IN 1941 BY D.G. MCILLAN AND STILL OWNED BY HIM IN 1959 (DALE, 1959)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 18 FT
STRIKE OF OREBODY.... N55W
DIP OF OREBODY..... 60 NE

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 75 FT

COMMENTS(DESCRIP. OF WORKINGS):
2 INCLINED, INACCESSIBLE SHAFTS, EACH PROBABLY 75 FT DEEP, AND NUMEROUS SHALLOW PROSPECT SHAFTS AND OPEN CUTS

SOURCE OF INFORMATION (PRODUCTION).. DALE, 1959

PRODUCTION COMMENTS.... CLAIMS WORKED FOR GOLD BUT PRODUCTION IS UNKNOWN, NO PRODUCTION OF TUNGSTEN BEFORE 1959.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... SCHIST AND LIMESTONE (?)

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)
IGNEOUS ROCK TYPES..... GRANITE AND PEGMATITE DIKES CUT VEINS

IMPORTANT ORE CONTROL/LOCUS.. SCHEELITE OCCURS IN GARNET-EPIDOTE ROCK WITHIN SCHIST

GENERAL REFERENCES

- 1) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P., P. 133-34.
- 2) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) WILSON, E.O. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 6) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS

RECORD 00171

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4003319
 RECORD TYPE..... K1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 12
 BY..... HILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... VULTURE MINE
 SYNONYM NAME..... TEXONA, EAST VULTURE, VULTURE WEST EXTENSIONVIND CATOR GROUP

MINING DISTRICT/AREA/SUBDIST. VULTURE DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 VULTURE MOUNTAINS, ARIZ.

LATITUDE LONGITUDE W

UTM NORTHING UTM EASTING UTM ZONE NO
 3743650. 330200. +12

TWP..... 06NN 06N
 RANGE.... 05W 06W
 SECTION.. 25 26 35 36 30 31
 MERIDIAN. GCSR

ALTITUDE.. 2000 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 4 3/4 MILE SSW OF VULTURE PEAK; 10 MI SSW OF WINKENBURG

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB MO CU ZN V AG

MAIN ORE MINERALS:
 PYRITE, GOLD, OXIDIZED LEAD

MINOR ORE MINERALS:
 WULFENITE, GALENA, SPHALERITE, CHALCOPYRITE, VANADINITE

ANALYTICAL DATA(GENERAL)

ASSAY OF CONCENTRATES (RATIO OF CONCENTRATION WAS 30 TO 1) WAS 12-15% PB, 8-12% ZN, 1-2% CU, FROM \$120 TO \$200 IN GOLD (1872)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LATE IN 1863

BY WHOM..... HENRY WICKENBURG

PRESENT/LAST OWNER..... ?????????? CANNOT READ IT SLOPPY HANDWRITING

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: TUBULAR 1000 FT LONG

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1000 FT

MAX WIDTH..... 85 FT

STRIKE OF OREBODY.... WNW (E-W)

DIP OF OREBODY..... 45 DEGREE N

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 750 FT

LENGTH OF WORKINGS..... 15,000 FT

OVERALL LENGTH OF MINED AREA.... 800 FT

COMMENTS(DESCRIP. OF WORKINGS):

40 STAMP MILL OPERATED AT THE MINE IN 1866-1972; 5 STAMP MILL FOR VULTURE EXTENSION OPERATED AT THE MINE 1873-1878; 80 STAMP MILL OPERATED AT THE MINE 1879-1888; 20 STAMP MILL OPERATED 1910-1917 AT THE MINE

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	ACC	524.216	TONS	1923-1944	
16 CU	ACC	104.568	LBS	1923-1944	
17 PB	ACC	40.099	LBS	1923-1944	
18 AG	ACC	37.498	OZS	1923-1944	
19 AU	ACC	26.991	OZS	1923-1944	
20 AG	EST	435	OZ	1863-1966	
21 AU	EST	350	OZ	1863-1966	

SOURCE OF INFORMATION (PRODUCTION).. A. BUR. MINES FILE DATA; ELSING AND HEINEMAN, 1936, P. 94

PRODUCTION COMMENTS.... 1863-1933 VULTURE MINE PRODUCED \$6,775,000 IN GOLD AND \$350,000 IN SILVER. (DEFTY REPORTS \$16,000,000 IN GOLD ACCORDING TO RECORDED RETURN)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
 HOST ROCK TYPES..... QUARTZ-SERICITE SCHIST; GRANITE PORPHYRY DIKE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?) OR TERT (?)
 IGNEOUS ROCK TYPES..... GRANITE PORPHYRY DIKE OR RHYOLITE INTRUSION

PERTINENT MINERALOGY..... SERICITE AND CALCITE; QUARTZ SEAMS; QUARTZ STAINED WITH IRON OXIDE

IMPORTANT ORE CONTROL/LOCUS.. ORE SHOOTS POSITIONS SUGGEST IN ECHELON PATTERN WITH RICHEST OREBODY TO EAST FARTHER FROM GRANITE. EASTERMOST SCHIST IS BURIED BY TERTIARY LAVAS; ORE IN E-W SHEAR ZONE IN SCHIST WITH FOOTWALL SERICITE AND HANGINGWALL CHLORITIC.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE PARALLEL TO LAMINATION IN SCHIST; 2 LARGE FAULTS; TALMADGE DIPS 80 DEGREE NE, VERTICAL DISPLACEMENT OF 300 FT; AND ASTOR FAULTS FAULTED AND WAS LOST AND FOUND SEVERAL TIMES THROUGH ITS LONG HISTORY CUTS VEIN BELOW 95 DEGREE FT LEVEL AND IS PARALLEL TO TALMADGE VEIN 1

SIGNIFICANT ALTERATION:

SILICIFICATION

COMMENTS (GEOLOGY AND MINERALOGY):

IN OXIDE ZONE WULFENITE OCCURS AS TABULAR CRYSTALS WITH RAZOR SHARP EDGES IN OPENINGS IN QUARTZ GOLD IS ASSOCIATED WITH GALENA

GENERAL REFERENCES

- 1) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LORE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 157-162.
- 2) TENNEY, J.P., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
- 3) BROWNE, J. ROSS, 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, D.C., P. 477
- 4) RAYMOND, R.W., 1872, STATISTICS OF MINES AND MINING IN THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, P. 257-258.
- 5) HUTCHINSON, W.S., 1921, THE VULTURE MINE: ENG. & MINING JOUR., V. 111, NO. 7, P. 298-302, FEB. 12, 1921.
- 6) THOMPSON, A.P., 1930, MIN. JOUR., V. 14, P. 9-11, 28-30.
- 7) DEFTY, W.E., 1912, VULTURE MINE, ARIZONA: ENG. MIN. JOUR. V. 93, P. 1044-1045.
- 8) DINSMORE, C.A., 1911, THE VULTURE MINE, ARIZONA: ITS PAST AND PRESENT: MIN. ENGR. WORLD, V. 35, P. 645-646.
- 9) HAFFER, C., 1911, VULTURE MINE AND OTHERS IN THE HASSAYAMPA: MIN. WORLD, V. 34, P. 1233-1234.
- 10) MCCLINTOCK, J.H., 1929, HIGH GRADING AT THE OLD VULTURE AND SILVER KING: MIN. JOUR., V. 11, NO. 19, P. 14.
- 11) MOORE, K.T., 1902, VULTURE: A MINING CAMP IN ARIZONA: UNIV. ARIZ. MONTHLY, V. 4, P. 227-232.
- 12) PENFIELD, S.L., 1881, ANALYSIS OF JAROSITE FROM THE VULTURE MINE, ARIZONA: AM. JOUR. SCI., 3RD SER., V. 21, P. 160.
- 13) PURINGTON, C.W., 1907, THE VULTURE MINE, ARIZONA: MIN. SCI. PRESS, V. 94, P. 308-310.
- 14) THOMPSON, A.P., 1930, FINDING THE LOST VULTURE LORE: MIN. JOUR., V. 14, NO. 13, P. 9-11, 28-30.
- 15) WHEELER, G.M., 1872, PRELIMINARY REPORT CONCERNING EXPLORATIONS AND SURVEYS PRINCIPALLY IN NEVADA AND ARIZONA, 1871: WASHINGTON, 96 P.
- 16) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 17) REHRIG AND DAMON, (1990, IN PRESS) ARIZ. GEOL. SOC. DIGEST 12.
- 18) METZGER, D.H., 1938, GOLD MINING AND MILLING IN THE WICKENBURG AREA, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: U.S. BUR. MINES INF. CIRC. I.C. 6991, 78 P.

RECORD 00172

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800241
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LUCKY STRIKE CLAIM

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA & YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, AZ

LATITUDE LONGITUDE
33-57- N 112-35-30W

TWP..... 07N
RANGE.... 03W
MERIDIAN. G6SR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 13 MILES N. OF MORRISTOWN; TURN LEFT TOWARDS BROWNS WELL AT 3-4 MILES FROM MORRISTOWN ON CASTLE HOT SPRINGS ROAD; TURN RIGHT UP SAN DOMINGO WASH AT 6.8 MILES; FOLLOW SIGNS TO JOHN RICHIES PLACE.

LOCATION COMMENTS: NW 1/4. LOC. UNCERTAIN

COMMODITY INFORMATION

COMMODITIES PRESENT..... U PB CU ZN MO

MAIN ORE MINERALS:
GALENA, CHALCOPYRITE

MINOR ORE MINERALS:
WULFENITE, CHRYSOCOLLA, CHALCOCITE, WILLEMITE (?) PYROMORPHITE (?)

COMMODITY COMMENTS:

"EVIDENTLY THE RADIOACTIVE VEIN MATERIAL CONTAINING THE ABOVE MINERALS WAS NOT MINED AT THIS TUNNEL, AS NO INDICATION OF SUCH VEIN MATERIAL OR MINERALIZATION IS EVIDENT IN THE TUNNEL." (GRANGER, 1952, AEC PRR - 386 (?). GOLDEN DUCK URANIUM GROUP IS 5 MILES TO EAST).

ANALYTICAL DATA(GENERAL)
0.025 GRAB SAMPLE FROM DUMP

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
1 60 FT TUNNEL

PRODUCTION
NO PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... YAVAPAI SCHIST
PERTINENT MINERALOGY..... QUARTZ, CALCITE

GENERAL REFERENCES

1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF
ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
2) GRANGER, H.C., 1950'S, LUCKY STRIKE CLAIM: U.S. ATOMIC ENERGY COMM. PRELIM. RECONN RPT. PRR-396 (?), 1 P.
3) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.

ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX,
R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.

BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR
MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.

JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF
THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105
P., ILLUS., MAPS.

RECORD 00173

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4800122
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... LUCKY STRIKE CLAIM
MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MARICOPA AND YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, AZ.

LATITUDE LONGITUDE
33-57- N 112-35-30W

TWP..... 07N
RANGE.... 03W
MERIDIAN. G6SR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 13 MILES N. OF MORRISTOWN; TURN LEFT TOWARDS BROWNS WELL AT 3-4 MILES FROM MORRISTOWN ON CASTLE HOT SPRINGS ROAD; TURN RIGHT UP SAN DOMINGO WASH AT 6.8 MILES; FOLLOW SIGNS TO JOHN RICHIE'S PLACE.

LOCATION COMMENTS: NW 1/4, LOC. UNCERTAIN

COMMODITY INFORMATION

COMMODITIES PRESENT..... U PB CU ZN MO

MAIN ORE MINERALS:
GALENA, CHALCOPYRITE

MINOR ORE MINERALS:
WULFENITE, CHRYSOCOLLA, CHALCOCITE, WULFENITE (?) PYROMORPHITE (?)

COMMODITY COMMENTS:

"EVIDENTLY THE RADIOACTIVE VEIN MATERIAL CONTAINING THE ABOVE MINERALS WAS NOT MINED AT THIS TUNNEL, AS NO INDICATION OF SUCH VEIN MATERIAL OR MINERALIZATION IS EVIDENT IN THE TUNNEL." (GRANGER, 1952, AEC PRR 386 (?). (GOLDEN DUCK URANIUM GROUP IS 5 MILES TO EAST).

ANALYTICAL DATA(GENERAL)
0.025 GRAB SAMPLE FROM DUMP

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
1 60 FT TUNNEL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... YAVAPAI SCHIST
PERTINENT MINERALOGY..... QUARTZ, CALCITE

GENERAL REFERENCES

- 1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 2) GRANGER, H.C., 1950'S, LUCKY STRIKE CLAIM: U.S. ATOMIC ENERGY COMM. PRELIM. RECONN. RPT. PRR-386 (?), 1 P.
- 3) DALE, V.R., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.1. 5516, 68 P.
- 4) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE WHITE PICACHU DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS
- 5) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 7) WILSON E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

RECORD 00174

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030500
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... WHITE PICACHO DIST.
 SYNONYM NAME..... INCLUDE THE FOLLOWING MINES: MORNING STAR, SUNSET, LOWER JUMBO, WHITE JUMBO,
 SUNRISE, WHITE IRDGE, PICACHO VIEW, NO. VIEW, SPARK PLUG, JANUARY FIVE, OUTPOST, OUTPOST EXTENSION, FRICTION,
 YELLOW POPPY, FAR FETCH, LOOKOUT, ANDERSON, MIDNIGHT OWL, INDEPENDENCE, LONG DIKE, NEW LOOKOUT, LONE GIANT,
 DECEMBER TWENTY, HERTZ, AND WEATHERMAN

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA AND YAVAPAI

QUAD SCALE QUAD NO OR NAME
 1: 0024000 RED PICACHO, ARIZ; GARTAS, ARIZ.

TWP..... 06N 08N
 RANGE.... 02W 03W
 MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3000-4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: WICKENBERG MTS. AND LITTLE SAN DOMINGO WASH, 7 MILES E OF WICHENBURG AND
 8 MILES N OF MORRISTOWN

COMMODITY INFORMATION

COMMODITIES PRESENT..... FLD LI BI BE NB TA CU F PB MN CU FE SN ZN MO W AG V U TH AU

MAIN COMMOD..... FLD BI BE

MAIN ORE MINERALS:

FELDSPAR, BISMUTH MINERALS, LITHIUM-BEARING MINERALS

MINOR ORE MINERALS:

ABUNDANT AND WIDESPREAD MINERALS INCLUDE: ALBITE, MICROCLINE, MUSCOVITE, QUARTZ AND TOURMALINE. SPODUMENE
 AUDEPTONLITE AND WIDESPREAD OR LOCALLY ABUNDANT MINERALS.

COMMON MINERALS INCLUDE: APATITE, BERYL, BIOTITE, CLAY MINERALS, COLUMBITE TANTALITE, FLUORITE, GALENA.
 NOT COMMON MINERALS INCLUDE: AMBYGONITE, BISMUTITE, CHALCEDONY, COCKEITE, EPIDOTE, HEMATITE,
 HUREAULITE, LITHIOPHYLITE - TRIPLHYLITE, MAGNETITE, MANGANITE, MICKOLITE, PYRITE, PYROCHLORE, PYROLUSITE,
 PYRRHOTITE, SERICITE, TRIPLITE, AND ZEOLITE MINERALS.

RARE MINERALS INCLUDE: ALLANITE, ANGLESITE, ARSENOPYRITE, AZURITE, BEYERITE, BISMUTH, BORNITE,
 BISMUTHINITE, CALCITE, CHALCOHITE, COPPER, CASSITERITE, CHALCOPYRITE, CURPRITE, CERUSSITE, CHRYSOCOLLA,
 DESCLOIZITE, GALENA, GOETHITE, HYDROZINCITE, HEMIMORPHITE, MALACHITE MINETITE, MOLYBDENITE, MOLYBDITE,
 MONAZITE, POWELLITE, PURPURITE, PYROMORPHITE, SCHEELITE, SICKLERITE, SILVER, SPHALERITE, SPINEL, STEWARTITE,
 STRENGITE, VANADINITE, VIVIANITE, WULFENITE, ZINMWALDITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT: LENTICULAR/PINCH AND SWELL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

MAX LENGTH..... 2000 FT

MAX WIDTH..... 200 FT

STRIKE OF OREBODY.... N TO NNE OR ENE TO E

DIP OF OREBODY..... STEEP

PRODUCTION

YES

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... PEGMATITE; YAVAPAI SCHIST (GNEISS AND SCHIST) AND INTRUSIVES OF PORPHYRITIC
 RHYOLITE, DIORITE AND GABBRO; GRANITE PEGMATITE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.

IMPORTANT ORE CONTROL/LOCUS.. PEGMATITES IN SCHIST ARE LARGER AND HAVE MORE BULBOUS FORM THAN PEGMATITES IN
 GRANITE WHICH ARE SMALL, THIN, AND IRREGULARS MOST ARE DISCORDANT IN DETAIL WITH SHARP CONTACTS WITH WALLROCK.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NNE-ESE FOLIATION AND SCHISTOSITY; JOINTS, SHEARS; PEGMATITES ARE ZONED.

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE AND POWELLITE AS A RARE MINERAL IN PEGMATITES; MOLYBDENITE IS SPARSELY SCATTERED

GENERAL REFERENCES

1) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES,

ARIZONA: UNIV. ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS.

2) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.,

3) DALE, V.B. (1961) TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA. U.S. BUR. MINES INF. CIRC. 8078., P. 36-39.

4) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.

5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P. P. 141, 156, 205.

6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

7) WILSON, E. D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ., BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

RECORD 00175

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800119
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... BLACK HAWK MINE
MINING DISTRICT/AREA/SUBDIST. VULTURE DIST/VULTURE MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MARICOPA CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 VULTURE MOUNTAINS, ARIZONA

LATITUDE LONGITUDE
33-48-03N 112-50-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3741400. 329300. +12

TWP..... 05N
RANGE.... 06W
SECTION.. 01
MERIDIAN. GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 S. OF VULTURE MINE

LOCATION COMMENTS: W SIDE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD AU

MAIN COMMOD..... PB AU
MINOR COMMOD..... MD

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... PURCHASED IN 1927 BY NEW MONTE CRISTO MIN. CO.

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 11 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
120 FT DOWN ON WINZE AT 200 FT LEVEL IN 1927 (CLIPPING FILE). SHAFT SHOWN ON TOPO MAP

RECORD 00176

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M800239
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILY, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... BLACK HAWK MINE
MINING DISTRICT/AREA/SUBDIST. VULTURE DIST/VULTURE MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MARICOPA CO

QUAD SCALE QUAD NO OR NAME
1: 0062500 VULTURE MOUNTAINS, ARIZ

LATITUDE LONGITUDE
33-48-03N 112-50-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3741460. 329300. 12

TWP..... 05N
RANGE..... 06W
SECTION.. 01
MERIDIAN. G&SR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MI S. OF VULTURE MINE

LOCATION COMMENTS: W SIDE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD AU

MAIN COMMOD..... PB AU
MINOR COMMOD..... MD

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... PURCHASED IN 1927 BY NEW MONTE CRISTO MIN. CO

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 11 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

120 FT DOWN ON WINZE AT 200 FT LEVEL IN 1927 (CLIPPING FILE). SHAFT SHOWN ON TOPO MAP

GENERAL REFERENCES

1) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00177

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M002803
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... CAVE CREEK DIST.
SYNONYM NAME..... MARICOPA & PHOENIX MINES

MINING DISTRICT/AREA/SUBDIST. DAVE CREEK DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA CO

QUAD SCALE QUAD NO OR NAME
1: 0024000 NEW RIVER MESA, ARIZ.

LATITUDE LONGITUDE
33-52-35N 111-57- W

UTM NORTHING UTM EASTING UTM ZONE NO
3729600. 412100. 12

TWP..... 06N
RANGE.... 04E
SECTION.. 08
MERIDIAN. G&S

ALTITUDE.. 2400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES N. OF DAVE CREEK ON SLOPE E OF CAVE CR.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MD AU AG PB W V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU

MAIN COMMOD..... CU AU
MINOR COMMOD.... PB AG MD W V

MAIN ORE MINERALS:
OXIDIZED LEAD MINERALS & GOLD

MINOR ORE MINERALS:
LINDGRANITE WITH CUPROTUNGSTITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
DEPTH TO BOTTOM..... 90 FT
MAX WIDTH..... 300 FT

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. WILSON ETAL, 1934, P. 164

PRODUCTION COMMENTS.... GOLD PRODUCTION PROBABLY AMOUNTS TO \$250,000 WAS MOSTLY MADE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... ALTERED SCHIST, INTRUDED BY DIKES OF GRANITE PORPHYRY & RHYOLITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. PREC
IGNEOUS ROCK TYPES..... DIKES OF GRANITE PORPHYRY & RHYOLITE PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. GOLD ASSOCIATED WITH FINE GRAINED GRAYISH QUARTZ IN SILICIFIED BRECCIATED ZONES OF NORTHWARD STRIKE & STEEP DIP.

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 130.
- 2) SCHALLER, W.T., 1932, CHEMICAL COMPOSITION OF CUPRO-TUNGSTITE. AMER. MIN. 17: 234-237.

LEWIS, A.S., 1920, ORE DEPOSITS OF CAVE CREEK

- DISTRICT ARIZONA, ENGR. MINING JOUR. 110: 713-716.
- 3) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 164
- 4) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P.

ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS

CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

DEPOSITS: U.S. GEOL. SURVEY, BULL. 652, 85 P.

CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U. S.

IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-25.

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF

HESS, F.L., 1917, TUNGSTEN MINERALS AND

HESS, F. L. AND E. S. LARSEN, 1921,
U. S. GEOL. SURVEY BULL. 725

LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN

RECORD 00178

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800242
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 12

NAME AND LOCATION

DEPOSIT NAME..... TAMARACK GROUP
SYNONYM NAME..... NEAR BUT NOT THE SAME AS MORNING STAR PROSPECTS & SUNSET PROSPECTS POSSIBLY WHITE CLOUD

MINING DISTRICT/AREA/SUBDIST. MORRISTOWNAREA/WHITE PICACHO DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MARICOPA

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ

LATITUDE LONGITUDE
33-57- N 112-34- W

UTM NORTHING UTM EASTING UTM ZONE NO
3757500. 355300. +12

TWP..... 07N 08N
RANGE.... 03W 03W
SECTION.. 15 16 22
MERIDIAN. G&SR

ALTITUDE.. 2600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 13 MILES FROM MORRISTOWN IN UPPER SAN DOMINGO WASH

LOCATION COMMENTS: UNCERTAIN LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU

MAIN COMMOD..... W AU

MAIN ORE MINERALS:
SCHEELITE

MINOR ORE MINERALS:
POWELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2

PRESENT/LAST OWNER..... PROPERTY IS INACTIVE
CLAIMS RELOCATED IN 1941 BY D.G. MCMILLAN & STILL OWNED BY HIM IN 1959 (DALE, 1959)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 18 FT
STRIKE OF OREBODY.... N55W
DIP OF OREBODY..... 60NE

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 75 FT

COMMENTS(DESCRIP. OF WORKINGS):

2 INCLINED, INACCESSIBLE SHAFTS, EACH PROBABLY 75 FT DEEP, AND NUMEROUS SHALLOW PROSPECT SHAFTS & OPEN CUTS

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. DALE, 1959

PRODUCTION COMMENTS.... CLAIMS WORKED FOR GOLD BUT PRODUCTION IS UNKNOWN. NO PRODUCTION OF TUNGSTEN BEFORE 1959.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... SCHIST & LIMESTONE (?)

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)
IGNEOUS ROCK TYPES..... GRANITE & PEGMATITE DIKES CUT VEINS

IMPORTANT ORE CONTROL/LOCUS.. SCHEELITE OCCURS IN GARNET-EPIDOTE ROCK WITHIN SCHIST

GENERAL REFERENCES

- 1) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 68 P. BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.

CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS

ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF

THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS.

JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF

RECORD 00180

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030379
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... INCLUDES CHLORIDE, MINERAL PARK, CERBAT, STOCKTON HILLS SUBDISTRICTS MINERAL PARK
 DIST. IS AT CENTER OF WALLAPAI DISTRICT IN E 1/2, T23N, R 18W; CHLORIDE DIST. IS TO NE IN T23 & 24 N, R 18W;
 STOCKTON HILL DIST IS TO SE OF MIN. PARK IN NW 1/4, T22N, R17W; CERBAT DIST IS TO SOUTH OF MINERAL PARK IN NE
 1/4, T22N, R18W.

MINING DISTRICT/AREA/SUBDIST. WALLAPAI DISTRICT/CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 CHLORIDE, CERBAT, STOCKTON HILL, AZ.

LATITUDE LONGITUDE
 35-17'-25"N 114-5'-13" W

TWP..... 22N 24N
 RANGE.... 17W 18W
 MERIDIAN. GILA & SALT R.

ALTITUDE.. 4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 9-20 MI. NORTH OF KINGMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG AU PB CU V MO AS SB AZ

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG CU MO
 MINOR PRODUCTS.. PB ZN

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, ARSENOPYRITE, GALENA & SPHALERITE

MINOR ORE MINERALS:

MOLYBDENITE, GOLD-SILVER TELLURIDE, & STIBNITE; NATIVE AG, HORN AG, CERUSSITE, RUBY AG & ARGENTITE
 CERARGYRITE, NATIVE GOLD, ANGLESITE, AZURITE, MALACHITE, MIMETITE & VANDINITE, NATIVE COPPER, CHALCANTHITE,
 COVELLITE, CUPRITE, SMITHSONITE, & MANGANESE OXIDES, CHALCOHITE, COVELLITE & PROUSTITE, MOLYBDENITE,
 TENNANTITE, PEARCEITE, POLYBASITE, BORNITE, POWELLITE

COMMODITY COMMENTS:

PRODUCTION STATISTICS SUM TO INDICATE THAT ORES WITH HIGH-GRADE ZINC CARRY THE MOST GOLD AND ORES WITH HIGH-GRADE
 HAD THE MOST SILVER (HERNON, 1938, P. 115)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

PRESENT/LAST OWNER..... MOST MINES DISCOVERED BETWEEN 1863-1900 (HERNON, 1938)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS. (STOCKWORK)

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	2	MI
MAX WIDTH.....	33	FT
STRIKE OF OREBODY....	NW	

PRODUCTION

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1	ZN EST	17,000	LB	1915-1888	AN, 1936, P. 19
2	PB EST	6,000	LB	1915-1888	AN, 1936, P. 19

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	548,035	TONS	1904-1932	58,016.27 OZ AU (0.106 OZ/T AU); 2,296,543 OZ AG (4.19 OZ/T AG); 1,260,611 LBS CU (1.15% CU); 39,063,067 LBS PB (3.56% PB); 95,604,614 LBS ZN (8.72% ZN). ORE VALUED IN ALL AT \$13,955,473 (NOLAN 1936)
16	CU ACC	2,900	LBS	-1930	ELSING & HEINEMAN, 1936, P. 73, 95
17	ZN ACC	95,587.3	LBS	-1930	ELSING & HEINEMAN, 1936, 73, 95
18	PB ACC	55,350.0	LBS	?-1930	ELSING & HEINEMAN, 1936, P. 73, 95
19	EST	170.0	\$	1931-1936	HERNON, 1938, P. 111
20	FST	21000-25,000	\$		HERNON, 1938, P. 111
21	EST	10,000	\$?-1904	NOLAN ET. AL, 1936, P. 19
22	PB ACC	54.76	TONS	1909-1948	DINGS 1951, P. 123
23	ZN ACC	35.736	TONS	1904-1948	DINGS, 1951 P. 123
24	ORE ACC	1276.266	TONS	1904-1948	4.29% ZN, 2.8% PB, 0.22% CU, 0.097 OZ/T AU; 3.81 OZ/T AG (DINGS, 1951, P. 126)

SOURCE OF INFORMATION (PRODUCTION).. EIDEL ETC., 1968, P. 1260; DINGS, 1951, P. 125

PRODUCTION COMMENTS.... WALLAPAI MINING DISTRICT (CHLORIDE) YIELDED APPROXIMATELY 1,300,000 TONS OF AU, AG, PB, ZN & CU ORES WORTH \$22,500,000 FROM 1904 TO 1949 (DINGS, 1951)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... GRANITE, GNEISS & SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. QUARTZ MONZONITE AT MINERAL PARK IS 71.5 +/- 2.6 M.Y. (DAMEN & MAUGER)
IGNEOUS ROCK TYPES..... GRANITE PORPHYRY, ITHACA PEAK GRANITE, INTERMEDIUM TO BASIC DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... LIMONITE & QUARTZ ARE MOST COMMON GANGUE MINERALS, WITH CALCITE & GYPSUM
MANGANIFEROUS SIDERITE & RARELY RHODOCHROSITE

IMPORTANT ORE CONTROL/LOCUS.. 2 SETS OF WELL-DEFINED FISSURE VEINS, WITH STEEP DIP-FORMING CONJUGATE SYSTEMS ONE
STRIKING ABOUT N20W, PARALLEL TO JOINTING, AND THE OTHER N50W PERPENDICULAR TO THE SCHISTOSITY OF THE ROCKS.
(SCHRADER 1977). PRIMARY ENRICHED ZONES FOUND AT ABRUPT CHANGES IN STRIKE & AT JUNCTIONS OF BRANCH VEINS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
PARALLEL TO JOINTING, OTHER PERPENDICULAR TO SCHISTOSITY

SIGNIFICANT ALTERATION:
OXIDIZED CAPPINGS, SILICIFIED & SERICITIZED

COMMENTS (GEOLOGY AND MINERALOGY):

IN LOWER LEVELS GALENA DECREASES & PYRITE INCREASES. AG & PB DOMINATE IN CHLORIDE, MINERAL PARK & STOCKTON HILL DISTRICTS; LATERALLY ZONED NORTH-NORTH-EAST DISTRICT WITH A PERIPHERAL AU-AG ZONE, INTERMEDIATE ZONE OF PB-ZN-AG-MINOR AU, AND AN INTRUSIVE CORE OF CU-MO MINERALIZATION WITH THE INTERMEDIATE ZONE LATER THAN & SUPERIMPOSED ON THE HIGHER TEMPERATURE CENTRAL ZONE (EIDEL ETC., 1968, P. 1272).

GENERAL REFERENCES

1) IMPORTANT WALLAPAI MINING DISTRICT REFERENCES:

EIDEL, J. JAMES, FROST, J.E., AND CLIPPINGER, D.M., 1969, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME, GRATON-SALES VOLUME, V. 2, P. 1258-1281.

2) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E, P. 123-162.

3) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.

7) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.

5) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ. 63 P.

2) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:

ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.

3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

4) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.

- 5) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235-, P. 99-112.
- 6) BLANCHARD K., AND BOSWELL, P.F. 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 7) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 8) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.
- 9) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
- 10) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
- 11) FIELD, W. (1966) SULFUR ISOTOPE METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN. ECON. GEOL. 61: 1428-1435.
- 12) GARRETT, S.K., 1936, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 13) GARRISON, F.L. (1907) NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 14) HAURY, P.S. 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
- 15) HERMON, R.H., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 16) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 17) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 18) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 19) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16.
- 20) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 21) SCHRADER, F.C. 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 22) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 23) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 24) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 25) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 26) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 27) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 28) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
- 29) THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
- 30) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 4) GENERAL GEOLOGY OF CERBAT MTS:
ARIZ. MINING JOUR., 1920, V. 8
- 5) DAMON, P.E., AND GILETTI B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 7) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 8) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 9) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 12) MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
- 13) MCKNIGHT, E.T., 1933 MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 14) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

- 15)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 16)SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 17)TANTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 18)THOMAS, B.E., 1951, THE EMERALD ISLE DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-2339
- 19)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 20)WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 21)WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 22)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00191

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030362
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... X1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... MINES INCLUDED IN THE CHLORIDE SUBDISTRICT ARE THE TENNESSEE MINE, SCHUYLKILL MINE, ELKHART MINE, DISTAFF MINE, MOLLIE GIBSON MINE, HERCULES MINE, BADGER MINES. EMPIRE MINE, PAYROLL MINE, REDEMPTION MINE, LUCKY BOY MINE, RAINBOW MINE, SAMOA MINE (MO), MINNESOTA-CANNON MINE, ALTATA MINE, PINKHAM MINE, MIDNIGHT MINE SILVER HILL VEIN JUND MINE, HERRIMAC MINE, TUCKAMOE MINE, & TINTIC MINE

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDIST/WALLAPAI DIST/W CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-24-48N 114-11-56W

UTM NORTHING UTM EASTING UTM ZONE NO
3922300. 754360. 11

TWP..... 24 N 23 N
RANGE.... 18 W 18W
SECTION.. 32 33 34 35 01 02 03 04 05 09 10 11
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 20 MILES NNE FROM KINGMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB AU CU

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, ARSENOPYRITE, GALENA SPHALERITE, MOLYBDENITE, BORNITE

MINOR ORE MINERALS:

SILVER, HORNSILVER, ARGENTITE, RUBY SILVER, CHALCOCITE, OXIDIZED LEAD & COPPER MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1 MI

MAX WIDTH..... 5 FT

STRIKE OF OREBODY.... N6NW

PRODUCTION

SMALL PRODUCTION

2 QUARTZ MONZONITE AT ITHACA PEAK IS 71.5 +/- 2.6 M.Y. (DAMON & MAUGER, 1966)

SOURCE OF INFORMATION (PRODUCTION).. SCHRADER, 1907, P. 62

PRODUCTION COMMENTS.... PRODUCED SEVERAL HUNDRED THOUSAND TONS OF LEAD AND SEVERAL MILLION DOLLARS IN GOLD & SILVER
BUT EXACT FIGURES WERE NOT AVAILABLE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... COMPLEX OF DIORITE GNEISS, GRANITE, QUARTZ MONZONITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... MEDIUM, GRAINED GRANITOID & DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... GANGUE IS QUARTZ WITH CALCITE & OTHER CARBONATES

IMPORTANT ORE CONTROL/LOCUS.. MANY ORE SHOTS OCCUR AT INTERSECTIONS OF SPURSOR FEEDERS WITH VEINS. VEINS STRIKE A
LITTLE WEST OF NORTH-WITH NEARLY VERTICAL DIP OR STRIKE NORTHWEST WITH NORTHEAST OR SOUTHWEST DIPS. STRIKE & DIP
OF FISSURE CONTROL ORE WITH CONCENTRATIONS WHERE STRIKE CHANGES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NW TRENDING JOINT SYSTEM

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

LEAD ZINC DEPOSITS ARE SUPERIMPOSED & SURROUND DISSEMINATED COPPER MINERALIZATION AT ITHACA PEAK (THOMAS, 1949).

GENERAL REFERENCES

1) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE

COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 51-80

2) CHLORIDE AREA:

- THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
 3) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 62-65.
 4) THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
 5) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
 6) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E., P. 123-162.
 7) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
 8) MALACH R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
 9) MALACH R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 10) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

11) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.

3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:

- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
 4) BLANCHARD, K. AND BOSWELL, P.F., 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
 5) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
 6) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MPA.
 7) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
 9) FIELD, W. (1966) SULFUR ISOTOPE METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN. ECON. GEOL. 61: 1428-1435.
 10) GARRISON, F.L., 1907 NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
 11) HAURY, P.S. 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. IN.V 4101.
 12) HERNDON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
 13) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
 15) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16.
 16) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
 17) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. US. GEOL. SURVEY BULL. 340: 53-83.
 18) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 19) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 20) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
 22) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ BULL. 124, P. 456-460.
 23) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
 24) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S. 1908, PT. 2, PP. 847-852.
- 4) GENERAL GEOLOGY OF CERBAT MTS:
 ARIZ. MINING JOUR., 1920, V. 8
 5) DAMON, P.E., AND GILETTI B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
 6) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND

NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, 639-644.

7)HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.

8)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.

9)JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.

10)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

11)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.

12)WILSON, E.S., DUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES 137, 254 P.

13)MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.

14)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

15)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.

16)SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.

17)TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.

18)THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.

19)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

20)WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.

21)WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.

22)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

23)DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

RECORD 00182

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030364
RECORD TYPE..... 12
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... MINERAL PARK SUBDISTRICT INCLUDES THE RURAL, BUCKEYE, ARK, QUEEN BEE, TYLER,
KEYSTONE, FAIRCHILD, METALLIC ACCIDENT, LADY BUG, STANDARD, & GOLDEN STAR. (SCHRADER, 1909) AND THE MINERAL PARK
MINE (ITHACA PEAK OREBODY, GROSS PEAK & TURQUOISE MTN DEPOSITS)

MINING DISTRICT/AREA/SUBDIST. MINERAL PARK SUBDIST/WALLAPAI DIST./CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CERBAT ARIZ; CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-22-15N 114-09-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3917700. 758700. +11

TWP..... 23N 23N
RANGE.... 17W 18W
SECTION.. 18 19 13 24 25
MERIDIAN. GILA & SALT R..

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: S. OF CHLORIDE SUBDIST., MINERAL PARK WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB CU MO ZN

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU MO
MINOR PRODUCTS.. ZN PB AG AU

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, MOLYBDENITE ARSENOPYRITE, GALENA, SPHALERITE

MINOR ORE MINERALS:

ARGENTITE, NATIVE SILVER, COPPER, HORN SILVER, CERUSITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N50W

PRODUCTION

MEDIUM PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... GNEISSES, SCHISTS & GNEISSOID GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... COARSE GRANITE PORPHYRY CUT BY DIKES OF RHYOLITE, DIABASE & MINETTE

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ GANGUE, IRON OXIDES

IMPORTANT ORE CONTROL/LOCUS.. FISSURE VEINS & STRONGLY FRACTURED PARTS OF GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VEINS STRIKE N37-60 W & DIP STEEPLY TO NE OR SW

SIGNIFICANT ALTERATION:

SILICIFICATION, SERICITIZATION

GENERAL REFERENCES

- 1) EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.M., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.D., ED.): AIME GRANTON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE. 2) DINGS, M.G., 1951 THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 978-E: 123-163.
- 3) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
- 4) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
- 5) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.

180, P. 230-238.

- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 7) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
 - 8) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
 - 9) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.
- 2) MINERAL PARK REFERENCES:
- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RICE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
 - 3) BLANCHARD, K. AND BOSWELL, P.F., 1930 LIMONITE TYPES DERIVED FROM BORNITE AND TETRAHEDRITE. ECON. GEOL. 25: 557-580
 - 4) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
 - 5) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142. MAP.
 - 6) FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.
 - 7) GARRISON, F.L. 1907 NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
 - 8) HERMON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
 - 9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 10) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
 - 11) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
 - 12) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
 - 13) LIVINGSTON, D.E., ET AL., 1967, GECHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-80, APPENDIX A-III.
 - 14) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 15) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
 - 16) MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P., P. 12.
 - 17) MAUGER, R.L., AND DAMON, P.E., 1965, K-ARAGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL PROGRESS REPORT NO. CDD-689-50, P. A-II-1-A-11-8.
- 3) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 4) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 5) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 6) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
 - 7) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 8) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
 - 9) SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
 - 10) SCHRADER F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397
 - 11) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
 - 12) THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
 - 13) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
 - 14) ARIZ. BUR. MINES FILE DATA.
- 4) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS:

N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.

6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.

7) GILTTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.

8) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.

9) HAURY, P.S. 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.

10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.

12) ARIZ. MINING JOUR., 1920, V. 8.

13) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.

14) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

15) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.

16) SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.

17) TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.

18) THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.

19) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

20) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.

21) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.

22) WILSON, F.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00183

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030366
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... MINES INCLUDED IN THE DATMAN DISTRICT ARE: TOM REED MINE (PASADENA AND BLACK EAGLE MINES, TIP TOP ORE BODY & BEN HARRISON SHAFT, OLLA DATMAN SHAFT, BIG JIM-AZTEC ORE SHOOT, AZTEC CENTER CLAIM, GREY EAGLE-BALD EAGLE CLAIMS, TELLURIDE VEIN), UNITED EASTERN MINE (BIG JIM CLAIM), GOLD ROAD MINE, TELLURIDE MINE, PIONEER MINE (GERMAN-AMERICAN), GOLD DUST MINE (VICTOR-VIRGIN), LELAND MINE (LELAND & MITCHELL VEINS), SUNNYSIDE MINE, GOLD ORE MINE, MOSS MINE (LAUSEN, 1931, P. 101-115). IN ADDITION RANSOME (1923, PLATE 1) INDICATES THE FOLLOWING IN THE DATMAN DISTRICT: BOUNDARY COVE MINE, AMERICAN MINE, MEALS MINE, TANGO MINE, RATTAN MINE, RUTH MINE, NEW YORK MINE, MIDWAY MINE, RECORD LODGE MINE, NEGLECTED MINE, SUN DIAL MINE, DATMAN AMIG. MINE, HERCULES MINE, PITTSBURG MINE, IVANHOE MINE, ARIZ. GOLD STAR MINE, BIG LODGE MINE, TIMES MINE, DATMAN BELLE MINE, GOLD RANGE MINE, MILLER MINE, SURPRISE MINE, COMSTOCK MINE, NORTH STAR MINE, GOLD REED MINE, BLUE BIRD MINE, ARIZONA REX MINE, EDMANZA MINE, UNITED WESTERN MINE, ARIZONA CENTRAL MINE, RED CLOUD MINE, FESSENDEN MINE, LITTLE JIM MINE, MOHAWK CENTRAL MINE, DATMAN UNITED MINE, KOKOMO MINE, LUCKY BOY MINE, AZTEC MINE, DATMAN COMBINATION MINE, TELLURIDE NO. 3 MINE, TELLURIDE NO. 2 MINE, TELLURIDE NO. 1 MINE, ARGO MINE, CASEY JONES MINE, SUNNYSIDE MINE, PICTURED ROCK MINE, LAST CHANCE MINE, HI HENRY MINE, LEADER MINE, WHITE CHIEF MINE, TOM REED, JR. MINE, LIBERTY BELL MINE, DATMAN QUEEN MINE, SWISS AMERICAN MINE, GOLCONDA MINE, GILT EDGE MINE, VIVIAN MINE, WINCHESTER MINE, ALCYONE MINE, UNITED DATMAN MINE, PEERLESS MINE, IOWA MINE, LAZY BOY MINE, ESPERANZA MINE, HIGHLAND CHIEF MINE, CRESCENT MINE, ADAMS MINE, DATMAN SYNDICATE MINE, DATMAN SOUTHERN MINE, MURDOCK MINE, LUCKY SAM MINE

MINING DISTRICT/AREA/SUBDIST. DATMAN DIST./BLACK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 DATMAN, ARIZ; MOUNT NUTT, ARIZ.

LATITUDE LONGITUDE
 35-0133N 114-22-55W

UTM NORTHING UTM EASTING UTM ZONE NO
 3879000. 739000. 411

TWP..... 19N 18N
 RANGE.... 20W 20W
 SECTION.. 03 05 08 09 10 11 14 15 20 21 22 23 24 25 26 27 35 33 3,5
 MERIDIAN. GILA & SALT R.

ALTITUDE.. 2680 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR DATMAN, ARIZ.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG

MAIN ORE MINERALS:

GOLD, GOLD-SILVER ALLOYS

MINOR ORE MINERALS:

SPECKS OF CHALCOPYRITE & CHALCOCITE, RARE PYRITE, CHRYSOCOLLA, RED LEAD OXIDE, WULFENITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

2 OZ AU TO 1 OZ AG IN PRODUCTION YEARS (LAUSON, 1931)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: STRINGERS, PINCH & SWELL

PRODUCTION

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... DATMAN ANDESITE, GOLD ROAD LATITES ALCYONE TRACHYTE, LINES PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT

IGNEOUS ROCK TYPES..... DATMAN ANDESITE, GOLD ROAD LATITE, ALCYONE TRACHYTE, TIMES PORPHYRY (YOUNGER THAN TIMES PORPHYRY 22.6 M.Y.A.-THORSON)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... QUARTZ AND CALCITE VEINS, SMALLER AMOUNTS OF FLUORITE AND ADULARIA, GYPSUM, LIMONITE, HEMATITE AND PYROLUSITE

IMPORTANT ORE CONTROL/LOCUS.. FISSURE OR FRACTURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

PYRITIZED AREAS MORE ALTERED; BLEACHING; KAVLIN, CALCITE, & CHLORITE HAVE FORMED

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

EARLIER STAGES OF ORE DEPOSITION CARRIED MORE AG THAN AU; LATEST STAGE CARRIED MORE AU THAN AG

GENERAL REFERENCES

1) DATMAN IMPORTANT ARTICLES:

- 1) LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P.
- 2) LAUSEN, CARL, 1931, GOLD VEINS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.
- 3) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP.
- 4) WELLS, R.C., 1937, ANALYSES OF ROCKS AND MINERALS FROM THE LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, 1914-1936: U.S. GEOL. SURVEY BULL. 878, 134 P., P. 9-10.
- 5) THORSON, J.P., 1971, IGNEOUS PETROLOGY OF THE DATMAN DISTRICT, MOHAVE COUNTY, ARIZONA: PH.D. THESIS, UNIV. CALIF., SANTA BARBARA, 189 P.
- 6) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. BULL. 397, P. 151-180
- 7) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA, U.S. GEOL. SURVEY BULL. 340: P. 53-83, P. 72-82

2) DATMAN ARTICLES:

- 1) ARIZONA MINING JOURNAL, 1921, RECALLING THE DAYS OF THE GREAT DATMAN BOOM IN 1915: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 21.
- 2) ARIZONA MINING JOURNAL, 1921, HISTORY OF TOM REED MINE IS STORY OF SUCCESS AFTER FAILURE: MIN. JOUR. V. 5, NO. 10, P. 24.
- 3) ARIZONA MINING JOURNAL, 1921, UNITED EASTERN COMPANY PUSHING DEVELOPMENT WORK: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 22.
- 4) BANCROFT, H., 1915, GEOLOGY OF GOLD ROAD DISTRICT (NEAR KINGMAN, ARIZONA): MIN. SCI. PRESS, V. 111, P. 21.
- 5) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART I--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 6) BOERICKE, W.F., 1922, DATMAN TODAY: ENGR. MIN. JOUR., V. 113, P. 51-53.
- 7) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ENGR. MIN. JOUR., V. 3, P. 747-748.
- 8) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ARIZ. MIN. JOUR., V. 4, NO. 11, P. 3-6.
- 9) BURGESS, J.A., 1916, UNITED EASTERN MINE, DATMAN, ARIZONA: ENGR. MIN. JOUR., V. 102, P. 232-2339
- 10) BURGESS, J.A., 1920, UNITED EASTERN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 2, P. 41-43.
- 11) DINSMORE, C.A., 1911, HISTORY AND DEVELOPMENT OF THE GOLD ROAD MINE: MIN. ENGR. WORLD, V. 35, P. 1275-1276.
- 12) DDMAN, R.S., 1922, THE LURE OF ARIZONA GOLD WAS THE INSPIRATION FOR DATMAN: ARIZ. MIN. JOUR., V. 6, 14, P. 3-4.
- 13) GARDNER, E.D., 1936 GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES INF. CIRC. 6901.
- 14) HOLT, E.D., 1940, GOLD MINES IN THE RIVER RANGE OF ARIZONA: MIN. JOUR., V. 24, NO. 5, P. 3-6.
- 15) JOHANNSEN, A., 1908, NOTES ON THE IGNEOUS ROCKS OF WESTERN ARIZONA; IN LEE, W.T., GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, P. 81-92.
- 16) JOHNSON, C.H., 1935, MINING AND MILLING METHODS AT THE BIG JIM MINE, DATMAN, ARIZONA: U.S. BUR. MINES, I.C. 6824, 12 P.
- 17) LAUSEN, CARL, 1942, THE DATMAN AND KATHERINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS, P. 226-229.
- 18) MARTIN, A.H., 1909, SAN FRANCISCO DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 368.
- 19) MINING JOURNAL, 1937, ANNUAL REPORT ISSUED BY TOM REED GOLD MINES COMPANY: MIN. WORLD, V. 21, NO. 3, P. 37.
- 20) MOORE, R.W., 1928, MINING METHODS AND RECORDS AT THE UNITED EASTERN MINE: TRANS. AIME, V. 76, P. 569
- 21) O'BRIEN, J.F., 1922, DIAMOND DRILLING OPERATIONS INCREASING IN DATMAN DISTRICT: ARIZ. MIN. JOUR., V. 5, NO. 19, P. 20-21.
- 22) O'BRIEN, J.F., 1922, GOLD PROPERTIES AT DATMAN PREPARING FOR DEVELOPMENT: ARIZ. MIN. JOUR., V. 5, NO. 20, P. 25.
- 23) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 895-900.
- 24) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 113, P. 193-196.

- 26)PETERS, W.C., 1969, THE ECONOMICS OF MINERAL EXPLORATION: GEOPHYSICS, V. 34, NO. 4, P. 633-644.
- 27)PROBERT, F.H., 1916, DATMAN, ARIZONA (GEOLOGY AND MINERALIZATION): MIN. SCI. PRESS, V. 112, P. 17-20.
- 28)RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA (EXTRACTS): ARIZ. MIN. JOUR., V. 7, NO. 9, P. 5-6, 14-18; ARIZ. MIN. JOUR., V. 7, NO. 10, P. 41-45.
- 29)RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-681.
- 30)RITTER, E.A., 1916, DATMAN AND THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: MIN. WORLD, V. 44, P. 645-648.
- 31)SCHWARTZ, G.M., 1944, THE HOST MINERALS OF NATIVE GOLD: ECON. GEOLOGY, V. 39, NO. 6, P. 371-411.
- 32)SCOTT, W.A., 1916, PRESENT DEVELOPMENT OF THE DATMAN DISTRICT OF ARIZONA: MIN. ENGR. WORLD, V. 44, P. 1033-1038.
- 33)SHAW, E.A., 1920, UNITED AMERICAN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 3, P. 21.
- 34)SPERR, J.D., 1916, THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 1-5.
- 35)SPILLMAN, C.F., 1916, TOM REED GOLD MINES PROPERTY, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 1073-1074.
- 36)SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 26-28.
- 37)TODT, W.L., 1906, GOLD ROAD, DIE BEDEUTENDSTE GOLDBERG ARIZONAS: OESTERREICHISCHE ZEITSCHRIFT FUR BERG-UND HUTTENWESEN, V. 54, P. 549-550, WEIN.
- 38)WILLIS, C.F., 1921, ACTIVITY IN DATMAN AT HIGHLAND CHIEF MINES: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 64, 68.
- 39)WILLIS, C.F., 1923, ROMANCES OF SOME OF ARIZONA'S MINES: ARIZ. MIN. JOUR., V. 7, NO. 11, SUPPLEMENT, P. 1-16.
- 40)WISEMAN, PHILIP, 1924, UNITED EASTERN REPORT GIVES FUTURE PLANS: ARIZ. MIN. JOUR., V. 8, NO. 6, P. 23-24.
- 41)WOLLE, MURIEL S., 1959, DATMAN: ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 10, NO. 7, P. 68.
- 3) BLACK MTS GENERAL GEOLOGY:
- ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.
- 4)ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDOORADO MTS CLARK CO., NEVADA, & COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.
- 5)ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
- 6)ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMERICA JOUR. SCI., V. 267 P. 478-490.
- 7)ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394.
- 8)ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GEODIN COSMOCHIM. ACTA, V. 34, P. 203-232.
- 9)BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP 75-93.
- 10)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.
- 11)LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP
- 4) MOHAVE CO GEOLOGY AND ORE DEPOSITS:
- HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 5)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 6)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 7)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 8)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS.
- 9)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 10)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 11)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 12)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AME BULL. 123, P. 379-384.
- 13)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 14)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H.,

AME BULL. 124, P. 456-460.

15)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.

16)DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

17)SCHRAEDER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.

18)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

19)TQVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.

20)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

21)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

RECORD 00184

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030354
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... MAYNARD DISTRICT INCLUDES THE AMERICAN FLAG, ENTERPRISE, GREAT EASTERN GROUP, &
SIAMESE GROUP.

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST./N. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK, ARIZ.

LATITUDE LONGITUDE
35-06-33N 113-48-39W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 20N

RANGE.... 15W

SECTION.. 13 23 24 14 22 25 26 27

MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5-20 MILES FROM RAILROAD AT KINGMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG CU MO HG PB AU W

MAIN ORE MINERALS:

HORN SILVER (BROMYRITE?)

MINOR ORE MINERALS:

COPPER, MOLYBDENITE, NATIVE MERCURY, LEAD CARBONATE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

FT

STRIKE OF OREBODY.... NW

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

THE DISTRICT WAS DISCOVERED IN 1865 BUT LITTLE WORK WAS DONE UNTIL IT WAS REORGANIZED IN 1871 (NOLAN ETAL, 1936, P. 16)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	3.982	TONS	1904-1932	22.63 OZ/T AG 0.16 OZ/T AU, 6.04% CU, 1.3% PB
16	ORE EST	40	TONS	1871-1974	AU-AG, PB-ZN, CU, MO-W
17	AG ACC	90.093	OZ	1904-1932	22.63 OZ/T
18	AU ACC	0.64322	OZ	1904-1932	0.16 OZ/T AU
19	CU ACC	3.149	LB	1904-1932	0.04% CU
20	PB ACC	104.248	LB		1.3% PB

SOURCE OF INFORMATION (PRODUCTION).. HEWETT ETAL 1936 P.16

PRODUCTION COMMENTS.... 1904-1932 RECORDED PRODUCTION WAS 3,982 TONS OF ORE YIELDING 643.22 OZ AU, 90.093 OZ AG, 3.149 LBS CU, 104.248 LBS PB, VALUED IN ALL AT 103,669. VUICH, 1974, P. 9, STATES ESTIMATED TOTAL PRODUCTION WOULD APPROXIMATE 40,000 TONS OF ORE MINED FOR AU, AG, PB, ZN, CU, MO & W.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC & CRET.

HOST ROCK TYPES..... RED GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... PORPHYRY DIKES

PERTINENT MINERALOGY..... QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIATED ZONES & VERTICAL FRACTURES

SIGNIFICANT ALTERATION:

POTASSIC, SERICITIC, ARGILLIC, PROPYLLITIC; PYRITE HALO

COMMENTS (GEOLOGY AND MINERALOGY):

INNERMOST ZONE=MO-W; OUTWARD PROGRESSION TO CU-MO-PB-ZN-AG, TO AU-AG

GENERAL REFERENCES

- 1) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 571, 197 P., P. 16.
- 2) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 3) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 4) GENERAL GEOLOGY OF MAYNARD DISTRICT:
ARIZ. DEPT. MINERAL RESOURCES 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES. PHOENIX.
- 5) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 6) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236.
- 7) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 8) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 9) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 10) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 47, 139-142.
- 11) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 12) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 13) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 14) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- GENERAL GEOLOGY OF HUALAPAI MTS:
- 15) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 16) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
- 17) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 18) HANSEN, S.C. 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 19) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 20) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 21) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 22) HOUSEHOLDER, F., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 23) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 24) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 25) LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 26) MINING WORLD, V. 3, NO. 4, 1941.
- 27) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS
- 28) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 29) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 30) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 31) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.

- 32) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 33) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 34) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 36) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 37) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 38) TOWNE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- GENERAL GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 39) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 40) GILLESPIE, J.B., BENTLEY, C.B., AND KAH, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 41) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 42) LANU, G.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 43) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 44) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 45) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P. MAPS
- 46) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197.
- 47) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 48) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 49) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 51) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00195

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030349
RECORD TYPE..... 42
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... I
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. BORTANA DIST. (CEDAR VALLEY)/4. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 WABAYUMA PEAK, ARIZ

LATITUDE LONGITUDE
34-56-15N 113-54-53W

UTM NORTHING UTM EASTING UTM ZONE NO
3869730. 233770. +12

TWP..... 18N
RANGE.... 15W
SECTION.. 18
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 TO 20 MILES FROM RAILROAD AT YUCCA

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU AU AG MD CAF BE

MAIN ORE MINERALS:

SCHEELITE, WOLFRAMITE, CHALCOPYRITE

MINOR ORE MINERALS:

MOLYBDENITE, PYRITE ARSENOPYRITE, GOLD, SILVER, HEMATITE, CUPROTUNGSTITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N30E

DIP OF OREBODY..... 80

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 1060 FT

LENGTH OF WORKINGS..... 16000 FT

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	EST	100	\$? - 1904	
16	ORE ACC	15.228	TONS	1904-1932	3.079 OZ/T AG, 0.098 OZ/T AU, 1.025% CU, 0.28% PB, 0.0075% ZN
17	AU ACC	1.5449	OZ	1904-1932	0.098 OZ/T
18	AG ACC	48.428	OZ	1904-1932	3.079 OZ/T AG
19	CU ACC	322.426	LB	1904-1932	1.025% CU
20	1904-1932	89.242	LB		0.28% PB
21	ZN ACC	2.372	ZN	1904-1932	0.0075% ZN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... PHYLLITE
IGNEOUS ROCK TYPES..... GRANITE STOCK, APLITE DIKES

PERTINENT MINERALOGY..... QUARTZ, FLUORITE, CALCITE, SOME APATITE & BERYL

IMPORTANT ORE CONTROL/LOCUS.. ORE IN QUARTZ VEINS FOLLOWING FOLIATION IN PHYLLITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MINOR FAULTING OFFSETS VEINS

SIGNIFICANT ALTERATION:
SILICIFICATION & SERICITIZATION

GENERAL REFERENCES

1) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION

CIRCULAR 1.C. 8078, 104 P., P. 73

- 2) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, I.B., RUBEY, W.W., AND SCHALLER, W.I., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 371, 197 P., P. 14
- 3) MOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 4) KERN, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 102-103.
- 5) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 6) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 7) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 8) LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 9) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 10) MINING WORLD, V. 3, NO. 4, 1941.
- 11) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 11-14.
- GENERAL GEOLOGY OF HUALAPAI MTS:
- 12) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 13) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 14) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 15) HANSEN, S.C. 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 16) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 17) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ: U.S. BUR. MINES REP. INV. 4101.
- 18) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 19) HOUSEHOLTER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 20) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB: M.S. THESIS, UNIV. ARIZ., 73 P.
- 21) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 22) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 23) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 24) NOLAN, I.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 25) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 26) RIMSLO, I.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 27) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 28) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 29) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 30) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 31) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 32) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 397, 266 P., P. 47.
- 33) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 34) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 35) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 36) VOITCH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 37) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.

RECORD 00186

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030348
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C
 DATE..... 79 07

NAME AND LOCATION

SYNONYM NAME..... INCLUDES MAYNARD DISTRICT, BORIANA DISTRICT, AND NEWLY DEFINED DIAMOND JOE DISTRICT. FORMERLY CEDAR VALLEY OR CEDAR DISTRICT WAS APPLIED TO SEVERAL GEOLOGICALLY DISTINCT AREAS WHICH HAVE HAD OTHER NAMES; BOTH ARE NOW DROPPED. THE MAYNARD DISTRICT IS IN THE NORTHEASTERN HUALAPAI MOUNTAINS 15 MILES SOUTHEAST OF KINGMAN NEAR WHEELER WASH. ORIGINALLY CALLED THE HAUBA YUMA DISTRICT IN 1865, BUT CALLED MAYNARD DISTRICT BY HILL (1912), SCHRADER (1909,1917), AND ARIZ. BUR. GEOLOGY MINING DISTRICT MAP. THE BORIANA DISTRICT, AS DEFINED BY HOBBS (1944), IS IN THE VICINITY OF THE BORIANA MINE IN BORIANA CANYON ON THE WESTERN SLOPE OF THE HUALAPAI MTS. IT WAS CALLED THE CEDAR VALLEY DISTRICT BY HEWETT (1936) AND THE ARIZ. BUR. MINES MINING DISTRICT MAP. HOWEVER, HILL (1912) USED CEDAR VALLEY FOR THE MCCrackEN MTS. (OWENS DISTRICT) IN SOUTHERN MOHAVE COUNTY. THE DIAMOND JOE DISTRICT IS NEWLY DEFINED FOR THE AREA NEAR DIAMOND JOE PEAK AND DELUGE WASH ON THE CENTRAL EASTERN SLOPES OF THE HUALAPAI MTS. THE AREA HAS BEEN INCLUDED IN THE CEDAR DISTRICT (MALACH, 1977), THE CEDAR VALLEY DISTRICT (HEWETT, ETAL, 1936), AND THE MAYNARD DISTRICT (ANTHONY ET AL 1977). BECAUSE OF THIS CONFUSION AND THE FACT THAT IT IS A SEPARATE SULFIDE SYSTEM, THE AREA IS GIVEN A NEW DISTRICT NAME BASED ON THE PROMINENT TOPOGRAPHIC FEATURE (DIAMOND JOE PEAK) AND THE INFORMAL NAME OF THE LARAMIDE INTRUSION.

MINING DISTRICT/AREA/SUBDIST. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

LATITUDE LONGITUDE
 35 114

TWP..... 20N 18N
 RANGE.... 14W
 MERIDIAN. GILA & SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 10-30 MILES SE OF KINGMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU AU AG MD CA F BE BI

MAIN ORE MINERALS:
 SCHEELITE, WOLFRAMITE

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOPYRITE, GOLD, SILVER, PYRITE, ARSENOPYRITE, CUPROTUNGSTITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS, DISSEM

PRODUCTION

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET, PREC
HOST ROCK TYPES..... GRANITE-MONZONITE; SCHIST; GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... GRANITE-QUARTZ MONZONITE

PERTINENT MINERALOGY..... QUARTZ VEINS; QUARTZ-FLUORITE-CALCITE VEINS; APATITE, CHLORITE, BERYL; HEM.

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NE FAULTS

SIGNIFICANT ALTERATION:
SILICIFICATION, SERICITIZATION

GENERAL REFERENCES

- 1) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 2) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 3) NORTON, F.W., 1916, MOLYBDENUM; ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 132 P.
- 4) MOLYBDENUM IN HUALAPAI MTS:
ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 6) DEPT. MINERAL RESOURCES 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
- 7) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 8) HESS, F.L., 1924, MOLYBDENUM DEPOSITS—A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 9) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEN, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 10) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.

- 11) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 237, 27.
- 12) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 13) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
- 14) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 15) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93.
- 16) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 17) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- GENERAL GEOLOGY OF HUALAPAI MTS:
- 18) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1-- METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 19) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 20) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 21) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 22) HANSEN, S.C. 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 23) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 24) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 25) HOUSEHOLDER, E. 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 26) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 27) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB: M.S. THESIS, UNIV. ARIZ., 73 P.
- 28) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 29) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-629, MIN. AND SCI. PRESS.
- 30) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 31) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 32) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GECHIMICA ET COSMUCHIMICA ACTA, V. 27, P. 53-106.
- 33) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 34) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 35) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 36) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 37) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 38) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 55, PP. 193-236.
- 39) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 40) TUVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 41) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 42) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 43) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 44) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOMORPHOLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 45) LANU, G.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITIO. 3, P. 155-159.
- 46) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE

WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P. 47)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.

48)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS

49)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, 5, P. 145-147

50)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.

51)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.

52)SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.

53)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.

54)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00187

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030374
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... AMERICAN MOLYBDENUM MINE

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT (DELUGE WASH AREA)/E. HUALAPAI MTS. THE AREA WAS FORMERLY INCLUDED IN THE CEDAR VALLEY DISTRICT WHICH IS ON THE WEST SLOPE OF THE HUALAPAI MTS (HEWETT ETAL, 1936). MALACH (1977) INCLUDES THE AREA IN THE CEDAR DISTRICT AFTER THE CEDAR MINES IN THE DIAMOND JOE PEAK AREA, SHOWN ON SCHRADER'S (1909) MAP AS THE CEDAR MINE. DIAMOND JOE PEAK IS A MAJOR NAMED TOPOGRAPHIC FEATURE IN THE AREA & IS THE INFORMAL NAME OF THE LARAMIDE INTRUSIVE STOCK.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ.

LATITUDE LONGITUDE
34-49-37N 113-47-18W

UTM NORTHING UTM EASTING UTM12ONE NO

TWP..... 17N
RANGE.... 14W
SECTION.. 29 WC
MERIDIAN. GILA & SALT R.

ALTITUDE.. 3880 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 0.4 MILE SE OF LEVIATHAN MINE DOWN DELUGE WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE CHALCOPYRITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET.
HOST ROCK TYPES..... MEDIUM GRAINED GRANITE-DIAMOND JOE STOCK

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... DARK BIOTITE QUARTZ MONZONITE-DIAMOND JOE STOCK

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. STRONG QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
N40 W FAULT WITH SOUTHWEST SIDE DOWN

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 2) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 3) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 4) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 5) HORTON, F.W., 1916, MOLYBDENUM: ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 132 P.
- 6) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 7) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 8) DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
- 9) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236, P. 237, 57.
- 10) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- GEOLOGY OF HUALAPAI MTS:
- 12) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93.
- 13) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 14) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 15) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 16) HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA

- 17)UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 18)HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 19)HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUPEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 20)HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 21)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 22)KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 23)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
- 24)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 25)GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180. ORE & GEOLOGY OF MOHAVE CO.:
- 26)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 27)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352 96 P.
- 28)MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 19)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 30)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS.
- 31)MENSCH, W.A., 1899-1908 MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 32)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 33)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 34)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATIS, AND J.C. ANDERSON) AIME BULL. 123, P. 379-384.
- 35)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-7379
- 36)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 37)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 38)DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 39)PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 40)ROMSLO, T.M., 1948, ANTLEER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 41)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 42)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 43)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 44)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUTNY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 45)SHEPPARD, R.A. AND GUDE, A.J., 2II, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 46)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
- 47)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.
- 48)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 49)GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 50)GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.

- 51)LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 52)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 5 P.
- 53)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 54)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.E.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 55)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197

RECORD 00188

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030368
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILY, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... AZTEC SHAFT
SYNONYM NAME..... PART OF TOM REED MINE (AZTEC CENTER CLAIM)

MINING DISTRICT/AREA/SUBDIST. DATMAN DIST./BLACK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 MOUNT NUTT, ARIZ.

LATITUDE LONGITUDE
35-00-59N 114-22-09W

UTM NORTHING UTM EASTING UTM ZONE NO
3877840. 740040. +11

TWP..... 1.N
RANGE.... 20W
SECTION.. 23 NE OF SE

ALTITUDE.. 2860 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE SE OF DATMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB MO

MAIN COMMOD..... AU AG
MINOR COMMOD.... PB MO

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
WULFENITE FILM

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
DEPTH TO TOP 300
DEPTH TO BOTTOM..... 600
MAX WIDTH..... 20 FT

PRODUCTION
SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
HOST ROCK TYPES..... DATMAN ANDESITE, NEAR GOLD ROAD LATITE
AGE OF ASSOC. IGNEOUS ROCKS.. DATMAN ANDESITE IS YOUNGER THAN 22.6 MYA OLDER THAN 10.4 MYA (THORSON)
IGNEOUS ROCK TYPES..... DATMAN ANDESITE NEAR GOLD ROAD LATITE
AGE OF MINERALIZATION..... TERT
PERTINENT MINERALOGY..... QUARTZ
IMPORTANT ORE CONTROL/LOCUS.. FISSURES & FRACTURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MALLORY FAULT CUTS THE BIG JIM-AZTEC ORE SHOOT

COMMENTS (GEOLOGY AND MINERALOGY):
THIN FILM OF BRIGHT YELLOW MINERAL CONTAINING PR&MO BY BLOWPIPE TESTS IN WULFENITE

GENERAL REFERENCES

- 1) DATMAN IMPORTANT ARTICLES:
LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P., P. 60, PLATE 1, P. 74-80, 101-104.
- 2) LAUSEN, CARL, 1931, GOLD VEINS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.
- 3) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP, P. 39-45.

4)WELLS, R.C., 1937, ANALYSES OF ROCKS AND MINERALS FROM THE LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, 1914-1936: U.S. GEOL. SURVEY BULL. 878, 134 P., P. 9-10.

5)THURSON, J.P., 1971, IGNEOUS PETROLOGY OF THE DATMAN DISTRICT, MOHAVE COUNTY, ARIZONA: PH.D. THESIS, UNIV. CALIF. SANTA BARBARA, 189 P.

2) DATMAN:

ARIZONA MINING JOURNAL, 1921, RECALLING THE DAYS OF THE GREAT DATMAN BOOM IN 1915: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 21

3)ARIZONA MINING JOURNAL, 1921, HISTORY OF TOM REED MINE IS STORY OF SUCCESS AFTER FAILURE: ARIZ. MIN. JOUR. V. 5, NO. 10, P. 24.

4)ARIZONA MINING JOURNAL, 1921, UNITED EASTERN COMPANY PUSHING DEVELOPMENT WORK: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 22.

5)BANCROFT, H., 1915, GEOLOGY OF GOLD ROAD DISTRICT (NEAR KINGMAN, ARIZONA): MIN. SCI. PRESS, V. 111, P. 21.

6)BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.

7)BUERCKE, W.F., 1922, DATMAN TODAY: ENGR. MIN. JOUR., V. 113, P. 51-53.

8)BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ENGR. MIN. JOUR., V. 3, P. 747-748.

9)BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ARIZ. MIN. JOUR., V. 4, NO. 11, P. 3-6.

10)BURGESS, J.A., 1916, UNITED EASTERN MINE, DATMAN, ARIZONA: ENGR. MIN. JOUR., V. 102, P. 232-233.

11)BURGESS, J.A., 1920, UNITED EASTERN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 2, P. 41-43.

12)DINSMORE, C.A., 1911, HISTORY AND DEVELOPMENT OF THE GOLD ROAD MINE: MIN. ENGR. WORLD, V. 35, P. 1275-1276.

13)DOMAN, R.S., 1922, THE LURE OF ARIZONA GOLD WAS THE INSPIRATION FOR DATMAN: ARIZ. MIN. JOUR., V. 6, NO. 14 P. 3-4.

14)GARDNER, E.D., 1936, GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES INF. CIRC. 6901.

15)HOLT, E.B., 1940, GOLD MINES IN THE RIVER RANGE OF ARIZONA: MIN. JOUR., V. 24, NO. 5, P. 3-6.

16)JOHANNSEN, A., 1908, NOTES ON THE IGNEOUS ROCKS OF WESTERN ARIZONA: IN LEE, W.T., GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, P. 81-92.

17)JOHNSON, C.H., 1935, MINING AND MILLING METHODS AT THE BIG JIM MINE, DATMAN, ARIZONA: U.S. BUR. MINES, I.C. 6824, 12 P.

18)LAUSEN, CARL, 1942, THE DATMAN AND KATHEWINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS, P. 226-229.

19)MARTIN, A.H., 1909, SAN FRANCISCO DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 368.

20)MINING JOURNAL, 1937, ANNUAL REPORT ISSUED BY TOM REED GOLD MINES COMPANY: MIN. WORLD, V. 21, NO. 3, P. 37.

21)MOORE, R.W., 1928, MINING METHODS AND RECORDS AT THE UNITED EASTERN MINE: TRANS. AIME, V. 76, P. 56.

22)O'BRIEN, J.F., 1922, DIAMOND DRILLING OPERATIONS INCREASING IN DATMAN DISTRICT: ARIZ. MIN. JOUR., V. 5, NO. 19, P. 20-21.

23)O'BRIEN, J.F., 1922, GOLD PROPERTIES AT DATMAN PREPARING FOR DEVELOPMENT: ARIZ. MIN. JOUR., V. 5, NO. 20, P. 25.

24)PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 995-900.

25)PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 113, P. 193-196.

26)PETERS, W.C., 1969, THE ECONOMICS OF MINERAL EXPLORATION: GEOPHYSICS, V. 34, NO. 4, P. 633-644.

27)PROBERT, R.H., 1916, DATMAN, ARIZONA (GEOLOGY AND MINERALIZATION): MIN. SCI. PRESS, V. 112, P. 17-20.

28)RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA (EXTRACTS): ARIZ. MIN. JOUR., V. 7, NO. 9, P. 5-6, 14-18; ARIZ. MIN. JOUR., V. 7, NO. 10, P. 41-45.

29)RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-691.

30)RITTER, E.A., 1916, DATMAN AND THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: MIN. WORLD, V. 44, P. 645-648.

31)SCHWARTZ, G.M., 1944, THE HOST MINERALS OF NATIVE GOLD: ECON. GEOLOGY, V. 39, NO. 6, P. 371-411.

32)SCOTT, W.A., 1916, PRESENT DEVELOPMENT OF THE DATMAN DISTRICT OF ARIZONA: MIN. ENGR. WORLD, V. 44, P. 1033-1038.

33)SHAW, E.A., 1920, UNITED AMERICAN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 3, P. 21.

34)SPERR, J.O., 1916, THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 1-5.

35)SPILLMAN, C.F., 1916, TOM REED GOLD MINES PROPERTY, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 1073-1074.

36)SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 26-28.

37)TOYOTE, W.L., 1906, GOLD ROAD, DIE BEDEUTENDSTE GOLDBERG ARIZONAS: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 54, P. 549-550, WFIN.

- 38) WILLIS, C.F., 1921, ACTIVITY IN DATMAN AT HIGHLAND CHIEF MINES: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 64, 68.
- 39) WILLIS, C.F., 1923, ROMANCES OF SOME OF ARIZONA'S MINES: ARIZ. MIN. JOUR., V. 7, NO. 11, SUPPLEMENT, P. 1-16.
- 40) WISEMAN, PHILIP, 1924, UNITED EASTERN REPORT GIVES FUTURE PLANS: ARIZ. MIN. JOUR., V. 8, NO. 6, P. 23-24.
- 41) WOLLE, MURIEL S., 1959, DATMAN: ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 18, NO. 7, P. 68.
- 4) BLACK MTS GENERAL GEOLOGY:
- ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.
- 5) ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDORADO MTS, CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH V. 6, P. 409-424.
- 6) ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
- 7) ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267 P. 478-490.
- 8) ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394
- 9) ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GEOCHIM COSMOCHEM. ACTA, V. 34, P. 203-232.
- 10) BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP 75-93.
- 11) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-4539
- 12) LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP GEOLOGY & ORE DEPOSITS MOHAVE CO:
- 13) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 14) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 15) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 16) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 17) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 18) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 19) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 20) LEE, W.T., 1908) GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 21) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 22) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS KINGMAN, ARIZ, 63 P., P. 15
- 23) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 24) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 25) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 26) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 27) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 28) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 29) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 30) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00199

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030367
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... BIG JIME MINE
SYNONYM NAME..... THE BIG JIME - AZTEC ORE SHOOT IS OFFSET FROM THE GREY EAGLE BY THE MALLORY FAULT &
IS PART OF THE TOM REED VEIN (UNITED EASTERN MINE)

MINING DISTRICT/AREA/SUBDIST. DATMAN DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 MOUNT NUTT, ARIZ.

LATITUDE LONGITUDE
35-01-10N 114-22-19W

UTM NORTHING UTM EASTING UTM ZONE NO
3878170. 739770. +11

TWP..... 19N
RANGE.... 20W
SECTION.. 23 SE OF SW
MERIDIAN. GILA & SALT

ALTITUDE.. 2860 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MI. S.E. OF DATMAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG MD PB CU

MAIN COMMOD..... AU AG
MINOR COMMOD..... MD PB CU

MAIN ORE MINERALS:

GOLD

MINOR ORE MINERALS:

WULFENITE FILM CHALCOPYRITE, SPECKS, ASBESTOS AS MOUNTAIN LEATHER

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

THE AVERAGE GRADE OF THE BIG JIM VEIN ABOVE 600 FT LEVEL WAS \$19/TON, AT 700 FT. WAS \$5.40/TONS; AND AT 900 LEVEL WAS \$4.80/TON. RATIO 2 OZ AU/U OZ AG.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... DISCOVERED IN 1916 (MALACH, 1977, P. 15)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENTICULAR, LONG & NARROW

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... BIG JIM ORE BODY HAD A HEIGHT OF 450 FT, LENGTH OF 850 FT, AND MAXIMUM THICKNESS OF 35 FT.

DEPTH TO TOP 250 FT

DEPTH TO BOTTOM..... 650 FT

MAX LENGTH..... 1500 FT

MAX WIDTH..... 35 FT

STRIKE OF OREBODY.... NW

DIP OF OREBODY..... 75 NE

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 750 FT

COMMENTS(DESCRIP. OF WORKINGS):

ORE EXTENDED FROM 1ST LEVEL TO 6TH LEVEL (LAUSEN, 1931, P. 105)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE, REMARKS
15	ORE EST	220	TONS	?	- 1931	\$19/TON
16	ORE EST	20	TONS	1917-1934		MALACH, P. 15
17	ORE EST	56.64	TONS	1934-1942		0.17 OZ/T AG, 0.22 OZ/T AU, (AZ. BUR. MINES FILE DATA
18	AG	10.586	OZ	1934-1942		0.17 OZ/T AG PLUS TAILINGS (AZ. BUR. MINES FILE DATA
19	AU	12.453	OZ	1934-1942		0.22 OZ/T AU PLUS TAILINGS (AZ. BUR. MINES FILE DATA

SOURCE OF INFORMATION (PRODUCTION).. LAUSEN, 1931, P. 105

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
 HOST ROCK TYPES..... DATMAN ANDESITE, NEAR GOLD ROAD LATITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
 IGNEOUS ROCK TYPES..... DATMAN ANDESITE (YOUNGER THAN 22.6 M.Y.A., OLDER THAN 10.4 -----THORSON)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... MASSIVE QUARTZ & CALCITE; GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. FRACTURING

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE MALLORY (MALLERY) FAULT DISPLACES THE BIG JIM-AZTEC ORE SHOOT TO FORM THE GRAY EAGLE ORE SHOOT.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

FAULTING & REOPENING OF THE VEINS WAS NECESSARY TO FORM ORE SHOOT

COMMENTS (GEOLOGY AND MINERALOGY):

SEVERAL SPECIMENS COLLECTED FROM THE DUMP CONTAINED A THIN FILM OF A BRIGHT YELLOW MINERAL WHICH SHOWED PB & MO IN BLOWPIPE TESTS. ASBESTOS OF THE VARIETY MOUNTAIN LEATHER OCCURRED AS A THIN, FLEXIBLE SHEET BETWEEN LAYERS OF QUARTZ. (LAUSEN, 1931, P. 60, 63)

GENERAL REFERENCES

1) DATMAN IMPORTANT ARTICLES:

LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P., P. 109-110, 60, 76-78, 80, 87, 105.

2) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. BULL. 397, P. 192-194, 180-183.

3) LAUSEN, CARL, 1931, GOLD VEINS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.

4) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP, P. 32-45.

5) WELLS, R.C., 1937, ANALYSES OF ROCKS AND MINERALS FROM THE LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, 1914-1936: U.S. GEOL. SURVEY BULL. 870, 134 P., P. 9-109

6) THORSON, J.P., 1971, IGNEOUS PETROLOGY OF THE DATMAN DISTRICT, MOHAVE COUNTY, ARIZONA: PH.D. THESIS, UNIV. CALIF., SANTA BARBARA, 189 P.

2) DATMAN:

ARIZONA MINING JOURNAL, 1921, RECALLING THE DAYS OF THE GREAT DATMAN BOOM IN 1915: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 21.

3) ARIZONA MINING JOURNAL, 1921, HISTORY OF TOM REED MINE IS STORY OF SUCCESS AFTER FAILURE: MIN. JOUR. V. 5, NO. 10, P. 24.

4) ARIZONA MINING JOURNAL, 1921, UNITED EASTERN COMPANY PUSHING DEVELOPMENT WORK: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 22.

5) BANCROFT, H., 1915, GEOLOGY OF GOLD ROAD DISTRICT (NEAR KINGMAN, ARIZONA): MIN. SCI. PRESS, V. 111, P. 21.

6) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.

7) HOERIGKE, W.F., 1922, DATMAN TODAY: ENGR. MIN. JOUR., V. 113, P. 51-53.

8) BULLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ENGR. MIN. JOUR., V. 3, P. 747-748.

9) BULLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ARIZ. MIN. JOUR., V. 4, NO. 11, P. 3-6.

10) BURGESS, J.A., 1916, UNITED EASTERN MINE, DATMAN, ARIZONA: ENGR. MIN. JOUR., V. 102, P. 232-233.

11) BURGESS, J.A., 1920, UNITED EASTERN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 2, P. 41-43.

- 12) DINSMORE, C.A., 1911, HISTORY AND DEVELOPMENT OF THE GOLD ROAD MINE: MIN. ENGR. WORLD, V. 35, P. 1275-1276.
 - 13) DUMAN, R.S., 1922, THE LURE OF ARIZONA GOLD WAS THE INSPIRATION FOR DATMAN: ARIZ. MIN. JOUR. V. 6, NO. 14, P. 3-4.
 - 14) GARDNER, E.D., 1936 GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES INF. CIRC. 6901.
 - 15) HOLT, E.B., 1940, GOLD MINES IN THE RIVER RANGE OF ARIZONA: MIN. JOUR., V. 24, NO. 5, P. 3-6.
 - 16) JOHANNSEN, A., 1908, NOTES ON THE IGNEOUS ROCKS OF WESTERN ARIZONA; IN LEE, W.T., GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, P. 81-92.
 - 17) JOHNSON, C.H., 1935, MINING AND MILLING METHODS AT THE BIG JIM MINE, DATMAN, ARIZONA: U.S. BUR. MINES, I.C. 6824, 12 P.
 - 18) LAUSEN, CARL, 1942, THE DATMAN AND KATHERINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS. P. 226-229.
 - 19) MARTIN, A.H., 1909, SAN FRANCISCO DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 368.
 - 20) MINING JOURNAL, 1937, ANNUAL REPORT ISSUED BY TOM REED GOLD MINES COMPANY: MIN. WORLD, V. 21, NO. 3, P. 37.
 - 21) MOORE, R.W., 1928, MINING METHODS AND RECORDS AT THE UNITED EASTERN MINE: TRANS. AIME, V. 76, P. 56.
 - 22) O'BRIEN, J.F., 1922, DIAMOND DRILLING OPERATIONS INCREASING IN DATMAN DISTRICT: ARIZ. MIN. JOUR., V. 5, NO. 19, P. 20-21.
 - 23) O'BRIEN, J.F., 1922, GOLD PROPERTIES AT DATMAN PREPARING FOR DEVELOPMENT: ARIZ. MIN. JOUR., V. 5, NO. 20, P. 25.
 - 24) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 895-900.
 - 25) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 113, P. 193-196.
 - 26) PETERS, W.C., 1969, THE ECONOMICS OF MINERAL EXPLORATION: GEOPHYSICS, V. 34, NO. 4, P. 633-644.
 - 27) PROBERT, F.H., 1916, DATMAN, ARIZONA (GEOLOGY AND MINERALIZATION): MIN. SCI. PRESS, V. 112, P. 17-20.
 - 28) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA (EXTRACTS): ARIZ. MIN. JOUR., V. 7, NO. 9, P. 5-6, 14-18; ARIZ. MIN. JOUR., V. 7, NO. 10, P. 41-45.
 - 29) RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-681.
 - 30) RITTER, E.A., 1916, DATMAN AND THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: MIN. WORLD, V. 44, P. 645-648.
 - 31) SCHWARTZ, G.M., 1944, THE HOST MINERALS OF NATIVE GOLD: ECON. GEOLOGY, V. 39, NO. 6, P. 371-4119
 - 32) SCOTT, W.A., 1916, PRESENT DEVELOPMENT OF THE DATMAN DISTRICT OF ARIZONA: MIN. ENGR. WORLD, V. 44, P. 1033-1038.
 - 33) SHAM, E.A., 1920, UNITED AMERICAN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 3, P. 21.
 - 34) SPEER, J.D., 1916, THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 1-5.
 - 35) SPILLMAN, C.F., 1916, TOM REED GOLD MINES PROPERTY, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 1073-1074.
 - 36) SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 26-28.
 - 37) TOYOTE, W.L., 1906, GOLD ROAD, DIE BEDEUTENDSTE GOLDBRUBE ARIZONAS: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 54, P. 549-550, WEIN.
 - 38) WILLIS, C.F., 1921, ACTIVITY IN DATMAN AT HIGHLAND CHIEF MINES: ARIZ. MINE. JOUR., V. 4, NO. 12, P. 64, 68.
 - 39) WILLIS, C.F., 1923, ROMANCES OF SOME OF ARIZONA'S MINES: ARIZ. MIN. JOUR., V. 7, NO. 11, SUPPLEMENT, P. 1-16.
 - 40) WISEMAN, PHILIP, 1924, UNITED EASTERN REPORT GIVES FUTURE PLANS: ARIZ. MIN. JOUR., V. 8, NO. 6, P. 23-249
 - 41) WOLLE, MURIEL S., 1959, DATMAN; ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 18, NO. 7, P. 68.
- 3) BLACK MTS GENERAL GEOLOGY:
- ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BUL., V. 82, NO. 1, P. 43-58.
 - 4) ANDERSON, R.E., 1978 CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDOORADO MTS, CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.
 - 5) ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
 - 6) ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267 P. 478-490.
 - 7) ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV. G4 1394
 - 8) ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GEOCHIM COSMOCHEM. ACTA, V. 34, P. 203-232.
 - 9) BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARVET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S.

GEOL. SURVEY, OPEN FILE MAP 75-93.

10) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.

11) LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP.

4) GEOLOGY AND ORE DEPOSITS MOHAVE CO:

DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

5) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.

6) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

7) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.

8) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

9) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

10) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.

11) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

12) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.

13) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ. 63 P., P. 15.

14) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.

15) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

16) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.

17) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.

18) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.

19) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.

20) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.

21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00190

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030350
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... BULL CANYON GROUP
SYNONYM NAME..... IGUANA CLAIMS. ROBINET (ROBINETTE) RIDGE. CLAIMS LOCATED ABOUT 1928 BY JIM CRAIG &
WILLIAM BOKE, DALTON ROBINETTE & R. FETIS OWNERS IN 1933-4, BORIANA MINING CO., DYE & BATHRICK PURCHASED IN 1946.

MINING DISTRICT/AREA/SUBDIST. BORIANA DISTRICT CEDAR VALLEY DIST /W HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 WABAYNNE PEAK, ARIZ

LATITUDE LONGITUDE
34-56-57N 113-54-21W

UTM NORTHING UTM EASTING UTM ZONE NO
3871065. 234640. 412

TWP..... 18N
RANGE.... 15W
SECTION.. 07 18
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5680 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.5 MI BY ROAD FROM BORIANA MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU BE F

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... MO CU
OCCURRENCE..... BE F

MAIN ORE MINERALS:

WOLFRAMITE, SCHEELITE

MINOR ORE MINERALS:
CHALCOPYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS, DISSEM
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... N40E

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 75 FT
LENGTH OF WORKINGS..... 300 FT
OVERALL LENGTH OF MINED AREA.... 25 FT
OVERALL WIDTH OF MINED AREA..... 18 FT

COMMENTS(DESCRIP. OF WORKINGS):

2 ADITS ON EACH OF 3 VEINS ABOUT 75 FT DEEP AND 150-300 FT LONG. ON NW FACIES OF SW POINT OF GRANITE A N45W
STRIKING ZONE 18X25X15 FT DEEP HAS BEEN OPENED YIELDING 21 TONS YIELDING 32

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	CONC. EST	.03	TONS	1941-1943	69% W03 (DALE, 1961, P. 84)
16	W03	.106	UNITS	1951-1956	59-65% W03 (DALE, 1961, P. 84)
17	ORE ACC	.021	TONS		22 UNITS W03 (DALE, 1961, P. 86)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... PHYLLITE & GRANITEAGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... MUDDOXITE GRANITE, APLITEPERTINENT MINERALOGY..... FLUORITE, QUARTZ VEINS, BERYL WITH QUARTZ VEINS ON OUTER EDGE OF VEINS & IN VEINLETS
ALONE

IMPORTANT ORE CONTROL/LOCUS.. HEAVIEST CONCENTRATION OF SCHEELITE & WOLFRAMITE OCCURS ON NW SIDE OF GRANITE;

DISSEMINATED THROUGH SOUTHWESTERN PART OF GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VEINS ARE NORTHERLY EXTENSIONS OF BORIANA DEPOSIT; STRIKE N30-40 E IN PHYLLITE & CHANGE TO N50-60 E IN GRANITE

SIGNIFICANT ALTERATION:

SCHEELITE--BEARING ROCK IS MORE MICACEOUS & MORE LIMONITE STAINED (KERR, 1946)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SCHEELITE BEARING ROCK IS LATER THAN MUSCONITE GRANITE (KERR, 1946 P. 105)

GENERAL REFERENCES

- 1) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 84-87.
- 2) HEWETT, U.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 371, 197 P., P. 14.
- 3) MOSES, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 4) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 104-105.
- 5) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 6) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 7) MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 8) LEMMON, D.M., AND THETO, O.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 9) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 10) MINING WORLD, V. 3, NO. 4, 1941.
- 11) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 11-149

GENERAL GEOLOGY OF HUALAPAI MTS.:

- 12) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 13) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613
- 14) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 15) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 16) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 17) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA.: U.S. BUR. MINES REP. INV. 4101.
- 18) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 19) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 20) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 21) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 22) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 23) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 24) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 371, PP. 18-19.
- 25) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 26) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 27) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 28) SCHRADER, F.C., 1916., GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B., PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-394.
- 29) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P.

733-737.

30)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H.,
 AIME BULL. 124, P. 456-460.

31)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56,
 PP. 195-236.

32)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS MOHAVE
 COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 397, 226 P.

33)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS,
 MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93.

34)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-2449

35)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P.
 9-10.

36)VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS,
 MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.

37)WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.

RECORD 00191

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030356
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... CENTURY MINE
MINING DISTRICT/AREA/SUBDIST. MAYNARD/E. HUALAPAI MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 HUALAPAI PEAK NE, ARIZ

LATITUDE LONGITUDE
35-07-48N 113-49-32W

UTM NORTHING UTM EASTING UTM ZONE NO
3890910. 242660. +12

TWP..... 20N
RANGE.... 15W
SECTION.. 12 W 11
MERIDIAN. GILA & SALT R., ARIZ.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MI NW OF STANDARD MINERALS MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO ZN

MAIN ORE MINERALS:

MINOR ORE MINERALS:
PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OPERATOR.... OPERATED BY UNITED REPUBLIC CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... NW

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

100 TPD MILL AT ONE TIME. 1000 FT OF DEVELOPMENT WORK WAS DONE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... QUARTZ DIORITE GNEISS; GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ VEINS

GENERAL REFERENCES

- 1) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 2) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 37
- 3) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) WILSON, E.D. 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 146, GEOL. SERIES 14, 54 P., P. 15
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P. P. 91.
- 8) BERGER, H.W., 1938, DFLUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4, 5, 32.
- 9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
- 10) GREGORY, N.A., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 14) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 16) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 17) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORTANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA:

U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.

- 18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 - 19) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 - 20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 21) LEMMON, D. M., AND THEID, O.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP. MR-25.
 - 22) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 - 24) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-629, MIN. AND SCI. PRESS.
 - 25) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 - 26) MINING WORLD, V. 3, NO. 4, 1941.
 - 27) MOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 28) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-1069
 - 29) RUMSLU, R. T.H., 1948, ANTILER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 - 30) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFF, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
 - 31) SCHRADER, F.C., 1909, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 32) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATT, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 33) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 34) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
 - 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
 - 36) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 37) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 38) TOVDIE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
 - 39) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
 - 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
 - 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEIHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
 - 43) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
 - 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
 - 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
 - 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA. WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION. 20 P., 13, NO. 5, P. 195-197
 - 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26., NO. 10, P. 627-629
 - 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
 - 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
 - 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.

52)TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00192

CR16 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030383
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... CLIMAX MINE

MINING DISTRICT/AREA/SUBDIST. GOLD BASIN DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GARNET MTN., ARIZ.

LATITUDE LONGITUDE
35-56-36N 114-06-38W

TWP..... 30N
RANGE.... 17W
SECTION.. 33 SE
MERIDIAN. GILA & SALT R., ARIZ.

ALTITUDE.. 3720 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 15 MILES SOUTH OF PIERCE TERRY

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. AU
MINOR PRODUCTS.. AG

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
WULFENITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN, DISSEM, PLACER

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NE

DIP OF OREBODY..... 20W

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. GEOLOGY FILE DATA

PRODUCTION COMMENTS.... ABOUT 11,000 TONS OF ORE FROM CLIMAX, CYCLOPIC, LILLIAN, & GOLD GROUPS IN 1940 PRODUCED 204 OZ AG, 459 OZ AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC, TERT

HOST ROCK TYPES..... PARAGNEISS, UNDIFFERENTIATED ASSEMBLAGE OF AMPHIBOLITE FACIES METASEDIMENTARY ROCKS, DOMINANTLY QUARTZ-PLAGIOCLASE GNEISS INTERLAYERED WITH CORDIERITE GNEISS, BIOTITE-CARNET-SILLIMANITE SCHIST, & AMPHIBOLITE. THIN LENSES OF MARBLE, CALC-SILICATE GNEISS, BANDED IRON FORMATION, AND METACHERT LOCALLY RECOGNIZED. FANGLOMERATE, MODERATELY TO WELL CONSOLIDATED ALLEVIAL FAN DEPOSITS OF THE MUDDY CREEK FORMATION. INCLUDES LENSES OF RHYOLITIC TUFF & MUDFLOW BRECCIA (BLACET, 1975)

AGE OF ASSOC. IGNEOUS ROCKS.. MIOCENE-PLIOCENE (5-15 M.Y.O.)

IGNEOUS ROCK TYPES..... TERTIARY FANGLOMERATE UNIT MAY CONTAIN RHYOLITIC TUFF. UPPER PRECAMBRIAN (?) GRANITOID PLUTONIC ROCKS AND PEGMATITES AND PORPHYRITIC LEUCOSYENITE CONTAIN GOLD-VEINS.

AGE OF MINERALIZATION..... TERT, PREC

PERTINENT MINERALOGY..... QUARTZ-CARBONATE-SULFIDE VEINS, DISSEM, GOLD WITH FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. GOLD-BEARING QUARTZ-CARBONATE-SULFIDE VEINS OCCUR IN AMPHIBOLITE METASEDIMENTS & GRANITOID PLUTONIC ROCKS. DISSEMINATED GOLD OCCURS IN MEDIUM GRAINED PORPHYRITIC LEUCOSYENITE WITH SEVERAL PERCENT INTERSTITIAL FLUORITE

LOCAL GEOLOGY

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

COARSE GOLD OF DETRITAL CONCENTRATION WAS ORIGINALLY DEPOSITED ON FERRUGINOUS CARBONATE.

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P. P. 205.
- 2) BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE MAP 75-93.
- 3) GOLD BASIN:
BLACET, P.M., 1972, LATE CRETACEOUS PLUTONISM AND METALIZATION SOUTH OF LAKE MEAD: U.S. GEOL. SURVEY PROF. PAPER 800-A, P. A44.

- 4) SCHRAEDER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 118-127.
 - 5) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 971, 197 P., P. 15.
 - 6) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 76-78.
 - 7) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168, P. 35-37.
 - 8) WILSON, E.D., 1933, ARIZONA GOLD PLACERS AND GOLD PLACERING: ARIZ. BUR. MINES BULL. 135, 148 P., P. 82-83.
 - 9) HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76, P. 62.
 - 10) SCHRAEDER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93, P. 69-70.
 - 11) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 104-1059.
 - 12) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 20.
 - 13) HEIKES, V.C., 1905, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1905: U.S. GEOL. SURVEY MIN. RES. U.S., 1905, P. 134-162, P. 150-160.
 - 14) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177, P. 163.
 - 15) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 108: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 303 P. 286-313.
 - 16) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259, P. 249.
 - 17) BLACET, P.M., 1969, GOLD PLACER AND LOBE DEPOSITS, GOLD BASIN AND LOST BASIN: U.S. GEOL. SURVEY, PROF. PAPER 650-A, P. 1-2.
 - 18) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
 - 19) HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76.
 - 20) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 21) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 22) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 - 23) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
 - 24) SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME TRANS., V. 56, P. 195-236.
 - 25) THOMPSON, A.P., 1925, MINING POSSIBILITIES OF THE WHITE HILLS DISTRICT: ARIZ. MIN. JOUR., V. 9, NO. 12, P. 7-8, 45-47.
 - 26) WILLIS, C.F., 1921, FAMOUS WHITE HILLS MINES SOON TO BE UNDER WAY: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 57-59.
 - 27) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 - 28) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 4) WHITE HILLS:
- ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.
 - 5) ANDERSON, R.E., 1978 CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDORADO MTS, CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.
 - 6) ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO, ARIZONA, AND CLARK CO., NEVADA U.S. GEOL. SURV., GQ 1394
 - 7) ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
 - 8) ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267, P. 478-490.
 - 9) ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA, AND VICINITY, USA: GEOCHEM. COSMOCHEM. ACTA, V. 34, P. 203-232.
 - 10) BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S.

GEOL. SURVEY, OPEN FILE MAP 75-93.

11)BLAIR, W.N., 1978, GULF OF CALIFORNIA IN LAKE MEAD AREA OF ARIZONA AND NEVADA DURING LATE MIOCENE TIME: AMERICAN ASSOC. PETROLEUM GEOLOGISTS BULL., V. 62, NO. 7, P. 1159-1170.

12)BOHANNON, R.G., AND ANDERSON, R.E., 1978, TERTIARY TECTONIC HISTORY OF THE EASTERN BASIN AND RANGE PROVINCE IN THE VICINITY OF LAKE MEAD IN SOUTHERN NEVADA AND WESTERN ARIZONA: (ABS.): GEOL. SOC. AMERICA, ABSTRACTS WITH PROGRAMS, V. 10, #3, P. 96-97.

13)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.

14)GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOPHYROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1899-H.

15)LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP

16)LONGWELL, C.R., 1920, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION OF THE GRAND WASH CLIFFS IN ARIZONA: YALE UNIV., PH. D. THESIS.

17)LONGWELL, C.R., 1928, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION THROUGH THE VIRGIN RANGE TO THE GRAND WASH CLIFFS, ARIZONA: USGS BULL. 798, 152 P., MAPS.

18)LONGWELL, C.R., 1921, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION TO THE GRAND WASH CLIFFS IN WESTERN ARIZONA: AM. JOUR. SCI., 5TH SER., V. 1, P. 39-62.

19)LUCCHITTA, IVO, 1966, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA: UNPUBLISHED PH.D. THESIS, PENNSYLVANIA STATE UNIVERSITY.

20)LUCCHITTA, IVO, 1967, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA (ABS.): DISSERT. ABS., V. 28, NO. 6, P. 2483-B-2484-B

21)QUALHEIM, B.J., 1978, HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA REPORT FOR KINGMAN NTMS QUADRANGLE, ARIZONA, CALIFORNIA, AND NEVADA: LAWRENCE LIVERMORE LAB., UNIV. CALIF., LIVERMORE, GJBX-122-78, 43 P. & MICROFICHE

22)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00193

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030376
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... COPPER CANYON MINES
SYNONYM NAME..... 5 CLAIMS-COPPER WONDER 3-5, GREAT CANYON, COPPER CANYON

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT (DELUGE WASH AREA)/EAST HUALAPAI MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ

LATITUDE LONGITUDE
34-50-20N 113-47-40W

TWP..... 17N
RANGE.... 14W
SECTION.. 19 E 1/2
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 4300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 25 MI. S.E. OF YUCCA NEAR DELUGE WASH, NORTH OF LEVIATHAN

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN

MAIN ORE MINERALS:
PYRITE CHALCOPYRITE SPHALERITE GALENA

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OPERATOR.... REFERRED IN 1962 TO J.H. SMITH, 14 N. CENTRAL AVE., PHOENIX ARIZ.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET.
HOST ROCK TYPES..... GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... GRANITE

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS CUTTING GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

QUARTZ VEINS BROKEN AS MOVEMENT ALONG VEINS CONTINUED, WITH ADDITIONAL MOLYBDENITE, PYRITE, & CHALCOPYRITE DEPOSITED

GENERAL REFERENCES

- 1) DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
- 2) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 4) MOLYBDENUM IN DELUGE WASH AREA:
 - BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
 - 5) FRONDEL, W., AND F.E., WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55, 1857-1875.
 - 6) HORTON, F.W., 1916, MOLYBDENUM; ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 132 P.
 - 7) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
 - 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 237, 27.
 - 9) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.
 - 10) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 - 11) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- ORE & GEOLOGY OF HUALAPAI MTS:
 - 12) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
 - 13) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
 - 14) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
 - 15) HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
 - 16) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
 - 17) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 - 18) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 971, 197 P.

- 19)HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIAANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 20)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 21)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15,241 P.
- 22)KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. MS. THESIS, UNIV. ARIZ., 73 P.
- 23)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 24)LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 25)MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 26)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
- 27)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 28)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 29)MINING WORLD, V. 3, NO. 4, 1941.
- 30)MOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 31)PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 32)ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 34)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V., 27, P. 957-958.
- 35)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 36)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 37)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY A
- NDERSON, J.H., AIME BULL. 124, P. 456-460.
- 38)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 39)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-839
- 40)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 41)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 42)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 43)VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. MS. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 44)WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 45)WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 46)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 47)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, IN 0 P.
- 48)SHEPPARD, R.A., AND GUDE, A.J., II, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 49)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 50)TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.
- 51)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 52)GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 53)GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEONHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY,

ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.

54)LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.

55)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.

56)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRING: U.S. GEOL. SURVEY MIMED. REP., 17 P.

57)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEN, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS

58)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-17.

RECORD 00194

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030375
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... DELUGE WASH AREA
SYNONYM NAME..... INCLUDES LEVIATHAN, AMERICAN, GOLDEN COMSTOCK, WALDRON & VENTURE, OLD MILL SITE,
GREAT REPUBLIC, DIAMOND JOE, HAMME, TAYLOR GANNIS, YELLOW BASIN, PASADENA

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT/E. HUALAPAI MTS. THE AREA HAS BEEN CALLED THE CEDAR DISTRICT
(MALACH, 1977), BUT HAS ALSO BEEN INCLUDED IN THE CEDAR VALLEY DISTRICT WHICH IS ON THE WEST SLOPE OF THE
HUALAPAI MTS (HEWETT, ET AL, 1936). DIAMOND JOE PEAK IS A MAJOR TOPOGRAPHIC FEATURE OF THE AREA & IS THE NAME OF
THE LARAMIDE INTRUSIVE STOCK.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ.

LATITUDE LONGITUDE
34-49- N 113-47- W

TWP..... 17N
RANGE.... 14W
SECTION.. 17 20 21 30 29 28
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 20-25 MI. FROM YUCCA

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE CHALCOPYRITE PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OPERATOR.... LEVIATHAN MINES CO. & AMERICAN MINERAL & CHEMICAL CO. WORKING THERE IN 1917 (WICKES, 1917)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEIN

COMMENTS (RESERVES/POT RESOURCES).. RESERVES OCCUR IN THE LEVIATHAN MINE OTHER POSSIBILITIES INCLUDE THE WHALE VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET

HOST ROCK TYPES..... MED. GRAINED GRANITE (DIAMOND JOE STOCK (69.4 + 2.6 M.Y.A.

AGE OF ASSOC. IGNEOUS ROCKS.. DIAMOND JOE STOCK=69.4+/- 2.6 M.Y. OLD; 71.9+/-1.5 M.Y.O. 73.1+/- 1.5 M.Y.

IGNEOUS ROCK TYPES..... DIAMOND JOE STOCK DARK BIOTITE QUARTZ MONZONITE ON WEST; COARSE QTZ MONZONITE PORPHYRY ON E

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. STRANGE WHITE QUARTZ VEINS CONTAIN MOLYBDENITE & CHALCOPYRITE, PARTICULARLY IN DARK BIOTITE QUARTZ MONZONITE PHASE OF DIAMOND JOE STOCK IN AN ARC ON THE SOUTHWESTERN MARGIN OF THE STOCK SOUTHWEST OF THE FAULT. A SWARM OF ABOUT 30 NORTHEAST TRENDING QUARTZ VEINS CONTAIN PYRITE, CHALCOPYRITE, & MOLYBDENITE IN A MINERALIZED AREA SOUTHWEST OF THE LEVIATHAN.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

A N 40 W FAULT DOWN ON SW AND UP ON NE EXPOSES DEEPER NONMINERALIZED PART OF DIAMOND JOE STOCK ON NE SIDE

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE IN SMALL QUANTITIES AT SEVERAL PROPERTYS (ANTHONY ETAL 1977 P 141)

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 2) FRONDEL, W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 3) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 4) HORTON, F.W., 1916, MOLYBDENUM; ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 132 P.
- 5) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 6) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 7) DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
- 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 237, #7.

- 9)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.
- 10)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 11)ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- ORE & GEOLOGY OF HUALAPAI MTS:
- 12)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 13)DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 14)WILSON, F.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 15)VOICH, J.S. 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 16)HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
- 17)UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 18)HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 19)HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 20)HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE HORTIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 21)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 22)KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 23)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
- 24)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 25)GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- ORE & GEOLOGY OF MOHAVE CO.:
- 26)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS
- 27)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 28)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 29)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS KINGMAN, AZ., 63 P.
- 30)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 31)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 32)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 33)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 34)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 35)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 36)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 37)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- DISCUSSION OF BY ANDERSON, J. H.
- 38)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 39)DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 40)PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 41)ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 42)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 43)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.

GEOLOGY OF VALLEY NEAR HUALAPAI MTS:

- 44)DAVIDSON, F.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 45)GILLESPIE, J.B., BENTLEY, C.B., AND KAH, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 46)GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOPHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 47)LANU, J.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 48)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 49)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 50)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 51)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 52)ROSS, C.S., 1941, SEDIMENTARY ALALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 53)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 54)SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTOME IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 55)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 56)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00195

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030347
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... DEVILS CANYON

MINING DISTRICT/AREA/SUBDIST. SHANNON BASIN DISTRICT/S.E. HUALAPAI MTS. (THE OMENS DISTRICT IS TO THE SOUTH IN THE
MCCRACKEN MTS. BUT WAS SOMETIMES EXTENDED TO THE NORTH.)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MDHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 WIKIEUP NW, ARIZ

LATITUDE LONGITUDE
34-38-18N 113-41-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3836030. 253760.

TWP..... 15N
RANGE.... 14W
SECTION.. 14
MERIDIAN. GILA & SALT R., ARIZ.

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES WSW FROM SHANNON BASIN

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, DISSEM

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET & PREC.
 HOST ROCK TYPES..... QUARTZ MONZONITE & DACITE PORPHYRY, PRECAMBRIAN GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
 IGNEOUS ROCK TYPES..... QUARTZ MONZONITE & DACITE PORPHYRY INTRUSIONS

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ VEINS

GENERAL REFERENCES

1) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.

4) GENERAL GEOLOGY HUALAPAI MTS:

HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT. MOHAVE COUNTY. ARIZONA: UNPUB. PH.D.,
 5) UNIV. OF IDAHO, MOSCOW, IDAHO

6) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

7) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.

8) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES
 INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.

9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S.
 GEOL. SURVEY BULL. 613.

10) GREGORY, N.R., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.

11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.

13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.:
 U.S. BUR. MINES REP. INV. 4101.

14) HEWETT, D.F., CALLAGHAN, E. MOORE, B.M., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL
 RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.

15) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA:
 U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.

16) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.

17) KESSLER, E.J., 1976, RUBIDIUM-STRYPTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN
 THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB: M.S. THESIS, UNIV. ARIZ., 73 P.

18) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

19) LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.

20) MALACH, R., 1974 MOHAVE COUNTY COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.

21) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.

22) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.

23) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.

24) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

25) MINING WORLD, V. 3, NO. 4, 1941.

26) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL.
 871, PP. 18-19.

27) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA:
 GEOCHIMICA ET COSMUCHIMICA ACTA, V. 27, P. 53-106.

27) RIMSLO, T.M., 1948, ANTILER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.

29) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE
 COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.

30) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS,
 MOHAVE COUNTY, ARIZONA (ABS): SCIENCE, NEW SER., V. 27, P. 957-9589

31) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B.

- PLATTS, AND J..C. ANDERSON): AIME BULL. 123, P. 379-384.
- 32)SCHRAEDER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 33)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 34)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 35)SCHRAEDER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 36)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 37)TOVDTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 38)YUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 39)WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 40)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
- 41)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- GENERAL GEOLOGY OF ARTILLERY AREA:
- 42)GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
- 43)HEAD, R.E. 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941)
- 44)JONES, E.L. JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.
- 45)KUMKE, C.A., 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: USBM, RI 5292, 87 P., ILLUS. (1957)
- 46)LASKY, S.G., AND B.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-K: 417-448.
- 47)LASKY, S.G. 1. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)
- 48)LASKY, S.C., AND WEBBER, B.N. 1949, MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.
- 49)MOUAT, M.H. MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-5, P. 744-752 (1962)
- 50)HAMILTON, PATRICK, 1883, THE RESOURCES OF ARIZONA, 2ND ED.: SAN FRANCISCO P. 128-129.
- 51)BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY ARIZONA: U.S. GEOL. SURVEY BULL. 451, P. 123-126.
- 52)MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS
- 53)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 54)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 55)PETERSON, DONALD L. 5. BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
- 56)SANFORD, R.S., (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USBM, RI 4275, 45 P. (1948)
- 57)SHACKELFORD, T.J., STRUCTURAL GEOLOGY OF THE RAWHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA
- 58)UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL, UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIF., USA, UNPAGNATED P., 1976, (DISS. ABSTR. INT., VOL. 38, NO. 4, P. 1622B-1623B. 1977)
- 59)SHERRER, P. L. CATACLASTIC ROCKS OF THE RAWHIDE MOUNTAINS, WEST-CENTRAL ARIZONA
- 60)SAN DIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S. SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGNATED P., 1976
- 61)WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 167, 107 P., P. 71-78.
- GENERAL GEOLOGY VALLEY NEAR HUALAPAI MTS:
- 62)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER

COMM. BULL. 6, 40 P.

63) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.

64) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.

65) LANU, G.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.

66) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.

67) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.

68) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS

69) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197

70) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.

71) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.

72) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTOME IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.

73) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.

74) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00196

CPIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030369
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... DOWNEY & GALEN
SYNONYM NAME..... D & G MINING CO; BLACK MOUNTAIN PROSPECT

MINING DISTRICT/AREA/SUBDIST. ELDDORADO/N. BLACK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT PERKINS, ARIZ

LATITUDE LONGITUDE
35-43-23N 114-33-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3955800. 721620. 411

TWP..... 27N
RANGE.... 21W
MERIDIAN. GILA & SALT R.

ALTITUDE.. 2900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MI S OF POPE MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

MOLYBDENITE CHRYSOCOLLA CHALCOCITE

ANALYTICAL DATA(GENERAL)

LARGE GEOCHEM ANALY

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN, PORPHYRY

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
GEOPHYSICS & DRILLING BY BEAR CREEK ETC; NEW JERSEY ZINC; GEOCHEMICAL SURVEYS

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... INTRUSIVE, GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... INTRUSIVE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ SERICITE VEIN

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SERICITE PHYLLIC

GENERAL REFERENCES

- 1) BUR. GEOL. FILE DATA
- 2) BLACK MTS GEOLOGY:
 - BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP 75-93.
 - 3) DAMON, P.E., AND GILFILLI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.
 - 4) LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP
 - 5) ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.
 - 6) ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDORADO MTS, CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.
 - 7) ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83 P. 273-289
 - 8) ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER JOUR. SCI., V. 267 P. 478-490.
 - 9) ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394
 - 10) ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH EASTERN NEVADA AND VICINITY, USA: GEOCHIM COSMOCHEM. ACTA, V. 34, P. 203-232.
- 3) DATMAN IMPORTANT ARTICLES:
 - LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P., P. 60, 84, PL. 1.
 - 4) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE

COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 186-190.

5) LAUSEN, CARL, 1931, GOLD VEINS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.

6) SHCRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: P. 53-83, P. 80.

7) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP, P. 50, PL. VIII B.

8) WELLS, R.C., 1937, ANALYSES OF ROCKS AND MINERALS FROM THE LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, 1914-1936: U.S. GEOL. SURVEY BULL. 878, 134 P., P. 9-10.

9) THORSON, J.P., 1971, IGNEOUS PETROLOGY OF THE DATMAN DISTRICT, MOHAVE COUNTY, ARIZONA: PH.D. THESIS, UNIV. CALIF., SANTA BARBARA, 189 P.

10) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LORE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 94-5.

11) ARIZONA MINING JOURNAL, 1921, RECALLING THE DAYS OF THE GREAT DATMAN BOOM IN 1915: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 21.

12) ARIZONA MINING JOURNAL, 1921, HISTORY OF TOM REED MINE IS STORY OF SUCCESS AFTER FAILURE: MIN. JOUR. V. 5, NO. 10, P. 22.

14) BANCROFT, H., 1915, GEOLOGY OF GOLD ROAD DISTRICT (NEAR KINGMAN, ARIZONA): MIN. SCI. PRESS, V. 111, P. 21.

15) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.

16) BOERICKE, W.F., 1922, DATMAN TODAY: ENGR. MIN. JOUR., V. 113, P. 51-53.

17) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ENGR. MIN. JOUR., V. 3, P. 747-748.

18) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ARIZ. MIN. JOUR., V. 4, NO. 11, P. 3-6.

19) BURGESS, J.A., 1916, UNITED EASTERN MINE, DATMAN, ARIZONA: ENGR. MIN. JOUR., V. 102, P. 232-2339

20) BURGESS, J.A., 1920, UNITED EASTERN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 2, P. 41-43.

21) DINSMORE, C.A., 1911, HISTORY AND DEVELOPMENT OF THE GOLD ROAD MINE: MIN. ENGR. WORLD, V. 35, P. 1275-1276.

22) DOMAN, R.S., 1922, THE LURE OF ARIZONA GOLD WAS THE INSPIRATION FOR DATMAN: ARIZ. MIN. JOUR., V. 6, NO. 14, P. 3-4.

23) GARDNER, E.D., 1936 GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES INF. CIRC. 6901.

24) HOLT, E.B., 1940, GOLD MINES IN THE RIVER RANGE OF ARIZONA: MIN. JOUR., V. 24, NO. 5, P. 3-6.

25) JOHANNSEN, A., 1908, NOTES ON THE IGNEOUS ROCKS OF WESTERN ARIZONA; IN LEE, W.T., GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, P. 81-92.

26) JOHNSON, C.H., 1935, MINING AND MILLING METHODS AT THE BIG JIM MINE, DATMAN, ARIZONA: U.S. BUR. MINES, I.C. 6824, 12 P.

26) LAUSEN, CARL, 1942, THE DATMAN AND KATHERINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS, P. 226-2299

28) MARTIN, A.H., 1909, SAN FRANCISCO DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 368.

29) MINING JOURNAL, 1937, ANNUAL REPORT ISSUED BY TOM REED GOLD MINES COMPANY: MIN. WORLD, V. 21, NO. 3, P. 37.

30) MOORE, R.W., 1928, MINING METHODS AND RECORDS AT THE UNITED EASTERN MINE: TRANS. AIME, V. 76, P. 56.

31) O'BRIEN, J.F., 1922, DIAMOND DRILLING OPERATIONS INCREASING IN DATMAN DISTRICT: ARIZ. MIN. JOUR., V. 5, NO. 19, P. 20-21.

32) O'BRIEN, J.F., 1922, GOLD PROPERTIES AT DATMAN PREPARING FOR DEVELOPMENT: ARIZ. MIN. JOUR., V. 5, NO. 20, P. 25.

33) PALMER, L.A., 1916, THE DATMAN DISTRICT ARIZONA: ENGR. MIN. JOUR., V. 101, P. 895-9009

34) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 113, P. 193-196.

35) PETERS, W.C., 1969, THE ECONOMICS OF MINERAL EXPLORATION: GEOPHYSICS, V. 34, NO. 4, P. 633-644.

36) PROBERT, F.H., 1916, DATMAN, ARIZONA (GEOLOGY AND MINERALIZATION): MIN. SCI. PRESS, V. 112, P. 17-20.

37) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA (EXTRACTS): ARIZ. MIN. JOUR., V. 7, NO. 9, P. 5-6, 14-18; ARIZ. MIN. JOUR., V. 7, NO. 10, P. 41-45.

38) RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-691.

39) RITTEK, E.A., 1916, DATMAN AND THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: MIN. WORLD, V. 44, P. 645-648.

40) SCHWARTZ, G.M., 1944, THE HOST MINERALS OF NATIVE GOLD: ECON. GEOLOGY, V. 39, NO. 6, P. 371-411.

41) SCOTT, W.A., 1916, PRESENT DEVELOPMENT OF THE DATMAN DISTRICT OF ARIZONA: MIN. ENGR. WORLD, V. 44, P. 1033-1038.

- 42) SHAW, E.A., 1920, UNITED AMERICAN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 3, P. 21.
- 43) SPERR, J.D., 1916, THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 1-5.
- 44) SPILLMAN, C.F., 1916, TOM REED GOLD MINES PROPERTY, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 1073-1074.
- 45) SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 26-28.
- 46) TOVOTE, W.L., 1906, GOLD ROAD, DIE BEDEUTENDSTE GOLDBRUBE ARIZONAS: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 54, P. 549-550, WEIN.
- 47) WILLIS, C.F., 1921, ACTIVITY IN DATMAN AT HIGHLAND CHIEF MINES: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 64, 68.
- 48) WILLIS, C.F., 1923, ROMANCES OF SOME OF ARIZONA'S MINES: ARIZ. MIN. JOUR., V. 7, NO. 11, SUPPLEMENT, P. 1-16.
- 49) WISEMAN, PHILIP, 1924, UNITED EASTERN REPORT GIVES FUTURE PLANS: ARIZ. MIN. JOUR., V. 8, NO. 6, P. 23-24.
- 50) WOLLE, MURIEL S., 1959, DATMAN: ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 18, NO. 7, P. 68.
- 4) GEOLOGY & ORE DEPOSITS OF MOHAVE CO:
- DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 5) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 6) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 7) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 8) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 9) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 10) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 11) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 12) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 13) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
- 14) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 15) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 16) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 17) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (A9S): SCIENCE, NEW SER., V. 27, P. 957-958.
- 18) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 19) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 20) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00197

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030346
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... GOLDEN COMSTOCK MINE

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT. (DELUGE WASH AREA)/E. HUALAPAI MTS. THE AREA WAS FORMERLY
KNOWN AS CEDAR DISTRICT (MALACH, 1977) OR AS CEDAR VALLEY DISTRICT.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ

LATITUDE LONGITUDE
34-49-27N 113-46-36W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 17N
RANGE..... 14W
SECTION.. 29 EC
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4140 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MI. E OF VENTURE DUMP; 1 1/2 MI SW OF DIAMOND JOE PEAK, SOUTH OF
DELUGE WASH; EAST OF AMERICAN & GREAT REPUBLIC MINES.

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG AU CU ZN MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOPYRITE, PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET

HOST ROCK TYPES..... MEDIUM GRAINED GRANITE-DIAMOND JOE STOCK

AGE OF ASSOC. IGNEOUS ROCKS.. DIAMOND JOE STOCK=69.4+/-2.6 M.Y. 71.9+/-1.5; 73.1+/-1.5 M.Y.

IGNEOUS ROCK TYPES..... DARK BIOTITE QUARTZ MONZONITE-DIAMOND JOE STOCK

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. STRONG QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BARREN N40 W FAULT CUTS GRANITE STOCK WITH NORTHEAST SIDE UP EXPOSING BARREN ROOTS

GENERAL REFERENCES

- 1) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 3) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 4) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 5) HORTON, F.W., 1916, MOLYBDENUM; ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 132 P.
- 6) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, P. 286-313, PT. 1
- 7) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 8) DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
- 9) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 237, #7.
- 10) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- ORE & GEOLOGY OF HUALAPAI MTS:
- 12) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93.
- 13) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

- 14) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
- 15) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 16) HANSEN, S.C. 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT. MOHAVE COUNTY, ARIZONA UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
- 17) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 18) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 19) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 20) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 21) KESSLER, E.J., 1976, RUBIDIUM-STROMTUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 22) MALACH, R., 1975, HUALPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
- 23) WILSON, E.D., AND MOORE, R.I., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 24) GREGORY, N.B., 1910, ZINC MINES OF THE HUALPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- ORE & GEOLOGY OF MOHAVE CA:
- 25) HOUSEHOLDE, E., 19308 GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS
- 26) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 27) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 28) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISIONS KINGMAN, ARIZ.
- 29) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-629, MIN. AND SCI. PRESS.
- 30) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 31) NOLAN, T.B., AND OTHERS, 19368 MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 16-19.
- 32) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-959.
- 33) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 34) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 36) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ: AM. INST. MIN. ENG. TRANS., VOL. 50, PP. 193-236.
- 37) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 38) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 39) RUMSLO, T.M., 1940, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 40) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 41) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- GEOLOGY OF VALLEY NEAR HUALPAI MTS:
- 42) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 43) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 44) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 45) LANU, B.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 46) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MINED REP., 6 P.
- 47) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS. WELL LOGS,

- WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED. REP., 17 P.
- 48)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 49)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: MINERALOGIST, V. 13, NO. 5, P. 195-197
- 50)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 51)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 52)SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 53)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830,
- 54)IWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE GEOL. MAP.

RECORD 00199

CK18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030382
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... GROSS COPPER PROSPECTS PART OF MINERAL PARK PROPERTY

MINING DISTRICT/AREA/SUBDIST. MINERAL PARK SUBDIST/WALLAPAI DIST/CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CERBAT

LATITUDE LONGITUDE
35-27-30N 114-09-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3916260. 758370. +11

TWP..... 23N
RANGE.... 18W
SECTION.. 25 NC
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BISMARCK CANYON, NORTH OF GROSS RANCH

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU AG MO

MAIN ORE MINERALS:
CHALCOCITE

MINOR ORE MINERALS:
MALACHITE, AZURITE, MOLYBDENITE NATIVE COPPER

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... CGA MINING CO., OWNERS IN 1951; PART OF MINERAL PARK PROPERTY OF DUVAL CORP. (EIDEL, 1968, MAP)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM; STOCKWORK

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 200 FT

LENGTH OF WORKINGS..... 1200 FT

COMMENTS(DESCRIP. OF WORKINGS):

WORKINGS CONSIST OF A 200 FOOT SHAFT & TWO DRIFTS EACH ABOUT 600 FEET LONG. (DINGS, 1951, P. 154-155)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET

HOST ROCK TYPES..... ITHACA PEAK GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... ITHACA PEAK GRANITE

AGE OF MINERALIZATION..... CRET

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

PYRITIZED & SILICIFIED GRANITE

GENERAL REFERENCES

1) ARIZONA BUREAU OF GEOLOGY & MIN. TECH. FILE PAGES

2) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, PLATE 1.

3) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E, P. 123-162, P. 154-155.

4) EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.M., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.O., ED.): AIME GRANTON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE.

2) OTHER IMPORTANT GENERAL REFERENCES:

THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.

3) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA. 4) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

6) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.

- 7) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 8) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.
- 3) MINERAL PARK REFERENCES:
- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2, P. 1163-1190.
- 4) BLANCHARD, R. AND BOSWELL, P.E. 1930 LIMONITE TYPES DERIVED FROM BORNITE AND TETRAHEDRITE. ECON. GEOL. 25: 557-580
- 5) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 6) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142. MAP.
- 7) FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.
- 8) GARRISON, F.L., 1907 NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 9) HERMON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 10) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 11) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 12) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
- 13) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK, MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 14) LIVINGSTON, D.E., ET AL., 1967, GEOCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-80, APPENDIX A-III.
- 15) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 16) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
- 17) MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P., P. 12.
- 18) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL PROGRESS REPORT NO. CDD-689-50, P. A-11-1-A-11-8.
- 19) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 20) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 21) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 22) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 193-236.
- 23) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 24) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 25) SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 26) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 27) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
- 28) THOMAS, B.E., 1953, GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
- 29) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P. ARIZ. BUR. MINES FILE DATA.
- 4) OTHER REFERENCES IN CERBAT MTS:
- BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 8) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES,

- I.C. 6945, 18 P.
- 9)HAURY, P.S. 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
- 10)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS. ARIZ. MINING JOUR., 1920, V. 8
- 12)MCKNIGHT, E.T., 1933 MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 13)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 14)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 15)SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 16)TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 17)THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 18)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 19)WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 10)WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4,, NO. 12, P. 51, 66.
- 21)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00199

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... MOD4207
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... GROSS MOLYBDENITE PROSPECTS
SYNONYM NAME..... MINERAL PEAK PROPERTY

MINING DISTRICT/AREA/SUBDIST. WALLAPAI DIST/MINERAL PARK SUBDIST/CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CERBAT

TWP..... 23N
RANGE.... 18W
SECTION.. 25 C
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN BISHARK CANYON, 1400 FT E OF GROSS RANCH HOUSE.

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... MO CU

MAIN ORE MINERALS:
PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

STOCKWORK

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1.5 IN

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

DINGS 1951 P. 155) ADIT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET

HOST ROCK TYPES..... ITHACA PEAK GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... RHYOLITE DIKE, ITHACA PEAK GRANITE

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. MOLYBDENITE OCCURS IN SMALL SPECKS & STRINGERS IN QUARTZ VEINLETS THAT CUT THE ITHACA PAK GRANITE

GENERAL REFERENCES

- 1) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E., 123-162, P. 145, 154-155.
- 2) IMPORTANT MINERAL PARK REFERENCES:
 - EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.M., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.D., ED.): AIME GRATON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE.
 - 3) DINGS, M.G. (1951) THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 978-E: 123-163.
 - 4) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
 - 5) DRAKE, WILLIAM EDWARD, 1972, A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
 - 6) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
 - 9) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
 - 10) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.
- 3) MINERAL PARK REFERENCES:
 - ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
 - 4) BLANCHARD, F. AND BOSWELL, P.F. 1930, LIMONITE TYPES DERIVED FROM BORNITE AND TETRAHEDRITE. ECON. GEOL. 25:

557-580.

- 5) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 49, NO. 2.
- 6) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BUR. MINES BULL. 156, P. 138-142, MAP.
- 7) FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.
- 8) GARRISON, F.L., 1907, NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 9) HERNON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 10) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 11) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 12) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
- 13) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 14) LIVINGSTON, D.E., ET AL., 1967, GEOCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-80, APPENDIX A-III.
- 15) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 16) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
- 17) MALACH, R., 1975, CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P., P. 12
- 18) MAUGER, R.L. AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL PROGRESS REPORT NO. CDD-689-50, P. A-II-1-A-II-8.
- 19) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 20) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 21) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-7379
- 22) SCHRADER, F.C., 1917,, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 23) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 24) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 25) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 26) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S. 1908, PT. 2, PP. 847-852.
- 28) THOMAS, B.E., 1953, GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
- 29) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.H., 1967, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 30) ARIZ. BUR. MINES FILE DATA.
- 4) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 8) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 9) HAURY, P.S. (1947) EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA, U.S. BUR. MINES REPT. INV. 4101.
- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS.
- 12) ARIZ. MINING JOUR., 1920, V. 8
- 13) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 14) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 15) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.

- 16)SCHODDER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 17)TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 18)THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 19)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 20)WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 21)WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 22)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00200

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W016039
 RECORD TYPE..... A1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... ITHACA PEAK OREBODY
 SYNONYM NAME..... MINEKAL PARK PROPERTY

MINING DISTRICT/AREA/SUBDIST. WALLAPAI DIST/MINEKAL PARK SUBDIST/CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 CERBAT

LATITUDE LONGITUDE
 35-21-50N 114-08-30W

UTM NORTHING UTM EASTING UTM ZONE NO
 3917250. 795800. 411

TWP..... 23S
 RANGE..... 17W
 MERIDIAN. GILA & SALT R.

ALTITUDE.. 5206 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. MO CU
 MINOR PRODUCTS.. AU AG PB ZN

MAIN ORE MINERALS:

CHALCOPYRITE & MOLYBDENITE PYRITE

MINOR ORE MINERALS:

AKAGENEITE MALACHITE, AZURITE CUPRITE NATIVE CU, BORNITE WOLFRAMITE FERRIMOLYBDITE, SPHALERITE, GALENA

IRON-COPPER CHALCOTHILE, COVELLITE, CHALCOCITE

ANALYTICAL DATA(GENERAL)

0.10-0.15% CU, 0.04% MO IN PROTORE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM. STOCKWORK

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO TOP	75-150	FT
MAX LENGTH.....	2600	FT
MAX WIDTH.....	1500	FT
MAX THICKNESS.....	700	FT
STRIKE OF OREBODY....	NW	
DIP OF OREBODY.....	STEEP	

DESCRIPTION OF WORKINGS

SURFACE

PRODUCTION

MEDIUM PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST 70000.	TONS	1964-1976	0.34% CU, 0.025% MO, TRACE PB, ZN, AU, AG

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	ACC 58,000	TON	1968	0.76% CU EQUIVALENT

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. FIDEL, ETC., 1968, P. 1270

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
 HOST ROCK TYPES..... GRANITE QUARTZ MONZONITE STOCK ITHACA PEAK PORPHYRY INTRUSIVE STOCK PRECAMBRIAN
 CERBAT SCHIST & GNEISS, & LARGE RHYOLITE DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
 IGNEOUS ROCK TYPES..... ITHACA PEAK PORPHYRY INTRUSIVE STOCK RHYOLITE DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ, LIMONITE, HEMATITE, JAROSITE ALUNITE KAOLIN

IMPORTANT ORE CONTROL/LOCUS.. VEINLETS & DISSEM. IN GRANITE; STRONGLY MINERALIZED AREAS COINCIDE WITH THOROUGHLY FRACTURED ROCKS. ENRICHED SULFIDE MINERALIZATION GENERALLY CAN FORMS TO TOPOGRAPHY OF ITHACA PEAK AS A RESULT OF OXIDATION & EROSION OF PREVIOUSLY ENRICHED AREA

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHATTERING TOOK PLACE AFTER INTRUSION OF RHYOLITE DIKES. COMMINUTION OF PYRITE BY MOVEMENT ON LARGER THIRD STAGE VEINS ENHANCED ENRICHMENT. (EIDEL ETC., 1968, P. 1273). STEEPLY-DIPPING, NW TRENDING VEINS & VEINLETS ARE ABUNDANT; NW-DIPPING, NE TRENDING VEINS ARE COMMON; STEEPLY-DIPPING E-TRENDING VEINS & VEINLETS ARE LESS COMMON. (EIDEL ETC., 1968, P. 1268)9

SIGNIFICANT ALTERATION:

FERRIMOLYBDITE IN OXIDE ZONE AS COMMON REPLACEMENT PRODUCT OF MOLYBDENITE (ANTHONY, ETAL, 1977) WITH P THE CORE OF A QUARTZ MONZONITE STOCK SILICIFICATION & SERICITIZATION COMMON. LEACHED ZONE RECORDED IN 1915 DRILL HOLE TO 290 FEET; ENRICHED ZONE REACHED 520 FT. (ANDERSON, 1968). THE ZONE OF INTENSE SERICITIZATION & ARGILLIZATION, IS COEXTENSIVE WITH COPPER-MOLYBDENUM PROFIRE IN SPACE. THE FIRST STAGE HYPOGENE MINERALIZATION & ALTERATION ARE COINCIDENT IN TIME. SERICITIZATION, ARGILLIZATION & PROPYLITIZATION ARE PERVASIVE ALTERATIONS. THERE WAS NO SIGNIFICANT LEACHING OR ENRICHMENT OF MOLYBDENUM.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SPHALERITE & GALENA SEEM TO BE SAME AGE AS PB-ZN FISSURE VEIN DEPOSITS THAT CUT ACROSS DISSEMINATED SULFIDE DEPOSIT.

COMMENTS (GEOLOGY AND MINERALOGY):

OXIDIZED CAPPING OVER LARAMIDE QUARTZ MONZONITE & QUARTZ PORPHYRY ONLY INCLUDES TURQUOISE & 2 UNIDENTIFIED GREEN PHOSPHATE MINERALS AS OXIDIZED COPPER. CAPPING OVER SCHIST ORE INCLUDES COPPER SULFATES, GYPSUM & SOME AZURITE & MALACHITE AFTER CUPRITE REPLACING NATIVE COPPER. FERRIMOLYBDITE IS COMMON REPLACEMENT PRODUCT OF MOLYBDENITE THROUGHOUT CAPPING. IRON OXIDE AGGREGATES CONTAIN FERRIMOLYBDITE & POSSIBLY AKAGANEITE. (EIDEL 1968 P. 1274

GENERAL REFERENCES

1) MINERAL PARK REFERENCES:

EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.M., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.D., ED.): AIME GRANTON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE.

2) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 978-E: 123-163.

3) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.

4) DRAKE, WILLIAM EDWARD, 1972, A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.

5) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

7) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.

8) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.

9) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

2) MINERAL PARK REFERENCES:

- ANDER, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2 P. 1163-1190.
- 3)BLANCHARD, R. AND BOSWELL, P.F., 1930, LIMONITE TYPES DERIVED FROM BORNITE AND TETRAHEDRITE. ECON. GEOL. 25: 557-580.
- 4)CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 5)DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.
- 6)FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.
- 7)GARRISON, F.L., 1907, NOTES ON MINERALS, PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 8)HERNIM, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 9)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 10)JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 11)JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16.
- 12)JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 3) LIVINGSTON, D.E., ET AL., 1967, GECHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-80, APPENDIX A-III.
- 4)MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 5)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
- 6)MALACH, R., 1975, CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P., P. 12.
- 7)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL PROGRESS REPORT NO. COO-689-50, P. A-II-1-A-II-8.
- 8)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 9)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 10)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 11)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-2369.
- 12)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 13)SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 14)SCHRADER, F.C. 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 15)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 16)STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
- 17)THOMAS, B.E., 1953, GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
- 18)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P. ARIZ. BUR. MINES FILE DATA.
- 4) OTHER REFERENCES IN CERBAT MTS:
- BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 5)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6)GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7)GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 8)HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 9)HAURY, P.S. 1947, EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA, U.S. BUR. MINES REPT. INV. 4101.
- 10)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 12) ARIZ. MINING JOUR., 1920, V. 8
- 13) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 14) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 15) NOLAN, I.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 16) SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 17) TAINTER, S.L. 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 18) THOMAS, R.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-2339
- 19) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 20) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 21) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 22) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00201

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030378
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... KAABA MINE
SYNONYM NAME..... KAABA MINE ON TOPO. MAP.

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST/E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 BOTTLENECK WASH, ARIZ.

LATITUDE LONGITUDE
35-05-31N 113-43-23W

UTM NORTHING UTM EASTING UTM ZONE NO
3886430. 251765. +12

TWP..... 20N
RANGE.... 14W
SECTION.. 26 NE
MERIDIAN. GILA & SALT R.

ALTITUDE.. 3900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES WEST OF WIKIEUP-KINGMAN HIGHWAY UP KABBA WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG AU CU PB V MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AU AG
MINOR PRODUCTS.. CU V

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

KAABA MINING & NULLING CO. OPERATED A PILOT MILL FOR THE ORE THAT CONTAINED VANADATE OF LEAD RICH IN GOLD & LATER HAD A 125 TON FLOTATION PLANT.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	2.53	TONS	1935-1936	0.07% PB, 0.003% CU, 0.082 OZ/T AG, 0.109 OZ/T AU, AZ. BUR. MINES FILE DATA

SOURCE OF INFORMATION (PRODUCTION).. MALACH, 1977, P. 23

PRODUCTION COMMENTS.... MINE HAD LIMITED PRODUCTION OF VANADIUM FROM 1916-1918

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1		0		1942	

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. MALACH, 1977, P. 23

COMMENTS (RESERVES/POT RESOURCES).. IN 1942 NO VANADIUM WAS LEFT OTHER THAN SMALL PILLARS

GENERAL REFERENCES

- 1) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 23
- 2) ARIZ. BUR. GEOLOGY & MIN. TECH. FIEL DATA.
- 3) U.S. GEOL. SURVEY TOPOGRAPHIC MAP.
- 4) GENERAL GEOLOGY HUALAPAI MTS: WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 8) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 9) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 10) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 11) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 12) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-149

- 13)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 14)HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 15)HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 16)UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 17)HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEN, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 971, 197 P.
- 18)HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 19)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 20)KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 21)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 95 P.
- 22)LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 23)MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 24)MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 25)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 26)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 27)MINING WORLD, V. 3, NO. 4, 1941.
- 28)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 29)PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 30)ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 31)SCHRAEDER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 32)SCHRAEDER, F.C., 1909, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 33)SCHRAEDER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 34)SCHRAEDER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 35)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON J.H. AIME BULL. 124, P. 456-460.
- 36)SCHRAEDER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 37)SCHRAEDER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 38)TULL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 39)TODTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 40)WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 41)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 42)GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 43)GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-M, 37 P.
- 44)LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 45)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP: U.S. GEOL. SURVEY MINED REP., 6 P.
- 46)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED REP., 17 P.
- 47)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS AND BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER

ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS

48)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197.

49)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.

50)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.

51)SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.

52)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.

53)TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00202

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030370
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... MIDWEST MINE
SYNONYM NAME..... OWNER IN 1962 FHERY BLEVINS, WIKIEUP

MINING DISTRICT/AREA/SUBDIST. SHANNON BASIN DISTRICT/S.E. HUALAPAI MTS. (THE OWENS DISTRICT IS TO THE SOUTH IN THE MCCracken MTS. BUT WAS SOMETIMES EXTENDED TO THE NORTH.)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 WIKIEUP NW, ARIZ.

LATITUDE LONGITUDE
34-38-03N 113-38-56W

UTM NORTHING UTM EASTING UTM ZONE NO
3836410. 257190. 412

TWP..... 15N
RANGE.... 13W
SECTION.. 08 17 ?
MERIDIAN. GILA & SALT R.

ALTITUDE.. 3200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 TO 5 MILES S. OF WIKIEUP IN LOW HILL COUNTRY ON THE WEST SIDE OF THE BIG SANDY. THE MILL IS REACHED BY TRAVELING 3 MILES S. OF WIKIEUP ON HWY 93, THENCE 1 MILE WEST OVER DIRT ROAD. MAIN MINE WORKINGS ARE 1 MILE WEST OF MILL.

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MO AG

MAIN ORE MINERALS:

GALENA & WULFENITE CERUSSITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1 MI
MAX WIDTH..... 30 FT
STRIKE OF OREBODY.... N65E

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 60 FT

COMMENTS(DESCRIP. OF WORKINGS):

DRY CONCENTRATING PLANT BUILT IN 1958 BUT SCRAPPED. CONVENTIONAL WET JIG PLANT BUILT IN LATE 1958. DISMANTLED IN 1959 DRILLED BY BAGDAD COPPER CO. IN 1965.

SOURCE OF INFORMATION (PRODUCTION).. DEPT MIN. RES., 1962, MO PROSPECTS-AZ

PRODUCTION COMMENTS.... : DRY CONCENTRATING PLANT WAS BUILT IN 1958 WITH ANTICIPATION OF MILL FEED OF ABOUT 5% PB, 1% MO, AND 1/4 TO 1/2 OZ AG FROM AN OPEN CUT. THE MINE SHAFT IS SAID TO HAVE SHOWN A CONSIDERABLY BETTER GRADE OF ORE AT DEPTH. THE MILL WAS REVAMPED LATER, BUT DID NOT OPERATE.

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... GRANITE GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. 6 MILES AWAY IS 58.1 +/- 2.3 M.Y.O. INTRUSION

PERTINENT MINERALOGY..... QUARTZ, LIMESTONE & "BLACK" CALCITE

IMPORTANT ORE CONTROL/LOCUS.. A LARGE VEIN-DIKE IN GRANITE GNEISS OUTCROPS FOR OVER A MILE & A NUMBER OF SIMILAR BUT SMALLER PARALLEL VEINS OCCUR CLOSE TO THE MAIN VEIN

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

LEACHING OF CULPHIDES, PROBABLY PYRITE

GENERAL REFERENCES

- 1) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 2) GENERAL GEOLOGY HUALAPAI MTS:
ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 3) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 4) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 5) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 807B, 104 P., P. 91.

- 6) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
 - 7) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
 - 8) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 10) MAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 - 11) HENNETT, D.F., CALLAGHAN, E., MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
 - 12) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
 - 13) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 - 14) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 - 15) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 16) LEMMON, D.M., AND WETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
 - 17) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 18) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 - 18) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
 - 20) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 21) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454, MINING WORLD, V. 3, NO. 4, 1941.
 - 22) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 23) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
 - 24) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 - 25) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
 - 26) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 27) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY D. J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-394.
 - 28) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 29) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON J.H. AIME BULL. 124, P. 456-460.
 - 30) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
 - 31) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 32) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 33) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
 - 34) VUTCH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
 - 35) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 - 36) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
 - 37) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 3) GENERAL GEOLOGY OF ARTILLERY AREA:
- GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
 - 4) HEAD, R.E., 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941)
 - 5) JONES, E.L., JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.

- 6) KUMKE, C.A., 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: USBM, RI 5292, 97 P., ILLUS. (1957)
- 7) LASKY, S.G., AND B.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-R: 417-448.
- 8) LASKY, S.G. 1. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)
- 9) LASKY, S.C., AND WEBBER, B.N., 1949 MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.
- 10) MOUAT, M.M., MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6, P. 744-752 (1962)
- 11) HAMILTON, PATRICK, 1883, THE RESOURCES OF ARIZONA, 2ND ED.: SAN FRANCISCO P. 128-129.
- 12) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY ARIZONA: U.S. GEOL. SURVEY BULL. 451, P. 123-126.
- 13) MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS
- 14) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 15) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 16) PETERSON, DONALD L. 5. BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
- 17) SNAFORD, R.S. (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USBM, RI 4275, 45 P. (1948)
- 18) SHACKELFORD, T.J., STRUCTURAL GEOLOGY OF THE RAWHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA
- 19) UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL, UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIF., USA, UNPAGINATED P., 1976.
- 20) (DISS. ABSTR. INT., VOL. 38, NO. 4, P. 16228-16238, 1977)
- 21) SHERRER, P.L. CATACLASTIC ROCKS OF THE RAWHIDE MOUNTAINS, WEST-CENTRAL ARIZONA SAN DIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S, SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGINATED P., 1976
- 22) WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107P., P. 71-78.
- 4) GENERAL GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- DAVIDSON, E.S., 1975, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 5) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 6) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 7) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 8) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 9) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED REP., 17 P.
- 10) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 11) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 12) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-62.
- 13) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 14) SHEPPARD, R.A. AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 15) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER PROF. PAPER 830, P.
- 16) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00203

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04019
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07
UPDATED..... LIVINGSTON, D.E., ET AL., 1967,
GEOCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA
PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-80,
APPENDIX A-III.
4)MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN,
AZ., 142 P.
5)MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF
SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
6)MALACH, R., 1975, CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN,
ARIZ., 48 P., P. 12.
7)MAUGER, R.L. AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND
COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL
PROGRESS REPORT NO. CDD-689-50, P. A-11-1-A-11-8.
8)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK
MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE,
NEW SER., V. 27, P. 957-958.
9)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA
(WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME
BULL. 123, P. 379-384.
10)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN.
SCI. PRESS, V. 113, NO. 21, P. 733-737.
11)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.:
AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
12)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY,
ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
13)SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON.
GEOLOGY, V. 45, P. 175-176.
14)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK
MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY
BULL. 340: 53-83.
15)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK
MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV.
BULL. 397.
16)STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908,
PT. 2, PP. 847-852.
17)THOMAS, B.E., 1953, GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL.
SOC. AMER. BULL. 64: 391-420.
18)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE
GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
19)ARIZ. BUR. MINES FILE DATA.

NAME AND LOCATION

DEPOSIT NAME..... MINERAL PARK PROPERTY
 SYNONYM NAME..... INCLUDES ITHACA PEAK OREBODY AND TURQUOISE MOUNTAIN & GROSS PEAK DEPOSITS

MINING DISTRICT/AREA/SUBDIST. WALLAPAI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 CERBAT, ARIZ.

LATITUDE LONGITUDE
 35-21-50N 114-08-30W

UTM NORTHING UTM EASTING UTM ZONE NO
 3917250. 795800. +11

TWP..... 23N 23N
 RANGE.... 17W 18W
 SECTION.. 19 24 25
 MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE SE OF MINERAL PARK MILL

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO ZN PB AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO

MINOR PRODUCTS.. ZN PB AG AU

MAIN ORE MINERALS:

MOLYBDENITE CHALCOCITE, PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:

AKAGENEITE, MALACHITE, AZURITE, CUPRITE, COPPER, BORNITE, WOLFRAMITE, FERRIMOLYBDITE, SPHALERITE, GALENA,
 TURQUOISE, COVELLITE

ANALYTICAL DATA(GENERAL)

MO= 0.04% IN PRIMARY ZONE; CU=0.1-0.15%

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM., STOCKWORK
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 DEPTH TO TOP 150 FT
 MAX LENGTH..... 2600 FT
 MAX WIDTH..... 1500 FT
 MAX THICKNESS..... 700 FT
 STRIKE OF OREBODY.... NW

DESCRIPTION OF WORKINGS
SURFACE

PRODUCTION

MEDIUM PRODUCTION			
8	MO ACC 39309.48	LBS	1964-1978
9	URE ACC 69895.38		1964-1978 4% CU, 0.025% MO, TRACE ZN, PB, AG, AU

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	CU EQUIV. ACC	58,000	TONS	1968	0.76% CU EQUIVALENT

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. EIDEL ETAL, 1968, P. 1270

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
 HOST ROCK TYPES..... GRANITE, QUARTZ MONZONITE ITHACA PEAK PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. QUARTZ MONZONITE IN ITHACA PEAK PT IS 71.5 +/- 2.6 M.Y.O. (DAMON & MAUGER, 1966)
 IGNEOUS ROCK TYPES..... ITHACA PEAK PORPHYRY INTRUSIVE STOCK, RHYOLITE DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ, LIMONITE, HEMATITE, JAROSITE, ALUNITE, KAOLIN.

IMPORTANT ORE CONTROL/LOCUS.. VEINLETS & DISSEMINATED IN GRANITE WERE STRONGLY FRACTURED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 LATER MOVEMENT COMMINGLED PYRITE WHICH ENHANCED SECONDARY ENRICHMENT

SIGNIFICANT ALTERATION:
 ZONE OF OXIDATION EXTENDS TO AVERAGES OF 20 FT DEPTH; ARGILLIZATION, PROPYLITIZATION, SILICIFICATION, & SERICITIZATION

COMMENTS (GEOLOGY AND MINERALOGY):

TURQUOISE IS ONLY COPPER MINERAL IN LEACHED CAPPING. CHALCOITE COATS OR REPLACES PYRITE OR MINOR CHALCOPYRITE.

GENERAL REFERENCES

1) MINERAL PARK REFERENCES:

- EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.M., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.D., ED.): AIME GRATON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE.
- 2) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA, U.S. GEOL. SURVEY BULL. 978-E: 123-163.
- 3) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
- 5) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
- 6) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-2389
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
- 9) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 10) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

2) MINERAL PARK REFERENCES:

- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190, P. 1177.
- 3) BLANCHARD, F. AND BOSWELL, P.F., 1930, LIMONITE TYPES DERIVED FROM BORNITE AND TETRAHEDRITE. ECON. GEOL. 25: 557-580.
- 4) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 5) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.
- 6) FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.
- 7) GARRISON, F.L. 1907, NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 8) HERMON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 10) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 11) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
- 12) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS V. 51, NO. 1, P. 40-44.

4) OTHER REFERENCES IN CERBAT MTS:

- BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24. PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STROMTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-6449
- 8) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 9) HAURY, P.S. 1947, EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-629, MIN. AND SCI. PRESS.
- 12) ARIZ. MINING JOUR., 1920, V. 8.
- 13) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD -ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 14) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

- 15)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 16)SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLOKIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 17)TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 39989
- 18)THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 19)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 20)WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-7579
- 21)WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 22)WILSON, F.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

RECORD 00204

CR10 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030380
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2.1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... NEW TENNESSEE MINE
SYNONYM NAME..... BRYAN CLAIM, OVERSIGHT CLAIM

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDISTRICT/WALLAPAI DIST./CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-24-47N 114-10-54W

UTM NORTHING UTM EASTING UTM ZONE NO
3922270. 755920. +11

TWP..... 23N
RANGE.... 18W
SECTION.. 3 EC
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4320 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE E OF CHLORIDE, 1/4 MILE SE OF TENNESSEE MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AU AG MO

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NW

DIP OF OREBODY..... 66 NE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT SHOWN ON TOPOGRAPHIC MAP.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... SCHIST (AMPHIBOLITE), UNDIFFERENTIATED GRANITE, GNEISS & SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. QUARTZ MONZONITE AT ITHACA PEAK IS 71.5 +/- 2.6 M.Y.A. (DAMON & MAUGER 1966)

AGE OF MINERALIZATION..... CRET

GENERAL REFERENCES

- 1) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P.
- 2) ARIZONA BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 3) DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E, P. 123-162, GEOLOGIC MAP.
- 2) CHLORIDE AREA:
 - THOMAS, B.E., 1949., ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
 - 3) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 62-65
 - 4) THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
 - 5) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
 - 6) GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
 - 7) MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
 - 8) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 9) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 10) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:
 - ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
 - 4) BLANCHARD K. AND BOSWELL, P.F., 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
 - 5) CARPENTER, R. H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
 - 6) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS; WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.
 - 7) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
 - 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
 - 9) FIELD, W. (1966) SULFUR ISOTOPE METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN. ECON. GEOL. 61: 1428-1435.

- 10) GARRISON, 1907, NOTES ON MINERALS, PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 11) HAURY, P.S., 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
- 12) HERNON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 13) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ 48 P.
- 15) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16.
- 16) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 17) SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340; 53-83.
- 18) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 19) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 20) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 22) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 23) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 24) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1909, PT. 2, PP. 847-852.
- 25) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 4) GENERAL GEOLOGY OF CERBAT MTS:
ARIZ. MINING JOUR., 1920, V. 8
- 5) DAMON, P.E., AND GILETTI B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 7) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 8) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 9) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 527-628, MIN. AND SCI. PRESS.
- 12) MCKNIGHT, E.T., 1933 MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 13) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 14) NICLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 15) SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 16) TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 17) THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 18) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 19) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 20) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, N/ 12, P. 51, 66.
- 21) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 22) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

RECORD 00205

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... D000780
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... O.K. CLAIM
SYNONYM NAME..... DISCOVERED & LOCATED BY PATTERSON, ROWE, & FOX IN EARLY 1880'S. IN 1909 OWNED BY
ARIZONA-MINNESOTA GOLD MINING CO.

MINING DISTRICT/AREA/SUBDIST. GOLD BASIN DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0062500 GARNET MTN., ARIZ.

LATITUDE LONGITUDE
35-47-30N 114-12-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3964180. 751250. +11

TWP..... 28N
RANGE.... 18W
SECTION.. 28 NW
MERIDIAN. GILA & SALT R., ARIZ.

ALTITUDE.. 3640 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES WEST OF HUALAPAI WASH, 15 MILES S OF LAKE HEAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... W PB AU MO AG CU FE

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
MOLYBDENITE & WOLFRAMITE LIMONITE HEMATITE, SIDERITE, SALENA

COMMODITY COMMENTS:
IN 1909 AVE. 10 AU/T

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 18 IN
STRIKE OF OREBODY.... N65E
DIP OF OREBODY..... 75NW

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS..... 1600 FT

COMMENTS(DESCRIP. OF WORKINGS):
ADIT DRIFTS, WINZES, & STOPES ON FOUR LEVELS (SEE CROSS SECTION, SCHRADER, 1909, P. 121).

PRODUCTION
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE	REMARKS
15	ORE ACC	6.261	TONS		1935-1942		0.27 OZ/T AU, 0.15 OZ/T AG, 0.104% PB, 0.0023% CU FROM D.K. AND EXCELSIOR (ARIZ. BUR. MINES FILE DATA) WITH ADDITIONAL AMOUNTS FROM CLEANINGS & FROM D.K. MILLSITE

SOURCE OF INFORMATION (PRODUCTION).. ACHRADER, 1909, P. 121

PRODUCTION COMMENTS.... PRODUCTION TO 1909 REPORTED TO BE 25,000.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... DARK BIOTITE GRANITE PARAGNEISS & GNEISSIC GRANODIORITE. PARAGNEISS IS UNDIFFERENTIATE ASSEMBLAGE OF AMPHIBOTITE-FACIES METASEDIMENTARY ROCKS, DOMINANTLY QUARTZ-PLAGIODASE GNEISS INTERLAYERED WITH CORDIERITE GNEISS, BIOTITE-GARNET-SILLIMANITE SCHIST & AMPHIBOLITE. THINK LENSES OF MARBLE, CALC-SILICATE GNEISS, BANDED IRON FORMATION, AND METACHERT LOCALLY OCCUR. GNEISSIC GRANODIORITE IS OLIVE TO REDDISH GRAY, WEAKLY TO STRONGLY FOLIATED, MEDIUM GRAINED, EQUIGRAN BIOTITE GRANITIORITE OCCURRING AS CONCORDANT BODIES WITHIN PARAGNEISS.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... LATE CRETACEOUS QUARTZ MONZONITE IS 2 MILES AWAY. MEDIUM TO COARSE GRAINED, SERICITE TO PORPHYRITIC LEUCOCRATIC QUARTZ MONZONITE INCLUDES MINOR APLITE & PEGMATITE.

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS; MOLYBDENITE WITH GALENA & WOLFRAMITE. ORE FAVORS HANGING WALL.

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 2) O.K. MINE:
 - BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE MAP 75-939
 - 3) BLACET, P.M., 1972, LATE CRETACEOUS PLUTONISM AND METALIZATION SOUTH OF LAKE MEAD: U.S. GEOL. SURVEY PROF. PAPER 800-A, P. A44.
 - 4) BLACET, P.M., 1969, GOLD PLACER AND LODE DEPOSITS, GOLD BASIN AND LOST BASIN: U.S. GEOL. SURVEY, PROF. PAPER 650-A, P. 1-2.
 - 5) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 121-122.
 - 6) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 104.
 - 7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76.
 - 4) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 5) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 - 6) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
 - 7) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME TRANS., V. 56, P. 195-236.
 - 8) THOMPSON, A.P., 1925, MINING POSSIBILITIES OF THE WHITE HILLS DISTRICT: ARIZ. MIN. JOUR., V. 9, NO. 12, P. 7-8, 45-47.
 - 9) WILLIS, C.F., 1921, FAMOUS WHITE HILLS MINES SOON TO BE UNDER WAY: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 57-59.
 - 10) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 - 11) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEN, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P., 15.
 - 12) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 76-78.
 - 13) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168, P. 35-37.
 - 14) WILSON, E.D., 1933, ARIZONA GOLD PLACERS AND GOLD PLACERING: ARIZ. BUR. MINES BULL. 135, 148 P., P. 82-83.
 - 15) HILL, J.M., 1910, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76, P. 62
 - 16) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93, P. 69-70.
 - 17) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P., P. 104-105.
 - 18) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 20
 - 19) HEIKES, V.C., 1905, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1905: U.S. GEOL. SURVEY MIN. RES. U.S., 1905, P. 134-162, P. 150-160.
 - 20) HEIKES, V.C., 1906, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177, P. 163.
 - 21) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1 P. 286-313 P. 303
 - 2) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259 P. 249
 - 4) WHITE HILLS:
 - ANDERSON, R.E., 1971, THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL.,

V. 82, NO. 1, P. 43-589

- 5)ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDDORADO MTS CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-4249
- 6)ANDERSON, R.E., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO. ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394
- 7)ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
- 8)ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267, P. 478-490.
- 9)ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GEOCHIM COSMOCHIM. ACTA, V. 34, P. 203-232.
- 10)BLAIR, W.N., 1978, GULF OF CALIFORNIA IN LAKE MEAD AREA OF ARIZONA AND NEVADA DURING LATE MIOCENE TIME: AMERICAN ASSOC. PETROLEUM GEOLOGISTS BULL., V. 62, NO. 7, P. 1159-1170.
- 11)BOHANON, R.G., AND ANDERSON, R.E., 1978, TERTIARY TECTONIC HISTROY OF THE EASTERN BASIN AND RANGE PROVINCE IN THE VICINITY OF LAKE MEAD IN SOUTHERN NEVADA AND WESTERN ARIZONA: (ABS.) GEOL. SOC. AMERICA, ABSTRACTS WITH PROGRAMS, V. 10, #3, P. 96-979
- 12)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.
- 13)GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1899-H.
- 14)LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP.
- 15)LONGWELL, C.R., 1920, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION OF THE GRAND WASH CLIFFS IN ARIZONA: YALE UNIV., PH.D. THESIS.
- 16)LONGWELL, C.R., 1928, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION THROUGH THE VIRGIN RANGE TO THE GRAND WASH CLIFFS, ARIZONA: USGS BULL. 798, 152 P., MAPS.
- 17)LONGWELL, C.R., 1921, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION TO THE GRAND WASH CLIFFS IN WESTERN ARIZONA: AM. JOUR. SCI., 5TH SER., V. 1, P. 39-62.
- 18)LUCCHITTA, IVO, 1966, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA: UNPUBLISHED PH.D. THESIS, PENNSYLVANIA STATE UNIVERSITY.
- 19)LUCCHITTA, IVO, 1967, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA (ABS): DISSERT. ABS., V. 28, NO. 6, P. 2483-B-2484-B
- 20)QUALHEIM, B.J., 1978, HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA REPORT FOR KINGMAN NTMS QUADRANGLE, ARIZONA, CALIFORNIA, AND NEVADA: LAWRENCE LIVERMORE LAB., UNIV. CALIF., LIVERMORE, GJBX-122-78, 43 P. AND MICROFICHE.
- 21)TWENTER, F.R., 1963, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00206

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030352
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PASADENA

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT/HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ

LATITUDE LONGITUDE
34-49-40N 113-47-50W

TWP..... 17N
RANGE.... 14W
SECTION.. 30
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE SOUTHWEST OF LEVIATHAN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

ARKLA DRILL HOLE IN CANYON IN PYRITIC AREA IN PRECAMBRIAN ROCKS/RHYOLITES & GNEISSES

GENERAL REFERENCES

1) HOUSEHOLDER MAP, ARIZ. BUREAU GEOLOGY FILE DATA

RECORD 00207

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030384
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PIONEER VEIN
SYNONYM NAME..... GERMAN AMERICAN VEIN, GREADWELL GROUP OF R2 CLAIMS

MINING DISTRICT/AREA/SUBDIST. VIVIAN SUBDIST (OATMAN DIST)/BLACK MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 OATMAN, ARIZ.

LATITUDE LONGITUDE
35-01-07N 114-24-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3877980. 736610. 411

TWP..... 19N
RANGE..... 20W
SECTION.. 21 E 1/2
MERIDIAN. GILDESALT R.

ALTITUDE.. 2400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MILES SOUTH WEST OF OATMAN; 1 1/4 MI. SE OF LELAND

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB MD

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG
MINOR PRODUCTS.. PB

MAIN COMMOD..... AU

MINOR COMMOD.... AG MO PB

MAIN ORE MINERALS:
FREE GOLDMINOR ORE MINERALS:
WULFENITE FILM

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
40/TON AU IN 1931

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	1	MI
MAX WIDTH.....	60	FT
STRIKE OF OREBODY....	N13W	
DIP OF OREBODY.....	85E	

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE.	420	FT
LENGTH OF WORKINGS.....	3000	FT

COMMENTS(DESCRIP. OF WORKINGS):

THE GERMAN AMERICAN MINE WAS LOCATED IN 1896 AND WAS IN OPERATION IN 1907. THERE WERE 3 SHAFTS IN 1923, THE ABANDONED SOUTHERNMOST-THE THIRTY-FIFTH PARALLEL, 220 FT DEEP; THE ABANDONED TREADWELL, 340 FT DEEP; AND NORTHERNMOST, THE PIONEER, 420 FT DEEP, CAVED IN 1921. TOPO MAP SHOWS 16 SHAFTS ALONG VEIN.

PRODUCTION

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	ORE EST	1	TONS	1905	
2	ORE EST	1.7	TONS	1906	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15	ORE EST	2.7	TONS		\$10 AU/T

16	ORE EST	31.461	TONS	1934--1942	0.0007% PB, 0.33 OZ/T AU, 0.25 OZ/T AG (AZ BUR. MINES FILE DATA)
17	PB EST	.456	LBS	1934-1942	0.0007% PB (AZ. BUR. MINES FILE DATA)
18	AU EST	10.346	OZ	1934-1942	0.33 OZ/T AU (AZ. BUR. MINES FILE DATA)
19	AG EST	7.885	OZ	1934-1942	0.25 OZ/T AG (AZ. BUR. MINE FILE DATA)

SOURCE OF INFORMATION (PRODUCTION).. SCHRADER, 1909, P. 187

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. RANSOME, 1923

COMMENTS (RESERVES/POT RESOURCES).. ALL ORE BODIES WERE EXHAUSTED ABOVE THE 400 FT LEVEL. THE ORE WAS CUT OFF BY A FAULT.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
HOST ROCK TYPES..... DATMAN ANDESITE AND ALCYONE TRACHYTE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
IGNEOUS ROCK TYPES..... DATMAN ANDESITE AND ALCYONE TRACHYTE -----(YOUNGER THAN 22.6 M.Y.A.; OLDER THAN 10.4 M.Y.A.; THORSON)

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... COARSE GRAINED, GRAY CALCITE AND QUARTZ, SOME ADULARIA

IMPORTANT ORE CONTROL/LOCUS.. VEIN FOLLOWS CONTACT BETWEEN ALCYONE TRACHYTE ON WEST & DATMAN ANDESITE ON EAST

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NNW FAULT CUTTING ACROSS NW FISSURING ZONE OF LELAND-GOLD DUST-BOUNDARY VEINS

SIGNIFICANT ALTERATION:
SILICIFIED

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SECONDARY ENRICHMENT

COMMENTS (GEOLOGY AND MINERALOGY):
THIN FILM OF BRIGHT YELLOW MINERAL IS PROBABLY WULFENITE

GENERAL REFERENCES

- 1) DATMAN IMPORTANT ARTICLES: LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P., P. 60, 84, PL. 1.
- 2) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 186-190.
- 3) LAUSEN, CARL, 1931, GOLD VEINS OF THE DATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PH.D. THESIS, 155 P., MAPS.
- 4) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: P. 53-83, P. 80.
- 5) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP, P. 50, PL VIII B.
- 6) WELLS, R.C., 1937, ANALYSES OF ROCKS AND MINERALS FROM THE LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, 1914-1936: U.S. GEOL. SURVEY BULL. 878, 134 P., P. 9-10.

- 7) THORSON, J.P., 1971, IGNEOUS PETROLOGY OF THE DATMAN DISTRICT, MOHAVE COUNTY, ARIZONA: PH.D. THESIS, UNIV. CALIF., SANTA BARBARA, 189 P.
- 8) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 94-5.
- 2) DATMAN:
- ARIZONA MINING JOURNAL, 1921, RECALLING THE DAYS OF THE GREAT DATMAN BOOM IN 1915: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 21.
- 3) ARIZONA MINING JOURNAL, 1921, HISTORY OF TOM REED MINE IS STORY OF SUCCESS AFTER FAILURE: ARIZ. MIN. JOUR. V. 5, NO. 10, P. 24.
- 4) ARIZONA MINING JOURNAL, 1921, UNITED EASTERN COMPANY PUSHING DEVELOPMENT WORK: ARIZ. MIN. JOUR., V. 5, NO. 10, P. 22.
- 5) BANCROFT, H., 1915, GEOLOGY OF GOLD ROAD DISTRICT (NEAR KINGMAN, ARIZONA): MIN. SCI. PRESS, V. 111, P. 21.
- 6) BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER DRES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 7) BOERICKE, W.F., 1922, DATMAN TODAY: ENGR. MIN. JOUR., V. 113, P. 51-53.
- 8) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ENGR. MIN. JOUR., V. 3, P. 747-748.
- 9) BOLLINGER, E.E., 1921, THE TOM REED-UNITED EASTERN DECISION: ARIZ. MIN. JOUR., V. 4, NO. 11, P. 3-6.
- 10) BURGESS, J.A., 1916, UNITED EASTERN MINE, DATMAN, ARIZONA: ENGR. MIN. JOUR., V. 102, P. 232-233.
- 11) BURGESS, J.A., 1920, UNITED EASTERN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 2, P. 41-439.
- 12) DINSMORE, C.A., 1911, HISTORY AND DEVELOPMENT OF THE GOLD ROAD MINE: MIN. ENGR. WORLD, V. 35, P. 1275-1276.
- 13) DOMAN, R.S., 1922, THE LURE OF ARIZONA GOLD WAS THE INSPIRATION FOR DATMAN: ARIZ. MIN. JOUR., V. 6, NO. 14, P. 3-4.
- 14) GARDNER, E.D., 1936 GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES INF. CIRC. 6901.
- 15) HOLT, E.B., 1940, OLD MINES IN THE RIVER RANGE OF ARIZONA: MIN. JOUR., V. 24, NO. 5, P. 3-6.
- 16) JOHANNSEN, A., 1908, NOTES ON THE IGNEOUS ROCKS OF WESTERN ARIZONA: IN LEE, W.T., GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, P. 91-92.
- 17) JOHNSON, C.H., 1935, MINING AND MILLING METHODS AT THE BIG JIM MINE, DATMAN, ARIZONA: U.S. BUR. MINES, I.C. 6624, 12 P.
- 18) LAUSEN, CARL, 1942, THE DATMAN AND KATHERINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS, P. 226-229.
- 19) MARTIN, A.H., 1909, SAN FRANCISCO DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 368.
- 20) MINING JOURNAL, 1937, ANNUAL REPORT ISSUED BY TOM REED GOLD MINES COMPANY: MIN. WORLD, V. 21, NO. 3, P. 37.
- 21) MOORE, R.W., 1928, MINING METHODS AND RECORDS AT THE UNITED EASTERN MINE: TRANS. A.I.M.E., V. 76, P. 56.
- 22) O'BRIEN, J.F., 1922, GOLD PROPERTIES AT DATMAN PREPARING FOR DEVELOPMENT: ARIZ. MIN. JOUR., V. 5, NO. 20, P. 25.
- 24) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 895-900.
- 25) PALMER, L.A., 1916, THE DATMAN DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 113, P. 193-196.
- 26) PETERS, W.C., 1969, THE ECONOMICS OF MINERAL EXPLORATION: GEOPHYSICS, V. 34, NO. 4, P. 633-644.
- 27) PROBERT, F.H., 1916, DATMAN, ARIZONA (GEOLOGY AND MINERALIZATION): MIN. SCI. PRESS, V. 112, P. 17-20.
- 28) RANSOME, F.L., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA (EXTRACTS): ARIZ. MIN. JOUR., V. 7, NO. 9, P. 5-6, 14-18; ARIZ. MIN. JOUR., V. 7, NO. 10, P. 41-45.
- 29) RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-681.
- 30) RITTER, E.A., 1916, DATMAN AND THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: MIN. WORLD, V. 44, P. 645-648.
- 31) SCHWARTZ, G.M., 1944, THE HOST MINERALS OF NATIVE GOLD: ECON. GEOLOGY, V. 39, NO. 6, P. 371-411.
- 32) SCOTT, W.A., 1916, PRESENT DEVELOPMENT OF THE DATMAN DISTRICT OF ARIZONA: MIN. ENGR. WORLD, V. 44, P. 1033-1038.
- 33) SHAW, E.A., 1920, UNITED AMERICAN MINING COMPANY: ARIZ. MIN. JOUR., V. 4, NO. 3, P. 21.
- 34) SPERR, J.D., 1916, THE TOM REED-GOLD ROAD MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 101, P. 1-5.
- 35) SPILLMAN, C.F., 1916, TOM REED GOLD MINES PROPERTY, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 1073-1074.
- 36) SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 26-28.
- 37) TOVOTE, W.L., 1906, GOLD ROAD, DIE BEDEUTENDSTE GOLDGRUBE ARIZONAS: OESTERREICHISCHE ZEITSCHRIFT FUR BERG-UND HUTTENWESEN, V. 54, P. 549-550, WEIN.
- 38) WILLIS, C.F., 1921, ACTIVITY IN DATMAN AT HIGHLAND CHIEF MINES: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 64, 68.
- 39) WILLIS, C.F., 1923, ROMANCES OF SOME OF ARIZONA'S MINES: ARIZ. MIN. JOUR., V. 7, NO. 11, SUPPLEMENT, P.

1-16.

- 40) WISEMAN, PHILIP, 1924, UNITED EASTERN REPORT GIVES FUTURE PLANS: ARIZ. MIN. JOUR., V. 8, NO. 6, P. 23-24.
 - 41) HOLLE, MURIEL S., 1959, DATMAN; ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 18, NO. 7, P. 68.
- 3) BLACK MTS GENERAL GEOLOGY:
- ANDERSON, R.E., 1971 THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOL. SOC. AMERICA BULL., V. 82, NO. 1, P. 43-58.
 - 4) ANDERSON, R.E., 1978, CHEMISTRY OF TERTIARY VOLCANIC ROCKS IN THE ELDDORADO MTS CLARK CO., NEVADA, AND COMPARISON WITH ROCKS FROM SOME NEARBY AREAS: U.S. GEOL. SURVEY, JOUR. RESEARCH, V. 6, P. 409-424.
 - 5) ANDERSON, R.E., LONGWELL, C.R., ARMSTRONG, R.L., AND MARVIN, R.F., 1972, SIGNIFICANCE OF K-A AGES OF TERTIARY ROCKS FROM THE LAKE MEAD REGION, NEVADA-ARIZONA: GEOL. SOC. AMERICA BULL., V. 83, P. 273-288.
 - 6) ARMSTRONG, R.L., EKREN, E.B., MCKEE, E.H., AND NOBLE, D.C., 1969, SPACE-TIME RELATIONS OF CENOZOIC SILICIC VOLCANISM IN THE GREAT BASIN OF THE WESTERN UNITED STATES: AMER. JOUR. SCI., V. 267 P. 478-490.
 - 7) ANDERSON, R.D., 1978, GEOLOGIC MAP OF THE BLACK CANYON 15-MINUTE QUADRANGLE, MOHAVE CO., ARIZONA, AND CLARK CO., NEVADA: U.S. GEOL. SURV., GQ 1394
 - 8) ARMSTRONG, R.L., 1970, GEOCHRONOLOGY OF TERTIARY IGNEOUS ROCKS, EASTERN BASIN & RANGE PROVINCE, WESTERN UTAH, EASTERN NEVADA AND VICINITY, USA: GEOCHEM COSMOCHEM. ACTA, V. 34, P. 203-232.
 - 9) BLACET, P.M., 1975, PRELIMINARY GEOLOGIC MAP OF THE GARNET MOUNTAIN QUADRANGLE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP 75-93.
 - 10) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANNALS, V. 91, P. 443-453.
 - 11) LONGWELL, C.R., 1963, RECONNAISSANCE GEOLOGY BETWEEN LAKE MEAD AND DAVIS DAM, ARIZONA-NEVADA: U.S. GEOL. SURVEY, PROF. PAPER 374-E, 51 P., MAP.
- 4) GEOLOGY & ORE DEPOSITS OF MOHAVE CO.:
- DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
 - 5) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 6) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 7) IVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
 - 8) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 - 9) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINS BULL. 148, GEOL. SERIES 14, 54 P.
 - 10) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 11) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 12) MALACH, R., 1974 MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
 - 13) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS KINGMAN, AZ., 63 P., P. 28.
 - 14) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 15) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 - 16) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 17) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 18) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 19) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 20) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00208

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030361
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PROSPECT
MINING DISTRICT/AREA/SUBDIST. MAYNARD/E. HUALAPAI MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK, ARIZ

LATITUDE LONGITUDE
35-05-30N 113-49-50W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 20N
RANGE.... 15W
SECTION.. 26 NE NE
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR WHEELER WASH 1 MILE W. OF ODLE RANCH

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM., VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF DREBUJY.... NNE

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

SERICITIC & POTASSIC ALTERATION

GENERAL REFERENCES

- 1) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 2) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 23
- 3) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 14B, GEOL. SERIES 14, 54 P., P. 15
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 8) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 10) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 12) HOUSEHOLDER, F., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 14) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 16) HEKETT, D.F., CALLAGHAN, E. MOORE, B.N., MOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 17) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 19) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 21) LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 22) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
- 24) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 35) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

- 26) MINING WORLD, V. 3, NO. 4, 1941.
- 27) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 28) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 29) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 30) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 31) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 32) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 33) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 36) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 37) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 38) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 39) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. WATER SUPPLY PAPER 1899-H, 37 P.
- 43) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 47) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTOME IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
- 52) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00209

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030360
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PROSPECTS

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST/E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK, ARIZ.

LATITUDE LONGITUDE
35-06-06N 113-49-48W

UTM NORTHING UTM EASTING UTM ZONE NO
3887800. 242020. +12

TWP..... 20N
SECTION.. 23 E 1/2
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE W. OF GEDLD METAL MINE (SOAP CANYON)

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MD

MAIN ORE MINERALS:
PYRITE CHALCOPYRITE MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM., VEINS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... GRANITE; QUARTZ DIORITE GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE

PERTINENT MINERALOGY..... QUARTZ

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SOAP WASH FAULT (?) ZONE

SIGNIFICANT ALTERATION:
SERICITIZATION

GENERAL REFERENCES

- 1) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 2) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 23
- 3) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 146, GEOL. SERIES 14, 54 P., P. 15
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 8) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 10) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 14) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 16) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 17) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE HORIAAN DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 19) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL 352, 96 P.

- 21) LEMMON, D.M., AND THETO, D.L., 1962, TUNSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 22) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 24) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 25) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 26) MINING WORLD, V. 3, NO. 4, 1941.
- 27) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 28) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 29) ROMSLO, T.M., 1948, ANTILER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 30) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 31) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 32) SCHRADER, R.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 33) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 34) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON J.H. AIME BULL. 124, P. 456-460.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 36) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 37) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 38) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 39) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. WATER SUPPLY PAPER 1899-H, 37 P.
- 43) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MINED REP., 6 P.
- 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED REP., 17 P.
- 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 47) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
- 52) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00210

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030359
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... PROSPECTS

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST/WHEELER WASH AREA/E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAN PEAK ARIZ

LATITUDE LONGITUDE
35-06-35N 113-49-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3888700. 243020. +12

TWP..... 20N
RANGE.... 15W
SECTION.. 13 SW
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE WEST OF STANDARD MINERALS MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
PYRITE CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM., VEINS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NW

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... GRANITE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS

GENERAL REFERENCES

- 1) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 2) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 23
- 3) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 8) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P. MAPS.
- 9) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 10) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 11) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 12) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 13) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 14) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 15) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 16) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 17) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 18) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 19) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 20) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEODHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 21) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

- 22) LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 23) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 24) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 25) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 26) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 27) MINING WORLD, V. 3, NO. 4, 1941.
- 28) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 29) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-1069
- 30) ROMSLO, T.M., 1948, ANTILER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 31) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 32) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 33) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 34) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 35) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 36) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 37) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 38) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 39) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 40) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 41) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 42) GILLESPIE, J.B., BENTLEY, C.B., KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 43) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOMORPHOLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 44) LANU, G.F. 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 45) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 46) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED REP., 17 P.
- 47) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 48) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 49) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 50) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 51) SHEPPARD, R.A., AND GUDE, A.J., 111, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 52) SHEPPARD, R.A., AND GUDE, A.J., 111, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 53) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00211

CR10 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030385
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... RAWHIDE MINE
MINING DISTRICT/AREA/SUBDIST. ARTILLERY PEAK/E. RAWHIDE MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0062500 ARTILLERY PEAK

LATITUDE LONGITUDE
34-17-56N 113-39-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3798275. 255250. +12

TWP..... 11N 11N
RANGE..... 13W 14W
SECTION.. 18 NW 13 NE
MERIDIAN. GILA & SALT R.

ALTITUDE.. 2000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES NW OF ALAMO CROSSING

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO CU

MAIN ORE MINERALS:
ANGLESITE, CERRUSSITE SILVER?

MINOR ORE MINERALS:
WULFENITE DIOPTASE CHRYSOCOLLA SHATTUCKITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

ADIT INTO HILL COUPLE HUNDRED FEET

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	622	.622	1940-1958	0.8% CU, 20.35% PB, 1.84% ZN, 11.68 OZ/T AG, 0.035 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. BUR. GEOLOGY FIELD DATA

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 2) BOB JONES, PERSONNAL COMMUNICATION
- 3) GENERAL GEOLOGY OF ARTILLERY MTS:
GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
- 4) HEAD, R.E., 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941)
- 5) JONES, E.L., JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.
- 6) KUMKE, C.A., 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: USBM, RI 5292, 97 P., ILLUS. (1957)
- 7) LASKY, S.G., AND B.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-R: 417-448.
- 8) LASKY, S.G., 1. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)
- 9) LASKY, S.C., AND WEBBER, B.N. (1949) MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.
- 10) MOUAT, M.M., MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6, P. 744-752 (1962)
- 11) MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS
- 12) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 13) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 14) PETERSON, DONALD L. 5. BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SNA BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
- 15) SANFORD, R.S. (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USBM, RI 4275, 45 P. (1948)
- 16) SHACKELFORD, T.J. STRUCTURAL GEOLOGY OF THE RAWHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA
- 17) UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES,

CALIF., USA, UNPAGINATED P., 1976.

18)DISS. ABSTR. INT., VOL. 38, NO. 4, P. 16228-16238, 1977)

19)SHERRE, P.L. CATACLASTIC ROCKS OF THE RAWHIDE MOUNTAINS, WEST-CENTRAL ARIZONA SANDIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S. SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGINATED P., 1976

20)WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.

4) MOHAVE CO:

DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

5)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.

6)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.

7)SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.

8)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.

9)WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

10)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

11)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.

12)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.

13)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.

14)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ.

15)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.

16)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.

17)NULAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.

18)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.

19)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.

20)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-7379

21)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.

22)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00212

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030381
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... SAMOA MINE
SYNONYM NAME..... CLAIMS INCLUDE SAMOA #1,2, FOURTH OF MARCH & MOUNTAIN DEW/OWNED IN 1909 BY CHLORIDE
GOLD MINING CO. IN 1909 SCHRADER REPORTED PLANS TO WORK SAMOA JOINTLY WITH LUCKY BAY

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDIST/WALLAPAI DIST/CERBAT MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-24-28N 114-08-43W

UTM NORTHING UTM EASTING UTM ZONE NO
3921835. 759235. 411

TWP..... 23N 23N
RANGE..... 18W 17W
SECTION.. 01 SE 06 SW
MERIDIAN. GILA & SALT R.

ALTITUDE.. 6460 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 1/2 MILES E & 1/2 MILE S. OF CHLORIDE, HEAD OF SAMOA WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AU AG MO CU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB AG
MINOR PRODUCTS.. AU CU ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... MO

MAIN ORE MINERALS:

PYRITE, GALENA, SPHALERITE, GOLD, SILVER

MINOR ORE MINERALS:

MOLYBDENITE BLACK SILVER SULFIDE, NATIVE SILVER

ANALYTICAL DATA(GENERAL)

SMELTER RETURN SHEETS FROM 1903-1906 AVERAGES 1 1/2 OZ AU, 15 OZ/T AG, 8% PB, 5-8% ZN (SCHRADER, 1903 P. 64)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT

STRIKE OF OREBODY.... N10W

DIP OF OREBODY..... 80E

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 335 FT

LENGTH OF WORKINGS..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):

IN 1909, 335 FT SHAFT ON VEIN #3 WITH 3 TUNNELS 350 FT, 900 FT, & 1200 FT LONG AT 3 LEVELS ABOUT 100 FT APART VERTICALLY (SCHRADER, 1909, P. 68-69)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15				1903-1906	1.5 OZ/T AU 15 OZ/T AG, 8% PB, 5-8% ZN
16	AU ACC	4.48	OZ	1901-1948	DINGS, 1951 P. 147
17	AG ACC	57.891	OZ	1901-1948	DINGS, 1951 P. 147
18	CU ACC	4.454	LB	1901-1948	DINGS, 1951, P. 147
19	PB ACC	656.377	LB	1901-1948	DINGS, 1951, P. 147
20	ZN ACC	67.886	LB	1901-1948	DINGS, 1951, P. 147
21	ORE ACC	1.944	TONS	1935-1952	ABM FILE DATA 0.17% CU, 8.57% PB, 2.45% ZN, 8.9 OZ/T AG 0.69 OZ/T AU
22	ORE ACC	.246	TONS	1949-52	ABM FILE DATA 0.14% CU, 5.95% PB, 5.58% ZN, 8.35 OZ/T AG, 0.60 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. SCHRADER, 1909, P. 67

PRODUCTION COMMENTS.... \$180,000 TOTAL PRODUCTION TO 1908? (\$70,000 FROM 1903-1908?)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... GRANITOID SERIES; DARK MEDIUM GRAINED BIOTITE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
 IGNEOUS ROCK TYPES..... LARGE FINE GRAINED, SCHISTOSE MICROCLINE GRANITE DIKE, WHICH IS CUT BY A N TRENDING RHYOLITE DIKE

AGE OF MINERALIZATION..... CRET

IMPORTANT ORE CONTROL/LOCUS.. 6 PARALLEL VEINS

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENUM IN CROSS VEINLETS OF SPAR; NO COPPER; AU & AG IN SULFIDES

GENERAL REFERENCES

1) GENERAL REFERENCES:

- SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, P. 51-80 P. 67
- 2)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 3)DINGS, M.G., 1951, THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 978-E, P. 123-162, GEOLOGIC MAP, P. 147.
- 4)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 53-4.
- 5)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
- 6)MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P., P. 12.
- 7)ARIZ. BUR. MINES FILE DATA.
- 8)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LORE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 111.

2) CHLORIDE AREA:

- THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.
- 3)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83, P. 62-65.
- 4)THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
- 5)BLANCHARD, K. AND BOSWELL, P.F., 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 6)GARRETT, S.K., 1938, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145, P. 117-119.
- 7)MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 8)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 9)BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER DRES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
- 10)WILLIS, C.F., 1921, VARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.

3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:

- ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.O., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
- 4)BLANCHARD, K. AND BOSWELL, P.F., 1935 LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 5)CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.
- 6)DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MPA.

- 7) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.
- 8) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.
- 9) FIELD, W., 1966 SULFUR ISOTOPE METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN. ECON. GEOL. 61: 1428-1435
- 10) GARRISON, F.L., 1907 NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.
- 11) HAURY, P.S., 1947 EXAMINATION OF LEAD-ZINC MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
- 12) HERNON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.
- 13) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
- 15) JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16.
- 16) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
- 17) SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
- 18) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 19) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 20) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 21) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 22) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 23) SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
- 24) STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
- 25) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.
- 4) GENERAL GEOLOGY OF CERBAT MTS:
ARIZ. MINING JOUR., 1920, V. 8
- 5) DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
- 6) GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, P. 639-644.
- 7) HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
- 8) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 9) JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
- 10) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 11) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 12) MCKNIGHT, E.T., 1933 MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
- 13) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 14) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 15) SCHUDER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
- 16) TATNER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, RIZ.: U.S. BUR. MINES REPT. INV. 3998.
- 17) THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.
- 18) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 19) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.

20) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.

21) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.

22) DAMON, P.E., AND MAUGER, R.L., 1966, EPIEROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

RECORD 00213

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 0000781
 RECORD TYPE..... 11
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
 DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... TELLURIDE CHIEF MINE
 SYNONYM NAME..... STANDARD MINERALS MINE. 11 UNPATENTED CLAIMS INCLUDE THE TELLURIDE 1-9, GOLD
 MOUNTAIN, GARNIER NO.1, SILVER HILL, HELEN, MADOLINI & MARGARET.

MINING DISTRICT/AREA/SUBDIST. MAYNARD (WHEELER WASH AREA)/E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 DEANS PEAK, ARIZ.

LATITUDE LONGITUDE
 35-06-33N 113-48-39W

UTM NORTHING UTM EASTING UTM ZONE NO
 3888575. 243800. 412

TWP..... 20N
 RANGE..... 15W
 SECTION.. 13 SE 24 NE
 MERIDIAN. GILA & SALT R.

ALTITUDE.. 5200 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU AG CU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG
 MINOR PRODUCTS.. MO W

MAIN COMMOD..... W AU
 MINOR COMMOD..... AU AG CU MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... CU

MAIN ORE MINERALS:
PYRITE SCHEELITE

MINOR ORE MINERALS:
MOLYBDENITE, WOLFRAMITE, GALENA GOLD SILVER, SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OPERATOR.... AS OF 1953, MRS EVELYN MAYERS, KINGMAN, AZ WAS THE OWNER

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 700 FT

STRIKE OF OREBODY.... N30W

DIP OF OREBODY..... SW

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 450 FT

LENGTH OF WORKINGS..... 350+ FT

COMMENTS(DESCRIP. OF WORKINGS):

IN 1917 THE SHAFT WAS 200 FT DEEP WITH 350 FEET OF WORK AT THE BOTTOM (WICKES, 1917). A GRAVITY-FLOATATION MILL OF 100 TONS DAILY CAPACITY WAS BUILT 1916-1918 TO TREAT AU-AG-MO ORE (WILSON, 1941). DURING WORLD WAR I A MILL WAS BUILT TO RECOVER MOLYBDENUM. DURING THE 1930'S SEVEN CARLOADS OF GOOD GOLD-SILVER ORE WERE MINED. IN 1951, A SMALL GRAVITY MILL FOR TUNGSTEN WAS IN OPERATION FOR A SHORT TIME. THE MINE HAD A 450 FOOT DEEP SHAFT WITH LEVELS AT 200, 300, & 400 FEET.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	.228	TONS	1930-1937	1.14% CU, 0.98% PB, 32.2 OZ/T AG, 0.33 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... 7 CARLOADS SHIPPED IN 1939 TO A SMELTER WHICH PAID \$42.50/T FOR AU, AG, CU ORE AND 1% AND MO (DEPT. MIN. RES. FILE DATA)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET

HOST ROCK TYPES..... MED. GRAINED GRANITE (QUARTZ MONZONITE)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET
 IGNEOUS ROCK TYPES..... DIKES OF APLITE & PEGMATITE (59.0 +/- 2.5 M.Y.A. & 65.2 +/- 2.4

AGE OF MINERALIZATION..... CRET.

PERTINENT MINERALOGY..... IRON OXIDES

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ VEINS IN FISSURES; THE PROMINENT SYSTEM STRIKES N30 W AND DIPS STEEPLY
 SOUTHWESTWARD; THE OTHER SYSTEM STRIKES NORTHEASTWARD AND DIPS STEEPLY SOUTHEASTWARD.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 EXTENSIVE FISSURES

SIGNIFICANT ALTERATION:
 IRON-STAINED OUTCROPS & COARSE FLAKY SERICITIC ALTERATION

COMMENTS (GEOLOGY AND MINERALOGY):
 TUNGSTEN MINERALS OCCUR IN BOTH VEIN SYSTEMS BUT MOST ABUNDANTLY NEAR INTERSECTIONS OF THE NORTHEAST VEINS.

GENERAL COMMENTS

(DEPARTMENT MIN. RES. 1962 MD PROSPECTS--AZ) REPORTS OF 1% OR HIGHER MOS2 WERE QUESTIONED AT THE TIME OF AN R.F.C.
 MINING LEAD INVESTIGATION AND THE CONTENT CONSIDERED TO BE UNCERTAIN AND PROBABLY ERRATIC AND LOWER

GENERAL REFERENCES

- 1) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P., P. 16.
- 2) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 3) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 53 P., P. 60.
- 4) GENERAL GEOLOGY OF MAYNARD DISTRICT:
 ARIZ. DEPT. MINERAL RESOURCES 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES. PHOENIX.
 5) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 6) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 807E, 104 P., P. 93-94.
 7) KING, R.B., 1969, MOLYBDENUM AND RHEINIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 235-249.
 8) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 9) MALACH, R., 1974 MOHAVE COUNTY SKETCHES OF THE EARLY DAY: KINGMAN, AZ., 142 P.
 10) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 11) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 3979
 12) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
 13) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 14) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
 15) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
 GENERAL GEOLOGY OF HUALAPAI MTS:
 16) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
 17) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613,
 18) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.

- 19)HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA
 - 20)UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977
 - 21)HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 - 22)HESS, F.L., 1924, MOLYBDENUM DEPOSITS - A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 23)HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
 - 24)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 25)KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 - 26)KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 - 27)LEMMON, D.M., AND THETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-259
 - 28)MINING WORLD, V. 3, NO. 4, 1941.
 - 29)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 30)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 - 31)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 32)PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
 - 33)RUMSLO, T.M., 1948, ANTLEER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 - 34)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 35)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 36)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 37)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 38)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
 - 39)TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 40)TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- GENERAL GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 41)DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
 - 42)GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
 - 43)GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY APER 1899-H, 37 P.
 - 44)LAND, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-189.
 - 45)MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MINED REP., 6 P.
 - 46)MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MINED. REP., 17 P.
 - 47)MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
 - 48)ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
 - 49)ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
 - 50)SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
 - 51)SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTIME IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
 - 52)SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEPHYLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.

53)TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GRJUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576-A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00214

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030365
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... TURQUOISE MOUNTAIN
SYNONYM NAME..... MINERAL PARK, PROPERTY

MINING DISTRICT/AREA/SUBDIST. WALLAPAI DISTRICT/MINERAL PARK SUBDISTRICT/CERBAT MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 CERBAT ARIZ

LATITUDE LONGITUDE
35-21-10N 114-09-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3915710. 759010.

TWP..... 23N
RANGE..... 18W
SECTION.. 25 E 1/2
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4828 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH OF MINERAL PARK

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
HOST ROCK TYPES..... ITHACA PEAK GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. QUARTZ MONZONITE IN ITHACA PEAK PIT IS 71.5 +/- 2.6 M.Y.O. (DAMON & MAUGER, 1966)
IGNEOUS ROCK TYPES..... ITHACA PEAK GRANITE

AGE OF MINERALIZATION..... CRET

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
NO GEOCHEMICAL ANOMALIES

GENERAL REFERENCES

1) TURQUOISE MTN REFERENCES:

EIDEL, J.J., FROST, J.E., AND CLIPPINGER, D.H., 1968, COPPER MOLYBDENUM MINERALIZATION AT MINERAL PARK, MOHAVE COUNTY, ARIZONA, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967 (RIDGE, J.D., ED.): AIME GRANTON-SALES VOLUME, V. 2, P. 1258-1281, ILLUS., TABLE, P. 1268.

2) IMPORTANT MINERAL PARK REFERENCES:

DINGS, M.G., 1951 THE WALLAPAI MINING DISTRICT, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 978-E: 123-163.

3) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOL., V. 44, P. 663-705.

4) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.

5) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

7) EIDEL, J.J., 1966, CRYSTALLIZATION AND MINERALIZATION OF A PORPHYRY STOCK, MOHAVE COUNTY, ARIZONA (ABS.): ECON. GEOLOGY, V. 61, NO. 7, P. 1305-1306.

8) THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 187 P.

9) DAMON, P.E., AND MAUGER, R.L., 1966, EPIERODGENY-ORODGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METAL. ENGINEERS TRANS., V. 235, P. 99-112.

3) MINERAL PARK REFERENCES:

ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2, P. 1163-1190.

3) BLANCHARD K. AND BOSWELL, P.F., 1930 LIMONITE TYPES DERIVED FROM BORNITE AND TETRAEDRITE. ECON. GEOL. 25: 557-580.

4) CARPENTER, R.H., 1962, MINING GEOLOGY: MIN. CONG. JOUR., V. 48, NO. 2.

5) DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142. MAP.

6) FIELD, C.W., 1966, SULFUR ISOTOPIC METHOD FOR DISCRIMINATING BETWEEN SULFATES OF HYPOGENE AND SUPERGENE ORIGIN: ECON. GEOL., V. 61, P. 1428-1435.

7) GARRISON, FL., 1907, NOTES ON MINERALS. PROC. OF THE ACAD. OF NAT. SCI. OF PHIL. 59: 445.

8) HERNON, R.M., 1938, CERBAT MOUNTAINS: ARIZ. BUR. MINES BULL. 145, PP. 110-117.

- 9)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 10)JOHNSTON, B., 1964, A NEWLY DISCOVERED TURQUOISE MINE OF PREHISTORY, MOHAVE COUNTY, ARIZONA: KIVA, V. 29, NO. 3, P. 76-83.
 - 11)JANCIC, THOMAS, 1965, DUVAL CORP. PROPERTY AT MINERAL PARK, ARIZONA: MINES MAG., V. 55, NO. 6, P. 14-16
 - 12)JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.
 - 13)LIVINGSTON, D.E., ET AL., 1967, GECHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-80, APPENDIX A-III.
 - 14)MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 15)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P., P. 28.
 - 16)MALACH, R., 1975 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P. P. 12.
 - 17)MAUGER, R.L. AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST: ATOMIC ENERGY COMM. ANNUAL PROGRESS REPORT NO. COO-689-50, P. A-II-1-A-II-8.
 - 18)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 19)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 20)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 21)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
 - 22)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
 - 23)SEARLS, FRED, JR., 1950, THE EMERALD ISLE COPPER DEPOSIT: ECON. GEOLOGY, V. 45, P. 175-176.
 - 24)SCHRADER, F.C., 1907 THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 340: 53-83.
 - 25)SCHRADER, F.C., 19098 MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397
 - 26)STERRETT, D.B., 1908, PRECIOUS STONES: MINERAL RESOURCES U.S., 1908, PT. 2, PP. 847-852.
 - 27)THOMAS, B.E., 1953 GEOLOGY OF THE CHLORIDE QUADRANGLE, ARIZONA. GEOL. SOC. AMER. BULL. 64: 391-420.
 - 28)WILSON, E.O., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
 - 29)ARIZ. BUR. MINES FILE DATA.
- 4) OTHER REFERENCES IN CERBAT MTS:
- BASTIN, E.S., 1925, ORIGIN OF CERTAIN RICH SILVER ORES NEAR CHLORIDE AND KINGMAN, ARIZONA, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY 1923-24, PART 1--METALS AND NONMETALS EXCEPT FUELS: U.S. GEOL. SURVEY BULL. 750, P. 17-39.
 - 5)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS: N.Y. ACAD. SCI. ANN., V. 91, P. 443-453.
 - 6)GARRETT, S.K., 1939, TENNESSEE-SCHUYLKILL MINE: ARIZ. BUR. MINES BULL. 145., P. 117-119.
 - 7)GILETTI, B.J., AND DAMON, P.E., 1961, RUBIDIUM-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL. V. 72, P. 639-644.
 - 8)HASTINGS, E.F., 1937, MINING AND MILLING METHODS AT THE PILGRIM MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 6945, 18 P.
 - 9)HAURY, P.S. 1947, EXAMINATION OF LEAD-ZINC MINES IN THE HALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4101.
 - 10)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 11)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 12)ARIZ. MINING JOUR., 1920, V. 8
 - 13)MCKNIGHT, E.T., 1933 MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
 - 14)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
 - 15)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 16)SCHODER, JACOB, AND ALLSMAN, P.T., 1939, MINING AND MILLING METHODS AND COSTS AT THE TENNESSEE-SCHUYLKILL CORPORATION MINE, CHLORIDE, ARIZONA: U.S. BUR. MINES, I.C. 7077, 20 P.
 - 17)TAINTER, S.L., 1947, JOHNNY BULL-SILVER KNIGHT LEAD-ZINC PROPERTY, CERBAT MOUNTAINS, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REPT. INV. 3998.
 - 18)THOMAS, B.E., 1951, THE EMERALD ISLE COPPER DEPOSIT (DISCUSSION): ECON. GEOLOGY, V. 46, P. 231-233.

- 19) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 20) WASSERBURG, G.J., AND LANPHERE, M.A., 1965, AGE DETERMINATIONS IN THE PRECAMBRIAN OF ARIZONA AND NEVADA: GEOL. SOC. AMERICA BULL., V. 76, P. 735-757.
- 21) WILLIS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
- 22) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES.

RECORD 00215

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030351
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... WALDRON & VENTURE MINES
MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DISTRICT (DELUGE WASH AND E. HUALAPAI MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ.

LATITUDE LONGITUDE
34-49-32N 113-47-05W

UTM NORTHING UTM EASTING UTM ZONE NO

THP..... 17N
RANGE.... 14N
SECTION.. 29 C
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4040 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR GREAT REPUBLIC?

GEOLOGY AND MINERALOGY

AGE OF ASSOC. IGNEOUS ROCKS.. DIA. JOE STOCK=71.9+/-1.5 MY MINERALIZED 73.1+/-1.5 MY
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY STOCK IN AREA

AGE OF MINERALIZATION..... CRET

GENERAL REFERENCES

- 1) ABM FILE PAGE
- 4) GENERAL GEOLOGY OF HUALAPAI MTS:
BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.

- 5) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 6) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 7) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA: UNIV. OF IDAHO MOSCOW, DOCTORAL, 162 P.
- 8) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 9) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 10) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., MOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 11) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-1, P. 247-264, MAPS.
- 12) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 13) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GECHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
- 15) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHEMICA ACTA, V. 27, P. 53-106.
- 16) RONSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 17) VOICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 18) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- GENERAL GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 18) DAVIDSON, B.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 20) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 21) GILLESPIE, J.B., AND BENTLEY, C.B., 1971, GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 22) LANU, G.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 23) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 24) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED REP., 17 P.
- 25) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 26) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 145-147.
- 26) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 27) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 28) SHEPPARD, R.A. AND GUDE, A.J., III, 1971, SODIC HARMOTOME IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 29) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830,
- 30) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.
- GENERAL GEOLOGY OF MOHAVE CO:
- 31) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 32) VOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 33) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 34) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 71-94.
- 35) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.

- 36)SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-93.
- 37)HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 38)LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 39)MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 40)MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P.
- 41)MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 42)MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454.
- 43)NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 671, PP. 18-19.
- 44)SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 45)SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTIS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 46)SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
- 47)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 48)SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.

RECORD 00216

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030373
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... WIKIEUP PROSPECT

MINING DISTRICT/AREA/SUBDIST. SHANNON BASIN DISTRICT/S.E. HUALAPAI MTS. (THE OWENS DISTRICT IS TO THE SOUTH IN THE MCCrackEN MTS BUT HAS SOMETIMES BEEN EXTENDED NORTH.)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 WIKIEUP, ARIZ.

LATITUDE LONGITUDE
34-37-43N 113-36-58W

UTM NORTHING UTM EASTING UTM ZONE NO
3834800. 260160. +12

TWP..... 15N
RANGE.... 13W
SECTION.. 22 15 23 21 14 16
MERIDIAN. GILA & SALT R.

ALTITUDE.. 2720 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 1/2 MILES S. OF WIKIEUP

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU

MAIN ORE MINERALS:
CHALCOPYRITE MOLYBDENITE, PYRITE

MINOR ORE MINERALS:
BORNITE, CHALCOCITE, MAGNETITE FERRIMOLYBDITE

ANALYTICAL DATA(GENERAL)

GEOCHEMICAL SURVEY IN SOIL RANGED FROM 8-4200 PPM CU AND 0-595 PPM MO. THE DIAMOND DRILL HOLE #8 IN SEC. 15 WAS 997 FT DEEP & WAS 150 TO 430 PPM CU AND 30-140 PPM MO, ALTHOUGH THE HOLE MISSED THE INTRUSION. HIGHER VALUES FRO MO IN THE GEOCHEMICAL SURVEY AT WIKIEUP WERE OUTSIDE THE CU HIGH. THE LOWER CU CONTINUE OVER WEATHERED QUARTZ MONZONITE PORPHYRY MAY INDICATE DOWNWARD LEACHING. NOT AS MUCH MO AS AT MINERAL PARK.

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, STOCKWORKS, DISSEM.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

RECENT BULLDOZER CUTS, SHORT DRIFTS & DRILL LOCATIONS. A SMALL COPPER LEACH OPERATION WAS ATTEMPTED IN THE MIDSIXTIES. HECLA MINING CO. DRILLED 662 FT INCLINED HOLE & RAN I.P. IN 1962-1963

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC & CRET.

HOST ROCK TYPES..... PREC. GRANITE, LARAMIDE QUARTZ MONZONITE, YAVAPAI

AGE OF ASSOC. IGNEOUS ROCKS.. 58.1 +/- 2.6 M.Y.O.

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY; QUARTZ BATITE PORPHYRY DIKES

AGE OF MINERALIZATION..... CRET

PERTINENT MINERALOGY..... QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. MORE SULFIDES IN YOUNGER SET OF FRACTURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

EAST-WEST, RIGHT LATERAL, STRIKE SLIP FAULT; SILICIFIED GANGE

SIGNIFICANT ALTERATION:

SERICITE, CLAY, POTASSIC, PROPYLITIC (CHLORITE-EPIDOTE), PHYLLITIC; GREEN SAPERGENE CARBONATE HALO

GENERAL REFERENCES

- 1) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 2) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA, UNPUB. PH.D. UNIV. OF IDAHO MOSCOW, IDAHO, 97 P., MAPS
- 3) GENERAL GEOLOGY OF HUALAPAI MTS:
ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 4) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 5) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 6) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S.

GEOL. SURVEY BULL. 613

- 7) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
 - 8) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
 - 10) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
 - 11) HEWETT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
 - 12) MOORE, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
 - 13) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
 - 14) KESSLER, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
 - 15) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
 - 16) LEMMON, O.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
 - 17) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
 - 18) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
 - 19) MALACH ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P.
 - 20) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
 - 21) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454. MINING WORLD, V. 3, NO. 4, 1941.
 - 22) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
 - 23) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
 - 24) ROMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
 - 25) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
 - 26) SCHRADER, F.C., 1906, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS): SCIENCE, NEW SER., V. 27, P. 957-958.
 - 27) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
 - 28) SCHRADER, F.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.
 - 29) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON J.H. AIME BULL. 124, P. 456-460.
 - 30) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
 - 31) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL., 340, P. 53-83.
 - 32) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
 - 33) TIVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
 - 34) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
 - 35) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
 - 36) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15
 - 37) WILSON, E.D., AND MOORE, R.I., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 4) GENERAL GEOLOGY OF ARTILLERY:
- GRANGER, H.C., AND RAUP, R.B., 1962, RECONNAISSANCE STUDY OF URANIUM DEPOSITS IN ARIZONA: U.S. GEOL. SURVEY, BULL. 1147-A, 54 P., P. 22
 - 5) HEAD, R.E., 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941)
 - 6) JONES, E.L., JR., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 146-7.
 - 7) KUMKE, C.A., 4. (AND OTHERS) MINING INVESTIGATIONS OF MANGANESE DEPOSITS IN THE MAGGIE CANYON AREA, ARTILLERY

- MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: US34, RI 5292, 87 P., ILLUS. (1957)
- 8) LASKY, S.G., AND B.N. WEBBER (1944) MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 936-R: 417-448.
- 9) LASKY, S.G. I. (AND WEBBER, B.N.) ARTILLERY MOUNTAIN MANGANESE DISTRICT, MOHAVE COUNTY, ARIZONA: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 145, P. 133-136, MAP (1938)
- 10) LASKY, S.C., AND WEBBER, B.N. 1949 MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOL. SURVEY BULL. 961, 86 P.
- 11) MOUAT, M.M. MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6, 744-752 (1962)
- 12) HAMILTON, PATRICK, 1883, THE RESOURCES OF ARIZONA, 2ND ED.: SAN FRANCISCO P. 128-129.
- 13) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY ARIZONA: U.S. GEOL. SURVEY BULL. 451, P. 123-126.
- 14) MOUAT, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS.
- 15) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H., AIME BULL. 124, P. 456-460.
- 16) MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
- 17) PETERSON, DONALD L. S. BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SNA BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: USGS OPEN-FILE REP., 2 P., TABLES, MAP, SCALE 1:125,000 (1969)
- 18) SANFORD, R.S. (AND STEWART, L.A.) ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: US8M, RI 4275, 45 P. (1948)
- 19) SHACKELFORD, T.J. STRUCTURAL GEOLOGY OF THE RAWHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA
- 20) UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL, UNIV. OF SOUTHERN CALIFORNIA, LOS ANGELES, CALIF., USA, UNPAGNATED P., 1976, (DISS. ABSTR. INT., VOL. 38, NO. 4, P. 1622B-1623B, 1977)
- 21) SHERER, P.L. CATACLASTIC ROCKS OF THE RAWHIDE MOUNTAINS, WEST-CENTRAL ARIZONA SAN DIEGO STATE UNIV. SAN DIEGO, CALIF. USA MASTER'S, SAN DIEGO STATE UNIV., SAN DIEGO, CALIF., USA, UNPAGNATED P., 1976
- 22) WILSON, E.D., AND BUTLER G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.
- 23) HOUSEHOLDER, E., 1930, GEOLOGY OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 24) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 25) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEOHYDROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 26) LANU, G.F., 1960, STRATIGRAPHIC & STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 27) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 28) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED REP., 17 P.
- 29) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 30) ROSS, C.S., 1928, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197.
- 31) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 32) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 33) SHEPPARD, R.A., AND GUDE, A.J., 211, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 34) SHEPPARD, R.A., AND GUDE, A.J., 111, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 830, P.
- 35) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00217

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030353
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... YELLOW BASIN
SYNONYM NAME..... INCLUDES LEVIATHAN VEIN & COPPER CANYON

MINING DISTRICT/AREA/SUBDIST. DIAMOND JOE DIST/E. HUALAPAI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE

QUAD SCALE QUAD NO OR NAME
1: 0024000 DIAMOND JOE PEAK, ARIZ.

LATITUDE LONGITUDE
34-50- N 113-47-10W

TWP..... 17N
RANGE..... 14W
SECTION.. 20 W 1/2
MERIDIAN. GILA & SALT R.

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE POWELLITE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

ARKLA DRILLHOLES. NO GEOCHEM ANOMALIES INSPIRATION ALSO DRILLED 5 HOLES IN LEVIATHAN VEIN

GENERAL REFERENCES

1) DEPT. MINERAL RESOURCE FILE DATA

RECORD 00218

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030357
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 07

NAME AND LOCATION

DEPOSIT NAME..... GOLD METAL MINE
SYNONYM NAME..... 6 UNPATENTED CLAIMS

MINING DISTRICT/AREA/SUBDIST. MAYNARD DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... MOHAVE CO

QUAD SCALE QUAD NO OR NAME
1: 0024000 DEAR PEAK, ARIZ.

LATITUDE LONGITUDE
35-06-13N 113-49-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3887900. 242400. 412

TWP..... 20N
RANGE.... 15W
SECTION.. 24 NW
MERIDIAN. GILA & SALT R., ARIZ.

POSITION FROM NEAREST PROMINENT LOCALITY: E SIDE OF HUALAPAI MTS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU AG MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
COPPER & MOLYBDENUM SULFIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM., VEINS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
DRILLHOLES (VUICH MAP, 1974,

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... GRANITE NEAR GRANITIC GNEISS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE WITH

AGE OF MINERALIZATION..... CRET.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
IN SOAP WASH FAULT (?) ZONE; MINERALIZED NE FRACTURES

GENERAL REFERENCES

- 1) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
- 2) VUICH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS.
- 4) GENERAL GEOLOGY HUALAPAI MTS:
WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
- 5) ARIZ. DEPT. MIN. RES. 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
- 7) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
- 8) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
- 9) DARTON, N.H., AND OTHERS, 1916, GUIDEBOOK OF THE WESTERN UNITED STATES, PART C. THE SANTA FE ROUTE: U.S. GEOL. SURVEY BULL. 613.
- 10) GREGORY, N.B., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 1179-1180.
- 11) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 7618 P. 13-14.
- 12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
- 13) HAURY, P.S., 1947, EXAMINATION OF ZINC-LEAD MINES IN THE WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES REP. INV. 4101.
- 14) HANSEN, S.C., 1977, THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
- 15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
- 16) HEWITT, D.F., CALLAGHAN, E. MOORE, B.N., NOLAN, T.B., RUBEY, W.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURVEY BULL. 871, 197 P.
- 17) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 940-I, P. 247-264, MAPS.
- 18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
- 19) KESSLER, E.J., 1976, RUBIDIUM-STROMTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN

- THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.
- 20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
- 21) LEMMON, D.M., AND TWEED, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 22) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
- 23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
- 24) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
- 25) MENSCH, W.A., 1899-1900, MOHAVE COUNTY, ARIZONA: MINES AND MINERALS, V. 20, P. 169, 454. MINING WORLD, V. 3, NO. 4, 1941.
- 26) NOLAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL. 871, PP. 18-19.
- 27) PUTMAN, G.W., AND BURNHAM, C.W., 1963, TRACE ELEMENTS IN IGNEOUS ROCKS, NORTHWESTERN AND CENTRAL ARIZONA: GEOCHIMICA ET COSMOCHIMICA ACTA, V. 27, P. 53-106.
- 28) RIMSLO, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
- 29) SCHRADER, F.C., 1909, MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397.
- 30) SCHRADER, F.C., 1908, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZONA (ABS.): SCIENCE, NEW SER., V. 27, P. 957-958.
- 31) SCHRADER, F.C., 1916, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA (WITH DISCUSSION BY J.D. SPERR, J.B. PLATTS, AND J.C. ANDERSON): AIME BULL. 123, P. 379-384.
- 32) SCHRADER, 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: AIME BULL. 124, P. 456-460.
- 34) SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
- 35) SCHRADER, F.C., 1907, THE MINERAL DEPOSITS OF THE CERBAT RANGE, BLACK MOUNTAINS, AND GRAND WASH CLIFFS, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL. 340, P. 53-83.
- 36) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
- 37) TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: OESTERREICHISCHE ZEITSCHRIFT FÜR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
- 38) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: MIN. SCI. PRESS, V. 114, P. 699-700.
- 39) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 15. GEOLOGY OF VALLEY NEAR HUALAPAI MTS:
- 40) DAVIDSON, E.S., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
- 41) GILLESPIE, J.B., BENTLEY, C.B., AND KAM, WILLIAM, 1966, BASIC HYDROLOGIC DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 26, 39 P.
- 42) GILLESPIE, J.B., AND BENTLEY, C.B., 1971 GEODHYROLOGY OF HUALAPAI AND SACRAMENTO VALLEYS, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
- 43) LANU, G.F., 1960, STRATIGRAPHIC AND STRUCTURAL POSITION OF CENOZOIC FOSSIL LOCALITIES IN ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 155-159.
- 44) MORRISON, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOL. SURVEY MIMED REP., 6 P.
- 45) MORRISON, R.B., 1941, BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA--RECORDS OF WELLS AND SPRINGS, WELL LOGS, WATER ANALYSES, AND MAP SHOWING LOCATIONS OF WELLS AND SPRINGS: U.S. GEOL. SURVEY MIMED. REP., 17 P.
- 46) MORRISON, R.B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
- 47) ROSS, C.S., 1928, SEDIMENTARY ANALCTTE: AM. MINERALOGIST, V. 13, NO. 5, P. 195-197
- 48) ROSS, C.S., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26, NO. 10, P. 627-629.
- 49) SHEPPARD, R.A., AND GUDE, A.J., 3RD, 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1354-C, 10 P.
- 50) SHEPPARD, R.A., AND GUDE, A.J., III, 1971, SODIC HARMOTONE IN LACUSTRINE PLIOCENE TUFFS NEAR WIKIEUP, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 750-D, P. D50-D55.
- 51) SHEPPARD, R.A., AND GUDE, A.J., III, 1973, ZEOLITES AND ASSOCIATED AUTHENTIC SILICATE MINERALS IN TUFFACEOUS ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY PAPER 830, P.
- 52) TWENTER, F.R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOL. MAP.

RECORD 00219

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030464
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... MITCHELL MESA

MINING DISTRICT/AREA/SUBDIST. MONUMENT VALLEY

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... NAVAJO

QUAD SCALE QUAD NO OR NAME
1: 0062500 AGATHLA PEAK, ARIZ-UTAH; AGATHLA-PEAK 1 NE ARIZ-UTAH, 1:24,000 PROTRACTED

LATITUDE LONGITUDE
36-58- N 110-07- W

TWP..... 41N 41N
RANGE.... 20E 21E
SECTION.. 13 18
MERIDIAN. G&SR

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES S OF STATE LINE, 7 MILES SE OF GOULDINGS TRADING POST IN UTAH

LOCATION COMMENTS: NE 1/4 SEC 13, CENT SEC 18

COMMODITY INFORMATION

COMMODITIES PRESENT..... U V MO CU

MAIN COMMOD..... U V

MAIN ORE MINERALS:
TYUYAMUNITE, TORBERNITE, METATYUYAMUNITE

MINOR ORE MINERALS:
MOLYBDENUM MINERAL, AZURITE, MALACHITE

ANALYTICAL DATA(GENERAL)

0.59% E U AND .71% U

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 350 FT
MAX THICKNESS..... 300 FT
STRIKE OF OREBODY.... N65W, N70W, N82E

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 215

PRODUCTION COMMENTS.... NO PRODUCTION AND AVERAGE GRADE LOW

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 215

COMMENTS (RESERVES/POT RESOURCES).. NO RESOURCES ESTIMATED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TR1
HOST ROCK TYPES..... CONGLOMERATIC SANDSTONE OF SHINARUMP MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY..... CARBONACEOUS MATTER; CALCITE, JAROSITE; CLAY PEBBLES

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

TYUYAMUMITE-TYPE MINERALIZATION WITH MINOR TORBERNITE OCCURS IN THIN SEAM SURROUNDED BY VANADIUM MINERALIZATION AND CARBONACEOUS DEBRIS AT EAST END, PROBABLY SECONDARY DEPOSITION (KEITH, 1970)

GENERAL REFERENCES

- 1) KEITH, STANTON, B., 1970, URANIUM, IN PEIRCE, H.W. KEITH, S.B., AND WILY, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159 202-289.
- 2) WITKIND, I.J. AND R.E. THADEN (1963) GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA, U.S. GEOL. SURVEY BULL. 1103, 171 P.
- 3) JOHNSON, D.H., 1963, MINERALOGY AND PARAGENESIS AT THE MONUMENT NO. 2 AND CATO SELLS MINES, IN WITKIND, I.J., AND THADEN, R.E., GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA: U.S. GEOL. SURV. BULL. 1103, P. 113-135.
- 4) WITKIND, I.J. 8. URANIUM DEPOSITS AT BASE OF THE SHINARUMP CONGLOMERATE, MONUMENT VALLEY, ARIZONA: USGS BULL. 1030-C, P. 99-130 (1956)
- 5) FINNELL, T.L. 1. STRUCTURAL CONTROL OF URANIUM ORE AT MONUMENT NO. 2 MINE, APACHE COUNTY, ARIZONA: ECON. GEOL., V. 52, NO. 1, P. 25-35, ILLUS. (1957); (DISCUSSION BY MITCHAM, T.W.): ECON. GEOL., V. 52, NO. 5, P. 586-589, ILLUS. (1957)
- 6) BIRDSEYE, H.S. URANIUM DEPOSITS IN NORTHERN ARIZONA: N. MEX. GEOL. SOC., GUIDEBOOK 9TH FIELD CONF., P. 161-163, ILLUS. (1958)
- 7) GRUNDY, W.D. 2. (AND DERTELL, E.W.) URANIUM DEPOSITS IN THE WHITE CANYON AND MONUMENT VALLEY MINING DISTRICTS, SAN JUAN COUNTY, UTAH, AND NAVAJO AND APACHE COUNTIES, ARIZONA: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 9TH FIELD CONF., P. 197-207, ILLUS. (1958)
- 8) WITKIND, I.J. 19. THE URANIUM-VANADIUM ORE DEPOSIT AT THE MONUMENT NO. 1 MINE NO. 2 MINE, MONUMENT VALLEY, NAVAJO COUNTY, ARIZONA: USGS BULL. 1107-C, P. 219-242 (1961)

- 9) COOLEY, M.E., HARSHBARGER, J.W., AKERS, J.P. AND HARDY, W.F., 1969, REGIONAL HYDROGEOLOGY OF THE NAVAJO AND HOPI INDIAN RESERVATION, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY PROF. PAPER 521-A, 61 P., GEOL. MAPS SCALE 1:125,000.
- 10) REPENNING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 11) BREED, C.S., AND BREED, W.J., EDS., 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.
- 12) STEWART, J.H., POOLE, F.G., WILSON, R.F., AND BREED, C.S., 1972, CHANGES IN NOMENCLATURE OF THE CHINLE FORMATION ON THE SOUTHERN PART OF THE COLORADO PLATEAU: 1950S-1970, IN BREED, C.S., AND BREED, W.J., EDS., INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, P. 74-103.
- 13) GREGORY, H.E. (1917) GEOLOGY OF THE NAVAJO COUNTRY--A RECONNAISSANCE OF PARTS OF ARIZONA, NEW MEXICO, AND UTAH, U.S.G.S. PROF. PAPER 93, 161 PP.
- 14) ISACHSEN, Y.W., AND EVENSEN, C.G. (1955) GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS ON THE COLORADO PLATEAU, U.S.G.S. PROF. PAPER 300, P. 278.
- 15) CHENOWETH, W.L., AND MALAN, R.C., 1975, THE URANIUM DEPOSITS OF NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, P. 139-149.
- 16) JAMES, H.L., ED., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOL. SOC. GUIDEBOOK 24, 206 P.
- 17) O'SULLIVAN, R.B., AND GREEN M.W., 1973, TRIASSIC ROCKS OF NORTHEAST ARIZONA AND ADJACENT AREAS: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH, P. 72-78.
- 18) CHESTER, J.W. GEOLOGY AND MINERALIZATION OF HUNT'S MESA, MONUMENT VALLEY, ARIZONA: USAEC, RMO-801, 9 P., MAPS (1921)
- 4) EVENSEN, C.G. 2. (AND GRAY, I.B.) EVALUATION OF URANIUM ORE GUIDES, MONUMENT VALLEY, ARIZONA AND UTAH: ECON. GEOL., V. 53, NO. 6, P. 639-662, ILLUS. (1958)
- 5) HAYNES, D.O., AND HACKMAN, R.J., 1978, GEOLOGY, STRUCTURE AND URANIUM DEPOSITS OF THE MARBLE CANYON 1 DEGREE BY 2 DEGREE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. INVEST. SER., NO. I-1003.
- 6) O'SULLIVAN, R.B. 2. (AND BEIKMAN, H.) GEOLOGY, STRUCTURE, AND URANIUM DEPOSITS OF THE SHIPROCK QUADRANGLE, NEW MEXICO AND ARIZONA: USGS MAP I-345 (1963)
- 7) FINCH, W.J. 1. GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)

RECORD 00220

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030465
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... MONUMENT #1
SYNONYM NAME..... MITTEN NO. 2, MONUMENT NO 1 ANNEX

MINING DISTRICT/AREA/SUBDIST. MONUMENT VALLEY

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... NAVAJO

QUAD SCALE QUAD NO OR NAME
1: 0062500 AGATHLA PEAK, ARIZ. - UTAH; AGATHLA PEAK / NW, ARIZ. UTAH 1:24,000

LATITUDE LONGITUDE
36-57-00N 110-13-53W

TWP..... 19E
RANGE.... 41 N
SECTION.. 24
MERIDIAN. G&SR

ALTITUDE.. 5600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON RIDGE W OF RAYENTA-MEXICAN HAT RD

LOCATION COMMENTS: NE 1/4 C SEC 19 PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... U V CU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. U

MAIN COMMOD..... U V
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
AUTUNITE, LIMONITE TYUYANUNITE.

MINOR ORE MINERALS:
METATYUYANUNITE CORVUSITE AZURITE, CARNOTITE, CHRYSOCOLLA, MALACHITE, METATORBERNITE, TORBERNITE, ZIPPEITE AU

ANALYTICAL DATA(GENERAL)
V: U RATIO AVERAGED 2.5:1

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	2000	FT
MAX WIDTH.....	120	FT
MAX THICKNESS.....	18	FT
STRIKE OF OREBODY....	N10W, N55W	

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

MINED 1942-1950 BY VANADIUM CORP. OF AMERICA AND REOPENED IN 1953 AS MITTEN NO. 2 BY FOUTZ MIN. CO. (INDUSTRIAL URANIUM CO.) WITKIND)

PRODUCTION

YES

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1970, P. 216

PRODUCTION COMMENTS.... PRODUCED A FEW HUNDRED TONS OF VANADIUM ORE IN 1942-1944. REOPENED IN 1952 AND UNTIL 1956 PRODUCED SEVERAL THOUSAND TONS

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, 1970, P. 216

COMMENTS (RESERVES/POT RESOURCES).. RESOURCES NOW DEPLETED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI. MESOZOIC
HOST ROCK TYPES..... CONGLOMERATIC SANDSTONE OF SHINARUMP MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY..... SILICIFIED WOOD AND CARBONACEOUS MATTER AND CLAY PEBBLES

IMPORTANT ORE CONTROL/LOCUS.. "TRASHY" CONGLOMERATE CHANNELS NEAR SILICIFIED WOOD, CARBONACEOUS MATTER AND CLAY

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

UNOXIDIZED CORE SURROUNDED BY OXIDIZED MINERALIZATION

GENERAL REFERENCES

- 1) KEITH, SANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289.
- 2) WITKIND, I.J., AND R.E. THADEN (1963) GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA. U.S. GEOL. SURVEY BULL. 1103, 171 P.
- 3) JOHNSON, D.H., 1963, MINERALOGY AND PARAGENESIS AT THE MONUMENT NO. 2 AND CATO SELLS MINES, IN WITKIND, I.J., AND THADEN, R.E., GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES, ARIZONA: U.S. GEOL. SURV. BULL. 1103, P. 113-135.
- 4) WITKIND, I.J. 8. URANIUM DEPOSITS AT BASE OF THE SHINARUMP CONGLOMERATE, MONUMENT VALLEY, ARIZONA: USGS BULL. 1030-C, P. 99-130 (1956)
- 5) FINNELL, T.L. 1. STRUCTURAL CONTROL OF URANIUM ORE AT MONUMENT NO. 2 MINE, APACHE COUNTY, ARIZONA: ECON. GEOL., V. 52, NO. 1, P. 25-35, ILLUS. (1957); (DISCUSSION BY MITCHAM, T.W.): ECON. GEOL., V. 52, NO. 5, P. 586-589, ILLUS. (1957)
- 6) BIRDSEYE, H.S. URANIUM DEPOSITS IN NORTHERN ARIZONA: N. MEX. GEOL. SOC., GUIDEBOOK 9TH FIELD CONF., P. 161-163, ILLUS. (1958)
- 7) GRUNDY, W.D. 2. (AND DERTELL, E.W.) URANIUM DEPOSITS IN THE WHITE CANYON AND MONUMENT VALLEY MINING DISTRICTS, SAN JUAN COUNTY, UTAH, AND NAVAJO AND APACHE COUNTIES, ARIZONA: INTERMOUNTAIN ASSOC. PET. GEOL., GUIDEBOOK 14TH FIELD CONF., P. 197-207, ILLUS. (1958)
- 8) WITKIND, I.J. 19. THE URANIUM-VANADIUM ORE DEPOSIT AT THE MONUMENT NO. 1-MITTEN NO. 2 MINE, MONUMENT VALLEY, NAVAJO COUNTY, ARIZONA: USGS BULL. 1107-C, P. 219-242 (1961)
- 9) COOLEY, M.E., HARSHBARGER, J.W., AKERS, J.P., AND HARDT, W.F., 1969 REGIONAL HYDROGEOLOGY OF THE NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY PROF. PAPER 521-A, 51 P., GEOL. MAPS SCALE 1:125,000.
- 10) REPPENING, C.A., COOLEY, M.E., AND AKERS, J.P., 1969, STRATIGRAPHY OF THE CHINLE AND MOENKOPI FORMATIONS, NAVAJO AND HOPI INDIAN RESERVATIONS, ARIZONA, NEW MEXICO, AND UTAH: U.S. GEOL. SURVEY, PROF. PAPER 521-B, 34 P.
- 11) BREED, C.S., AND BREED, W.J., EDS, 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.
- 12) STEWART, J.H., POOLE, F.G., WILSON, R.F., AND BREED, C.S., 1972, CHANGES IN NOMENCLATURE OF THE CHINLE FORMATION ON THE SOUTHERN PART OF THE COLORADO PLATEAU: 1850S-1970, IN BREED, C.S., AND BREED, W.J., EDS., INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, P. 74-103.
- 13) GREGORY, H.E. (1917) GEOLOGY OF THE NAVAJO COUNTRY--A RECONNAISSANCE OF PARTS OF ARIZONA, NEW MEXICO, AND UTAH. U.S.G.S. PROF. PAPER 93, 161 PP.
- 14) ISACHSEN, Y.W., AND EVENSEN, C.G. (1955) GEOLOGY OF URANIUM DEPOSITS OF THE SHINARUMP AND CHINLE FORMATIONS ON THE COLORADO PLATEAU, U.S.G.S. PROF. PAPER 300, P. 278.
- 15) CHENOWETH, W.L., AND MALAN, R.C., 1975. THE URANIUM DEPOSITS OF NORTHEASTERN ARIZONA: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, P. 139-149.
- 16) JAMES, H.L., ED., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOL. SOC. GUIDEBOOK 24, 206 P.
- 17) O'SULLIVAN, R.B., AND GREEN, M.W., 1973, TRIASSIC ROCKS OF NORTHEAST ARIZONA AND ADJACENT AREAS: NEW MEXICO GEOL. SOC., GUIDEBOOK 24, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH, P. 72-78.
- 18) CHESTER, J.W. GEOLOGY AND MINERALIZATION OF HUNT'S MESA, MONUMENT VALLEY, ARIZONA: USAEC, RMO-801, 9 P., MAPS (1921)
- 4) EVENSEN, C.G. 2. (AND GRAY, I.B.) EVALUATION OF URANIUM ORE GUIDES, MONUMENT VALLEY, ARIZONA AND UTAH: ECON. GEOL., V. 53, NO. 6, P. 639-662, ILLUS. (1958)
- 5) HAYNES, D.D., AND HACKMAN, R.J., 1978, GEOLOGY, STRUCTURE AND URANIUM DEPOSITS OF THE MARBLE CANYON 1 DEGREE BY 2 DEGREE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. INVEST. SER., NO. 1-1003.
- SULLIVAN, R.B. 2. (AND BEIKMAN, H.) GEOLOGY, STRUCTURE AND URANIUM DEPOSITS OF THE SHIPROCK QUADRANGLE, NEW MEXICO AND A Z...
- 7) FINCH, W.I. 1. GEOLOGY OF EPITHERMAL URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. P P 538, 121 P. (1967)

RECORD 00234

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4050526
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... AGUINALDO MINE GROUP
SYNONYM NAME..... HUMP, PURCELL; AGUINALDO MNG. CO.

MINING DISTRICT/AREA/SUBDIST. PAPAGO (SIERRITA)/W. SIERRITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 PALO ALTO RANCH, ARIZONA

LATITUDE LONGITUDE
31-55-06N 111-17-08W

UTM NORTHING UTM EASTING UTM ZONE NO
3531200.N 473000.E +12

TWP..... 17S
RANGE.... 10E
SECTION.. 26 SE
MERIDIAN. GCSR

ALTITUDE.. 3795 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NNW OF SUNSHINE CAMP NEAR

OLYMPIA MINES

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MN CU AU MO

MAIN COMMOD..... PB AG MN
MINOR COMMOD.... AU MO CU

MAIN ORE MINERALS:
MANGANESE OXIDE PYRITE, GALENA

MINOR ORE MINERALS:
CHALCOPYRITE, WULFENITE, AZURITE, MALACHITE

COMMODITY COMMENTS:
MINED FOR MO ETC.

ANALYTICAL DATA(GENERAL)
SOME ORE REPORTED ASSAYED UP TO 300 OZ AG/T (?)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS, REPLACEMENT VEINS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 200 FT

COMMENTS(DESCRIP. OF WORKINGS):
ADITS, SHAFTS, AND OPEN CUTS (KEITH, 1974) 200 FT SHAFT (A34 FILE DATA)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 131

PRODUCTION COMMENTS.... ORIGINALLY WORKED FOR SILVER PRIOR TO 1900 WITH MINOR SPORADIC. SUBSEQUENT PRODUCTION.
PROBABLY NOT MORE THAN 100 TONS OF HIGH GRADE LEAD-SILVER ORE PRODUCED PLUS SOME COPPER AND HAND PRICKED WULFENITE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV AND MISS (PALED)
HOST ROCK TYPES..... METAMORPHOSED LIMESTONE (MARTIN FM AND ESCABROSA LIMESTONE) NEARBY ARE BISBEE GROUP.
CONTINENTAL GRANODIORITE, PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TEXT IF GRANITE IS RUBY STAR; JUR. IF GRANITE IS SIERRITA GRANITE
IGNEOUS ROCK TYPES..... DIORITIC OFFSHOOT FROM MAIN GRANITE MASS

PERTINENT MINERALOGY..... CALCITE, LIMONITE, PSILOMELANE, PYROLUSITE; TRENDLITE ASSOCIATED WITH GALENA

IMPORTANT ORE CONTROL/LOCUS.. VEINS IN FRACTURED AND METAMORPHOSED PALEOZOIC LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FRACTURED, FAULTED NNW SLIVERS OF PALEOZOICS, THRUST FAULTS

SIGNIFICANT ALTERATION:

OXIDIZED MANGANESE, AND IRON CARRYING AG AND PB; FRACTURED AND SILIFIED LIMESTONE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156, P. 131
- 2) RANSOME, F.L., 1922, ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA U.S. GEOL. SURVEY BULL. 725, P. 416-417.
- 3) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS SLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
- 5) FARNHAM, L.L., STEWART, L.A., AND DELONG, C. W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990
- 6) COOPER, J.R. 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 7) COOPER, J.R. 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 656-D, P. 42.

RECORD 00235

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030556
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... AJO DISTRICT
MINING DISTRICT/AREA/SUBDIST. AJO DISTRICT/LITTLE AJO MTS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA
LATITUDE LONGITUDE
32-21 N 112-52- W
TWP..... 12S 13S
RANGE.... 06W 07W

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO ZN SIL FELD.

MAIN COMMOD..... CU AG AU

MAIN ORE MINERALS:
CHALCOPYRITE, BORNITE, CHALCOCITE

MINOR ORE MINERALS:
MOLYBDENITE SPARINGLY

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM: VEINS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
PREDOMINANTLY OPEN PIT MINING (KEITH, 1974)

PRODUCTION
YES
LARGE PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1979 P. 82

PRODUCTION COMMENTS.... SMALL IRREGULAR PRODUCTION OF HIGH GRADE OXIDIZED COPPER ORE FROM 1954 TO 1917 AND ALMOST CONTINUOUSLY THEREAFTER FROM OPEN PIT OPERATIONS. TOTAL PRODUCTION THROUGH 1912 WOULD AMOUNT TO SOME 350 MILLION TONS OF ORE CONTAINING 2.8 MILLION TONS COPPER 19 MILLION OUNCES AG AND 1.55 MILLION OUNCES AU CONSIDERABLE SILICA FLUX AND SOME FELDSPAR AND SCRAP MICA ALSO PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. LARA
HOST ROCK TYPES..... INTRUSIVE QUARTZ MONZONITE AND VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIATED LARAMIDE INTRUSIONS, FAULT ZONES

GENERAL REFERENCES

4) AJO DIST:

- GILLULY, JAMES, 1946, THE AJO MINING DISTRICT, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 209, 112 P.
- 5) DIXON, D.W., 1966, GEOLOGY OF THE NEW CORNELIA MINE, AJO, ARIZONA: P. 123-132 IN TITLEY, S.R., AND HICKS, C.L., EDITORS, GEOLOGY OF THE PORPHYRY COPPER DEPOSITS; UNIV. ARIZ. PRESS, TUCSON, ARIZ., P. 123-132
- 6) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 82-83.
- 7) BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: TUCSON, ARIZONA UNIVERSITY, PH.D. THESIS, UNPUBLISHED, 184 P.
- 8) BELL, PETER M. 2. (AND ROY, ROBERT F.) HEAT FLOW AND GRAVITY MEASUREMENTS AT AJO, ARIZONA: CARNEGIE INST. WASH. YEARBOOK 65, 1965-1966, P. 414-415, ILLUS. (1967); GEOPHYS. ABS., NO. 255, ITEM (1968)
- 9) BELL, PETER M. 1. (AND ROY, ROBERT F.) HEAT FLOW AT AJO, ARIZONA: CARNEGIE INST. WASH. YEARBOOK 64, 1964-1965, P. 150-153, ILLUS., TABLES (1965); (ABS.): AM. GEOPHYS. UNION TRANS., V. 47, NO. 1, P. 180 (1966)
- 10) BRYAN, KIRK, 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499, 436 P.
- 11) BUTLER, D.S., 1947, THE AJO MINING DISTRICT, ARIZONA: (REV.) ECON. GEOL., V. 42, P. 583-587
- 12) DEKALB, C., 1918, AJO COPPER MINE: MIN. AND SCI. PRESS, V. 116, 26 JAN., P. 115-118; 2 FEB., P. 153-156
- 13) DAMON, P.E., MAUGER, R.L., BIKERMAN, M., 1964, K-AR DATING OF LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF ARIZONA AND SONORA: INTERNATIONAL GEOLOGIC CONGRESS, 22ND, NEW DELHI, INDIA, P. 45-55.
- 14) DAVIS, J.D., 1971, THE DISTRIBUTION AND ZONING OF THE RADIOELEMENTS POTASSIUM, URANIUM, AND THORIUM IN SELECTED PORPHYRY COPPER DEPOSITS: M.S. THESIS UNIV. ARIZ., 130 P.

- 15) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 16) EBERLY, L.D., AND STANLEY, T.B., JR., 1979, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.
- 17) FELLOWS, M.L., 1976, COMPOSITION OF EPIDOTE FROM PORPHYRY COPPER DEPOSITS: M.S. THESIS, UNIV. ARIZ., 190 P.
- 18) GILLULY, J., 1935, AJO DISTRICT (ARIZONA): IN COPPER RESOURCES OF THE WORLD, 16TH INT. GEOL. CONG., V. 1, P. 228-233
- 19) GILLULY, JAMES 2. PEDIMENTS OF THE AJO REGION, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 26, P. 388-389 (1936)
- 20) GILLULY, JAMES 3. PHYSIOGRAPHY OF THE AJO REGION, ARIZONA: GEOL. SOC. AM. BULL., V. 48, P. 323-347, MAP (1937); (ABST.): GEOL. SOC. AM. PROC. 1937, P. 122-123 (1938)
- 21) GILLULY, J. (1937) GEOLOGY AND ORE DEPOSITS OF THE AJO QUADRANGLE, ARIZONA: UNIVERSITY OF ARIZONA, ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY BULLETIN #141, 83 P.
- 22) GILLULY, J. (1942) THE MINERALIZATION OF THE AJO COPPER DISTRICT, ARIZONA. ECON. GEOL. 37: 247-309.
- 23) GILLULY, J. (1942) MINERALIZATION OF THE AJO COPPER DISTRICT, ARIZONA. AMER. MIN. 27: 222-223.
- 24) GILLULY, J., 1938, AJO DISTRICT: ARIZ. BUR. MINES BULL. 145, P. 86-90
- 25) GILLULY, JAMES 13. GEOLOGY OF THE NEW CORNELIA MINE, AJO, ARIZONA: ARIZ. GEOL. SOC. GEOL. SOC. AM.; GUIDEBOOK SOUTHERN ARIZ., P. 58-61, MAP (1952)
- 26) GREELEY, M.N., 1976, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 27) INGHAM, G.R., AND BARR, A.T., 1932, MINING METHODS AND COSTS AT THE NEW CORNELIA BRANCH, PHELPS DODGE CORPORATION, AJO, ARIZONA: U.S. BUR. MINES INF. CIRC. 6665.
- 28) JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.
- 29) JORALEMON, I.B., 1914, THE AJO COPPER MINING DISTRICT: AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 49, P. 593-610.
- 30) JORALEMON, I.B. (1914) THE AJO COPPER DISTRICT, ARIZONA. ENGR. MINING JOUR. 98: 663.
- 31) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 32) KAHLE, K., CONWAY, D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.
- 33) LUKANUSKI, J.N., 1975, LOCOMOTIVE-TYPE POST-ORE FANGLOMERATES AS EXPLORATION GUIDES FOR PORPHYRY COPPER DEPOSITS (ABSTR): SEG MEETING W/ AIME, ECON. GEOLOGY, VOL. 70, NO. 1, P. 248.
- 34) McDOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.
- 35) ROSE, A.W., AND COOK, D.R., 1965, RADIOACTIVE AGE DATES OF PORPHYRY COPPER DEPOSITS IN THE WESTERN UNITED STATES (ABS.): GEOLOGICAL SOCIETY OF AMERICA SPECIAL PAPERS 87, P. 139.
- 36) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOL., V. 42, P. 319-352, PARTICULARLY P. 323, 346-352
- 37) STEWART, L.A. (1933) A STUDY OF THE AJO COPPER ORE MINERALS. UNIV. ARIZONA M.S. THESIS, 24 P.
- 38) TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399,
- 39) WADSWORTH, W.B., 1974, CORNELIA PLUTON, ARIZONA: PETROGENESIS INFERRED FROM GRAIN-TRANSITION PROBABILITIES (ABSTR.): EOS, V. 55, NO. 4, P. 485.
- 40) BRAMWELL, A.W., 1918, IN AJO AND SCHEELITE DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 7, P. 20
- 41) BRAMWELL, A.W., 1919, NEWS OF AJO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 42) DEHLINGER, M.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 182-188
- 43) LAKES, A., 1900, COPPER DEPOSITS OF THE AJO BASIN, GILA BASIN, ARIZONA: MINES AND MINERALS, V. 21, P. 12-15
- 44) JORALEMON, I.B., 1914, THE AJO COPPER MINING DISTRICT: AIME BULL., V. 92, P. 2011-2028; 1915, AIME TRANS., V. 49, P. 593-609; 1914, ENG. MIN. JOUR., V. 93, P. 663-665
- 45) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 46) ROMSLO, T.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850
- 47) ALLEN, A.W., 1922, AJO ENTERPRISE OF THE NEW CORNELIA COPPER COMPANY: ENGR. MIN. JOUR. - PRESS, V. 113, P. 952-956 & 1003-1008
- 48) ARIZONA MINING JOURNAL, 1922
- 49) GREENWAY, J.C., 1920, SUCCESS AFTER FAILURES (STORY OF NEW CORNELIA): ARIZ. MIN. JOUR., V. 3, NO. 8, P. 17

50)HARDWICK, W.R., 1960, OPEN PIT COPPER MINING METHODS OF NEW CORNELIA BRANCH, PHELPS DODGE CORP., PIMA COUNTY, ARIZONA: U.S. BUR. MINES IC-7938

51)MAY, B.T., 1968, MAGNETIC PROPERTIES OF ROCKS ASSOCIATED WITH THE NEW CORNELIA PORPHYRY COPPER DEPOSIT, PIMA COUNTY, ARIZONA: UNIV. ARIZ. PHD THESIS

52)RICHARD, T.A., 1923, THE STORY OF THE NEW CORNELIA: ENG. MIN. JOUR. PRESS, V. 115, P. 7-10.

53)RICHARD, T.A., 1925, THE LATER STORY OF THE NEW CORNELIA ENTERPRISE: ENGR. MIN. JOUR., V. 119, P. 285-289

RECORD 00236

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 0000784
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 04
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... AJO GUNSIGHT MINE
 MINING DISTRICT/AREA/SUBDIST. GUNSIGHT (MEYER) DIST.
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 MT. AJO, ARIZONA

LATITUDE LONGITUDE
 32-08-10N 112-39-30W

UTM NORTHING UTM EASTING UTM ZONE NO
 3556750.0 343625.0 +12

TWP..... 15S
 RANGE..... 04W
 SECTION.. 11
 MERIDIAN. GILA SALT RIVER

ALTITUDE.. 2,990 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 5 KM SE BM 2129

LOCATION COMMENTS: WEST CENTER

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU MO W

MAIN COMMOD..... AU
 MINOR COMMOD.... AG CU MO W

MAIN ORE MINERALS:

GOLD, SILVER

MINOR ORE MINERALS:

OXIDIZED COPPER (PROBABLY SCHEELITE AND POWELLITE)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS (KEITH, 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 122

PRODUCTION COMMENTS.... ORIGINALLY PROSPECTED IN LATE 1880'S. PRODUCED A FEW TONS OF GOLD ORE IN EARLY 1920'S.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET-TERT.
HOST ROCK TYPES..... GRANITIC INTRUSIVE NEAR TERTIARY BASALTIC ANDESITE

PERTINENT MINERALOGY..... QUARTZ-CALCITE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ-CALCITE STRINGERS ALONG A FISSURE ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURE ZONE

SIGNIFICANT ALTERATION:
CONCENTRATION OF AU AND AG IN OXIDIZED ZONE

GENERAL REFERENCES

- 1) KEITH, P. 122
- 2) MINES HANDBOOK, 1920
- 3) ABM FILE DATA
- 4) GEOLOGY OF CENTRAL PAPAGO RESERVATION:
ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) BRAMWELL, A.W., 1918, NEWS OF AJO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 7) BRISKEY, J.A., JR., & HAXEL, G.B., 1978, JURASSIC PLUTONISM AND VOLCANISM IN SOUTH-CENTRAL ARIZONA (ABSTR.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 73-74.
- 8) BRYAN, KIRK 4. EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA; WITH A SKETCH OF THE GEOLOGY: USGS

BULL. 730, P. 19-90, MAP (1922)

9)EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA, WITH A SKETCH OF THE GEOLOGY WITH COMMENTS. BRYAN, KIRK IN SLOPE MORPHOLOGY, P. 146-160, ILLUS. (INCL. SKETCH MAP), DOWDEN, HUTCHINSON & ROSS, STROUDSBURG, PENNSYLVANIA, 1973, (BENCHMARK PAPERS IN GEOLOGY) REPRINT OF 1922 PAPER

10)BRYAN, KIRK (SEE ALSO LONGWELL, C.R., 2) 1. GEOLOGY AND PHYSIOGRAPHY OF THE PAPAGO COUNTRY, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 52-53 (1920)

11)BRYAN, KIRK 10. THE PAPAGO COUNTRY, ARIZONA; A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 499, 436 P., MAPS (1925)

12)BRYNER, L. 1. GEOLOGY OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS 156 P. (1959)

13)BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1710-1711 (1959)

14)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650.

15)DEHLINGER, H.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 132-133

16) L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.

17)GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTOA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.

18)HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA; A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.

19)HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACEY, P.M., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE COMOBABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.

20)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.

21)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE COMOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.

22)HEINDL, L.A. 19. CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA MARICOPA, AND PINAL COUNTIES, ARIZONA (A PRELIMINARY SUMMARY): ARIZ. GEOL. SOC. DIG., V. 3, P. 31-34 (1960)

23)JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.

24)KAHLE, K., CONWAY D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.

25)KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3- HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.

26)MINES HANDBOOK, 1920

27)MINES HANDBOOK, 1922, V. XVI

28)MCOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.

29)MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)

30)ROMSLO, T.M. AND ROBINSON C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850

31)RYTUBA, J.J., TILL, A.B., BLAIR, W., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTOA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.

32)STEPHENS, B.A., 1884, QUIJOTOA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY

33)TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399

34)WARGO, J.G., 1959, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 67 P.

35)WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P.

36)WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE ORES IN THE MILDREN AND STEPPE MINING DISTRICTS, COUNTY, ARIZONA: ECON. GEOL., V. 58, P. 1119-1125

RECORD 00237

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030512
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... AMOLE DISTRICT
MINING DISTRICT/AREA/SUBDIST. AMOLE DIST/TUCSON MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA
QUAD SCALE QUAD NO OR NAME
1: 0062500 CAT MTN, JOYNE'S, AZ
LATITUDE LONGITUDE
32-10- N 111-05- W
TWP..... 12S TO 15S
RANGE.... 11E TO 13E

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO V

MAIN COMMOD..... CU PB ZN AG AU MO
MINOR COMMOD.... V LS SILFLUX

MAIN ORE MINERALS:
BASE METAL SULFIDES

MINOR ORE MINERALS:
OXIDIZED BASE METAL SULFIDES, MOLYBDENUM AND VANADIUM MINERALS

COMMODITY COMMENTS:

MO PRODUCTION 17 TONS MO CONCENTRATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT AND DISSEMINATED FISSURE VEINS, CONTACT METAMORPHISM

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

MOSTLY RELATIVELY SHALLOW SHAFTS, TUNNELS, AND OPEN CUTS. ONE MAJOR LIMESTONE QUARRY FOR CEMENT MANUFACTURE. (KEITH, 1974)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 83

PRODUCTION COMMENTS.... SPORADIC PRODUCTION SINCE PRIOR TO 1900 OF SOME 34,000 TONS OF ORE CONTAINING ABOUT 260 TONS CU, 335 TONS PB, 187 TONS ZN, 27,000 AG, 1000 OZ AU, 17 T MO. OVER 14 MILLION TONS OF LIMESTONE USED FOR CEMENT MANUFACTURE. SOME SILICA FLUX PRODUCED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALED AND CRETACEOUS
HOST ROCK TYPES..... VOLCANICS AND SEDIMENTS WITH LIMESTONE LENSES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... INTRUSIVES

IMPORTANT ORE CONTROL/LOCUS.. FRACTURES AND CRET. PORPHYRITIC INTRUSIVES AND VOLCANICS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

CONTACT METAMORPHISM, WEAK SILICIFICATION

GENERAL REFERENCES

4) ARIZONA BUREAU OF GEOLOGY FILE DATA.

5)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.

6)ALLEN, M.A., 1920, THE SOUTHERN SECTION OF THE AMOLE MINING DISTRICT: ARIZ. BUR. MINES BULL. 106, P. 19-25

7)ASSADI, S.M., 1964, STRUCTURE OF GOLDEN GATE MOUNTAIN, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS, 62 P.

8)BENNETT, P.J., 1957, THE GEOLOGY AND MINERALIZATION OF THE SEDIMENTARY HILLS AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

9)BICKERMAN, MICHAEL, 1962, A GEOLOGIC-GEOCHEMICAL STUDY OF THE CAT MOUNTAIN RHYOLITE: UNIV. ARIZ., MS THESIS, 43 P.

10)BIKERNAN, M., 1963, ORIGIN OF THE CAT MOUNTAIN RHYOLITE: ARIZ. GEOL. SOC., DIGEST, V. 6, P. 83-89.

11)BIKERNAN, MICHAEL 2. (AND DAMON, PAUL E.) K/AR CHRONOLOGY OF THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: GEOL. SOC. AM. BULL., V. 77, NO. 11, P. 1225-1234, ILLUS., TABLE (1966); (ABS.): GEOPHYS. ABS., NO. 245, ITEM 10 (1967)

12)BLAKE, W.P. 49. GEOLOGICAL SKETCH OF THE REGION OF TUCSON, ARIZONA: CARNEGIE INST. WASH. PUB. 99, P.

45-68, MAP (1908)

- 13)BLAKE, W.P., 1908, CARNEGIE INST. WASH., PUBL. 90, P. 53-56 (CITED BY JENKINS AND WILSON, 1920).
- 14)BRITT, TERENCE L., 1955, GEOLOGY OF THE TWIN PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 15)BROWN, W.H. (1939) TUCSON MOUNTAINS, AN ARIZONA BASIN AND RANGE TYPE. GEOL. SOC. AMER. BULL. 50: 697-760.
- 16)BRYANT, DONALD L., 1952, PALEOZOIC AND CRETACEOUS STRATIGRAPHY OF THE TUCSON MOUNTAINS: ARIZ. GEOL. SOC., GUIDEBOOK 1, P. 33-42.
- 17)BRYANT, D.L., AND KINNISON, JOHN E., 1954, LOWER CRETACEOUS AGE OF THE AMOLE ARKOSE, TUCSON MOUNTAINS, ARIZONA (ABSTRACT): GEOL. SOC. AMER., BULL., V. 65, P. 1235.
- 18)BRYANT, D.L., 1955, STRATIGRAPHY OF THE PERMIAN SYSTEM IN SOUTHERN ARIZONA: UNIV. ARIZONA, PHD. DISSERTATION, 209 P.
- 19)CHAMPNEY, R.D., 1962, STRUCTURAL GEOLOGY OF A RHYOLITE FLOW IN THE TUCSON MOUNTAINS: UNIV. ARIZONA, MS THESIS, 43 P.
- 20)COLBY, R.E., 1958, STRATIGRAPHY AND STRUCTURE OF THE RECREATION RED BEDS, TUCSON MOUNTAIN PARK, ARIZONA: UNIV. ARIZ., MS THESIS
- 21)COOPER, JOHN R., 1961, TURKEY-TRACK PORPHYRY--A POSSIBLE GUIDE FOR CORRELATION OF MIOCENE ROCKS IN SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC., DIGEST, V. 4, P. 17-33.
- 22)COULSON, O.B., 1950, GEOLOGY OF THE SWEETWATER DRIVE AREA AND CORRELATION OF SANTA CRUZ VALLEY GRAVELS: UNIV. ARIZ., MS THESIS
- 23)COURTRIGHT, J.H., 1958, PROGRESS REPORT ON INVESTIGATIONS OF SOME CRETACEOUS-TERTIARY FORMATIONS IN SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC., DIGEST, V. 2, P. 7-9.
- 24)DAMON, PAUL E., 1962, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANN. PROGR. REPT. NO. 4, CONTRACT AT (11-1)-689 TO U.S. ATOMIC ENERGY COMMISSION, 43 P.
- 25)DAMON, P.E., 1963, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANN. PROGR. REPT. NO. 5, CONTRACT AT (11-1)-589 TO U.S. ATOMIC ENERGY COMMISSION, P. 1-A11.
- 26)DAMON, P.E. 1964, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANN. PROGR. REPT. NO. COO-689-42, CONTRACT AT (11-1) 689 TO RES. DIV., U.S. ATOMIC ENERGY COMMISSION, P. 1-A1X-8.
- 27)DAMON, P.E., 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANN. PROGR. REPT. NO. COO-689-50, CONTRACT AT (11-1)-689 TO U.S. ATOMIC ENERGY COMMISSION, A-XVI, P. 1.
- 28)DAMON, P.E. AND BIKERMAN, MICHAEL, 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC., DIGEST, V. 7 P. 63-78.
- 29)DAMON, PAUL E. 5. (AND BIKERMAN, MICHAEL) K-AR DATING OF VOLCANIC AND OROGENIC EVENTS IN THE TUCSON MOUNTAINS, ARIZ. (ABS.): GEOL. SOC. AM. SP. PAPER 76, P. 269-270 (1964)
- 30)DAMON, P.E., AND MAUGER, R.L., 1966, EPEIROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. MIN. ENGR., TRANS., P. 99-112.
- 31)DAMON, PAUL E. 18. (AND BRYANT, DONALD L., AND MAYO, EVANS B.) STRATIGRAPHIC AND VOLCANIC GEOLOGY, TUCSON MOUNTAINS: ARIZ. GEOL. SOC., S. ARIZ. GUIDEBOOK III, P. 339-350 (1968)
- 32)DAVENPORT, R.E. 1963, GEOPHYSICAL INVESTIGATION OF THE SEDIMENTARY HILLS AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA MS THESIS, 51 P.
- 33)DAVIDSON, E.S. 1974, GEOHYDROLOGY AND WATER RESOURCES OF THE TUCSON BASIN, ARIZONA. USGS WATER SUPPLY PAPERS NO. 1939-E
- 34)FERGUSON, W.B., 1959, THE CRETACEOUS SYSTEM OF SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK 2, P. 43-47.
- 35)GEISER, P.A., 1964, THE TUCSON MOUNTAIN CHADS IN THE GATES PASS AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS, 73 P.
- 36)GREENSTEIN, GERALD, 1961, THE STRUCTURE OF THE AMOLE ARKOSE NORTH OF KING CANYON, TUCSON MOUNTAINS, ARIZONA: UNIV. ARIZONA, MS THESIS, 42 P.
- 37)GUILD, F.N., 1905, PETROGRAPHY OF THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: AM. JOUR. SCI., V. 20, P. 313-318.
- 38)GUILD, F.N., 1935, PIEDMONTITE IN ARIZONA: AMER. MIN., V. 20, P. 679-692.
- 39)HALVA, C.J., 1961, A GEOCHEMICAL INVESTIGATION OF "BASALTS" IN SOUTHERN ARIZONA: UNIV. ARIZONA, MS THESIS, 88 P.
- 40)HAYES, P.T., AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZ. GUIDEBOOK III, P. 49-58.
- 41)HEINDL, L.A. 15. GEOLOGY OF THE SAN XAVIER INDIAN RESERVATION, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 152-159 (1959)

- 42)HORTON, J.W., 1965, THE GEOLOGY OF THE MAM-A-GAH PICNIC AREA, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 43)IMSWILER, J.B., 1959, STRUCTURAL GEOLOGY OF THE SAFFORD PEAK AREA, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 44)JANSEN, L.J., 1967, GEOLOGY OF THE SUS HILLS, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS, IN PREPARATION.
- 45)JENKINS, O.P. AND E.D. WILSON (1920) A GEOLOGICAL RECONNAISSANCE OF THE TUCSON AND AMOLE MOUNTAINS. ARIZ. BUR. MINES BULL. 106, GEOL. SERIES 2: 17.
- 46)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P. 83.
- 47)KHIN, BASAM, 1971, CORNETITE FROM SAGINAW HILL, ARIZONA: ERRATA: MINERAL. RECORD, V. 2, NO. 1, P. 47.
- 48)KHIN, B.S., 1970, CORNETITE FROM SAGINAW HILL, ARIZONA: MINERAL. RECORD, V. 1, P. 117-118.
- 48)KINNISON, J.E. (1958) GEOLOGY AND ORE DEPOSITS OF THE SOUTHERN SECTION OF THE AMOLE MINING DISTRICT, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 123 P.
- 50)KINNISON, J.E. 2. CHAOTIC BRECCIAS IN THE TUCSON MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 49-57 (1959); (ABST.): GEOL. SOC. AM. BULL. V. 70, NO. 12 P. 1727-1728 (1959)
- 51)KINNISON, J.E., 1959, STRUCTURES OF THE SAGINAW HILL AREA, TUCSON MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 146-151
- 52)KINNISON, J.E. (SEE ALSO BRYANT, D.L., 4) 1. GEOLOGY AND ORE DEPOSITS OF THE SOUTHERN SECTION OF THE AMOLE MINING DISTRICT, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 123 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)
- 53)KNIGHT, L.H., 1967, STRUCTURAL GEOLOGY OF THE CAT MOUNTAIN RHYOLITE IN THE NORTHERN TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 54)LANCE, J.F. (SEE ALSO BRYANT, D.L., 3; HEINDL, L.A., 20; REPPENING, C.A. 5) 1. LATE QUATERNARY FOSSILS NEAR TUCSON, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 63, P. 1337(1952)
- 55)MAYO, E.B., 1961, STRUCTURE OF THE LARGE PHENOCRYST PORPHYRY NEAR ARIZONA-SONORA DESERT MUSEUM: ARIZ. GEOL. SOC., DIGEST, V. 4, P. 1-15.
- 56)MAYO, E.B., 1963, VOLCANIC OROGENY OF THE TUCSON MOUNTAINS (A PRELIMINARY REPORT): ARIZ. GEOL. SOC. DIG., V. 6, P. 61-82.
- 57)MAYO E.B., 1966A, PRELIMINARY REPORT OF A STRUCTURAL STUDY OF THE MUSEUM EMBAYMENT, TUCSON MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC., DIGEST, V. 8, P. 1-32.
- 58)MAYO, E.B., 1966B, PALEOCURRENTS IN THE MUSEUM EMBAYMENT, TUCSON MOUNTAINS, ARIZONA: ARIZ. ACAD. SCI., JOUR., V. 4, P. 75-80.
- 59)MAYO E.B. 1967, EXPOSURES IN A WASH WEST OF GATES PASS, TUCSON MOUNTAINS, ARIZONA: ARIZ. ACAD. SCI., JOUR., V. 5, P. 203-214.
- 60)MAYO, E.B., 1968, A HISTORY OF GEOLOGIC INVESTIGATION IN THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK III, P. 155-170
- 61)MAYO, E.B., 1971, DEFENSE OF "VOLCANIC OROGENY": ARIZ. GEOL. SOC. DIGEST, V. 9, P. 39-60.
- 62)MAYO, E.B., 1972, FEEDERS OF AN ASH FLOW SEQUENCE ON BREM MOUNTAIN, TUCSON MOUNTAIN PARK, ARIZONA: ARIZ. GEOL. SOC., DIGEST, V. 9, P. 137-170.
- 63)MAYO, E.B., AND DAVIS, G.H., 1976, ORIGIN OF THE RED HILLS-PIEDMONTITE HILLS UPLIFT, IN WILT, J.C., AND JENNEY, J.P., EDS. TECTONIC DIGEST: ARIZ. GEOL. SOC. DIGEST, V. 10, P. 103-131.
- 64)MAYO, E.B. AND MCCULLOUGH, E.J., JR., 1964, EMPLACEMENT OF BASEMENT BLOCKS IN THE TUCSON MOUNTAIN CHAOS NEAR TUCSON, ARIZONA: ARIZ. ACAD. SCI. JOUR., V. 3, NO. 2, P. 91-86
- 65)MCCOY, S., JR., 1964, A DESCRIPTION OF THE LIMESTONE BLOCKS OF THE TUCSON MOUNTAIN CHAOS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 66)MIELKE, J.E., 1965, TRACE ELEMENT INVESTIGATIONS OF "TURKEY TRACK PORPHYRY", SOUTHEASTERN ARIZONA: UNIV. ARIZONA, MS THESIS, 91 P.
- 67)MIELKE, J.E. 1964, TRACE ELEMENT INVESTIGATION OF THE "TURKEY TRACK PORPHYRY", SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC., DIGEST, V. 7, P. 87-96.
- 68)MOORE, B.N. 3. (AND TOLMAN, C.F., JR., BUTLER, R.S., AND HERNON, R.M.) GEOLOGY OF THE TUCSON QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., 20 P., MAPS (1941)
- 69)MOORE, R.T., JONES, W.C., AND PETERSON, J.W., 1974, MAPS SHOWING NONMETALLIC MINERAL DEPOSITS IN THE TUCSON AREA, ARIZONA: U.S. GEOL. SURVEY, MISC. INV. MAP, I-844 J
- 70)PERCIOUS, JUDITH K. 1. GEOCHEMICAL INVESTIGATION OF THE DEL BAC HILLS VOLCANICS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 29 P. (1968)

- 71)PERCIOUS, JUDITH K. 2. GEOLOGY AND GEODCHRONOLOGY OF THE DEL BAC HILLS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SO. ARIZ. GUIDERBOOK 111, P. 199-207, ILLUS., TABLES (1968); (ABS.): GEOPHYS. ABS., NO. 264, ITEM 023 (1969); (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 542-543 (1969)
- 72)POPKIN, B.P. HYDROLOGIC ASPECTS OF LAND-USE PLANNING AT TUMAMOC HILL, TUCSON, ARIZONA. HYDROLOGY AND WATER RESOURCES IN ARIZONA AND THE SOUTHWEST, PROCEEDINGS OF THE 1974 MTNGS. OF THE AZ SECT., AM. WAT. RESOURCES ASSOC. AND THE HYDROLOGY SECTION, AZ ACAD. SCI. -- VOL. 4, P. 309-324, APRIL 1974.
- 73)RICHARD, KENYON, AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHEASTERN ARIZONA AND NEW MEXICO: ARIZ. GEOL. SOC., DIGEST, V. 3, P. 1-7.
- 74)SIMONS, F.S., RAUP, R.B., HAYES, P.T., AND DREWS, HARALD, 1966, EXOTIC BLOCKS AND COARSE BRECCIAS IN MESOZOIC VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURV., PROF. PAPER 550-D P. 012-022.
- 75)STOYANOW, A.A., 1930, CORRELATION OF ARIZONA PALEOZOIC FORMATIONS: GEOL. SOC. AMER., BULL., V. 47, P. 459-540.
- 76)TOLMAN, C.F., JR. (SEE ALSO MOORE, B.N. 3) 1. THE GEOLOGY OF THE VICINITY OF THE TUMAMOC HILLS, ARIZONA: CARNEGIE INST. WASH. PUB. 113, P. 67-82, MAPS (1909)
- 77)WHITNEY, R.L., 1957, STRATIGRAPHY AND STRUCTURE OF THE NORTHEASTERN PART OF THE TUCSON MOUNTAINS: UNIV. ARIZ., MS THESIS
- 78)WEST, R.E., 1970, ANALYSIS OF GRAVITY DATA FROM THE AVIS VALLEY AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 73 P.
- 79)YEATIS, F.R., 1964, ON THE ORIENTATION OF CRYSTALS IN PORPHYRITIC ROCKS: ARIZ. GEOL. SOC., DIGEST, V. 7, P. 17-33.
- 80)NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: AMER. MINERAL., V. 19, P. 209-220.
- 81)GUILD, F.N. (1911) MINERALOGISCHE NOTIZEN, ZEIT. KRYSTAL. UND MINERAL. 49: 321-331.
- 82)BOWMAN, H.L., 1903, NOTE ON THE REFRACTIVE INDICES OF PYROMORPHITE, MIMETITE, AND VANADINITE: MIN. MAG., V. 13, P. 324-329.

RECORD 00238

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4000097
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... ARIZONA MOLYBDENUM MINE
SYNONYM NAME..... ARIZONA MOLYBDENUM CO.

MINING DISTRICT/AREA/SUBDIST. BABOQUIVARI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 PRESUMIDO PEAK, ARIZONA

LATITUDE LONGITUDE
31-43-24N 111-35-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3509750.0 443700.0 +12

TWP..... 20S
RANGE..... 07E
SECTION.. 02 NC
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4,300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 KM SE USMM #1 BETWEEN WEAVER AND JUPITER CANYONS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG PB

MAIN ORE MINERALS:

SPOTTY BASE METAL SULFIDES, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT: LENSING

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW SHAFTS AND PITS (KEITH, 1974, P. 107)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 107

PRODUCTION COMMENTS.... NO RECORDED PRODUCTION BUT REPORTEDLY OPERATING FLOTATION PLANT FOR MOLYBDENUM CONCENTRATES IN 1917.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR
HOST ROCK TYPES..... COARSE-GRAINED GRANITIC INTRUSIVE

AGE OF ASSOC. IGNEOUS ROCKS.. JUR
IGNEOUS ROCK TYPES..... GRANITIC TO GRANODIORITIC ROCKS

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ FELDSPAR, PEGMATITIC VEINS AND DIKES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 169, 156P., P. 107.
- 2) MINES HANDBOOK 1922, 1918, P. 543
- 3) HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 4) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650.
5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 8) CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 9) CLARK, J.L. (1966) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
- 10) DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ. MS THESIS
- 11) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
- 12) FAIR, CHARLES L. 3. PROBABLY CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
- 13) HAXEL, GORDON, IN PROGRESS, GEOLOGIC MAP OF PRESUMIDO PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
- 14) HEINOL, L.A. AND FAIR, C.L., 1965, MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-1
- 15) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
- 16) JOSEPH, P.E., 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5

- 17)KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 336: ARIZ. BUR. MINES BULL. 183, 80 P.
- 18)KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAUQUE BUTTE 15' QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 19)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 20)KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1 12-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 21)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 22)KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 23)MIN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1965)
- 24)MINES HANDBOOK, 1922
- 25)WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
- 26)WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 27)WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

RECORD 00239

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 1030514
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... BABOQUIVARI DISTRICT

MINING DISTRICT/AREA/SUBDIST. BABOQUIVARI DISTRICT/BABOQUIVARI MTS BABOQUIVARI MTS AND QUINLAN MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 BABOQUIVARI PEAK AND PRESUMIDO PEAK

LATITUDE LONGITUDE
31-43-22N 111-35-50W

TWP..... 17S TO 21S
RANGE.... 07E TO 08E
MERIDIAN. GILA AND SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB ZN MN W MO FE BE

MAIN ORE MINERALS:
PYRITE

MINOR ORE MINERALS:
SPOTTY MOLYBDENITE CHALCOPYRITE, GALENA, SPHALERITE, SCHEELITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEINS

DESCRIPTION OF WORKINGS
SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

(KEITH, 1974 P. 107) NUMEROUS SMALL, SHALLOW MINES AND PROSPECTS BUT FEW MAJOR PRODUCERS.

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 107

PRODUCTION COMMENTS.... TOTAL PRODUCTION THROUGH 1972 ESTIMATED AND RECORDED AS SOME 56,600 TONS OF ORE CONTAINING ABOUT 173,500 OZ. AG, 13,900 OZ AU, 122 TONS CU, 12 TONS PB. ABOUT 2,500 UNITS OF TUNGSTEN WERE ALSO PRODUCED FROM SOME 1000 TONS OF ORE. A SMALL AMOUNT OF LOW GRADE MN PRODUCED. SMALL AMOUNT OF PLACER GOLD RECOVERED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC AND TERT.

HOST ROCK TYPES..... META AND UNMETA. SEDIMENTARY FORMATIONS

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. AND CRET AND TERT

IGNEOUS ROCK TYPES..... RHYOLITE ANDESITE OR PEGMATITE DIKES; AND GRANITIC TO DIORITIC INTRUSIVES

PERTINENT MINERALOGY..... QUARTZ VEINS WITH CALCITE, IRON AND MANGANESE OXIDES

IMPORTANT ORE CONTROL/LOCUS.. FAULT FISSURES, PEGMATITE DIKES AND QUARTZ VEINS; IN GRANITES AND METAMORPHIC

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT FISSURES

GENERAL REFERENCES

- 4) JOSEPH, P.E., 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5
- 5) KEITH, STANTON R., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
- 6) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCDRAQUE BUTTE 15° QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238
- 8) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C. 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 19-12-60: U.S. GEOL. SURVEY BULL. 1192-E, 90 P.
- 9) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 10) KURTZ, W.L., 1955, GEOLOGY OF THE PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 11) HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M. 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 12) MIN, MAUNG MYO PETROGRAHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. AIRZ., MS THESIS, 90 P. (1965)

- 13) MINES HANDBOOK, 1922
- 14) WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
- 15) WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 16) WILSON, F.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1957, ARIZONA LOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 17) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
- 18) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. -5650.
- 19) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 20) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 21) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 22) CARKIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 23) CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
- 24) DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS
- 25) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
- 26) FAIR, CHARLES L. 3. PROBABLE CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
- 27) HAXEL, GORDON, IN PROGRESS. GEOLOGIC MAP OF PRESUMIDO PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
- 28) HEINDL, L.A. AND FAIR, C.L., 1965, MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-I
- 29) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168

RECORD 00240

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030537
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... BIG JOHNNY - LITTLE JOHNNY MINE

MINING DISTRICT/AREA/SUBDIST. PAPAGO (SIERRITA)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 PALO ALTO RANCH ARIZONA

LATITUDE LONGITUDE
31-55-46N 111-17-28W

UTM NORTHING UTM EASTING UTM ZONE NO
3532450.0 472650.0 +12

TWP..... 17S
RANGE..... 10E
SECTION.. 23 SC
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3625 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 KM E BM 3547

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MN CU AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG

MAIN COMMOD..... PB AG MN
MINOR COMMOD..... CU AU MO

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA

MINOR ORE MINERALS:
CHALCOPYRITE, PYRITE, WULFENITE, MANGANIFEROUS SILVER ORE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS AND REPLACEMENT LENSES

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFTS AND PITS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 132

PRODUCTION COMMENTS.... WORKED BY CHLORIDES FOR SILVER IN LATE 1800'S AND BY PROSPECTORS IN 1937-1938. TOTAL PRODUCTION ONLY SOME 100 TONS AVERAGING OVER 20 OZ AG/T. WITH GOOD PB VALUES TO MINOR COPPER

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES. (PALEOZOIC) CRET
HOST ROCK TYPES..... METAMORPHOSED LIMESTONE (ESCARBOSA LIMESTONE); BISBEE GROUP;

AGE OF ASSOC. IGNEOUS ROCKS.. MES
IGNEOUS ROCK TYPES..... RHYOLITE AND SOME INTRUSIVE

IMPORTANT ORE CONTROL/LOCUS.. FRACTURED AND METAMORPHOSED PALEOZOIC LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FRACTURED; NNW FAULT S THRUST FAULTS

SIGNIFICANT ALTERATION:
OXIDIZED

COMMENTS (GEOLOGY AND MINERALOGY):
SIMILAR TO AGNINALDO

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156, P. 132
- 2) RANSOME, F.L., 1922, ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 725, P. 417

- 3) KEITH, W.J., AND THEODORE, T.G., 1975, RECONNAISSANCE GEOLOGIC MAP OF THE ARIVACA QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY MF-678.
- 4) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
- 5) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990
- 7) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 8) COOPER, J.R. 1971. MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D, P. 42.

RECORD 00241

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 0000787
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BLACK BESS MINE GROUP
SYNONYM NAME..... SUBMARINE GROUP, MARY A, AND WAREAGLE

MINING DISTRICT/AREA/SUBDIST. GUNSIGHT DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. AJO, ARIZONA

LATITUDE LONGITUDE
32-08-36N 112-38-38W

UTM NORTHING UTM EASTING UTM ZONE NO
3557275.0 344975.0 +12

TWP..... 15S
RANGE.... 04W
SECTION.. 01 SW 02 SE
MERIDIAN. GILA & SALT RIVER

ALTITUDE.. 2220 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 7 MILES WEST OF GUNSIGHT, NEAR BALBOA BAR

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU W MO

MAIN COMMOD..... AU
MINOR COMMOD.... AG CU MO W

MAIN ORE MINERALS:
OXIDIZED COPPER SCHEFLITE, POWELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 200 FT

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS (KEITH 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 122

PRODUCTION COMMENTS.... ORIGINALLY PROSPECTED IN LATE 1880'S BUT WORKED AND PRODUCED SPORADICALLY SOME 80 TONS OF GOLD ORE BETWEEN 1918 AND 1934

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. TERT.
HOST ROCK TYPES..... DECOMPOSED GRANITIC ROCK NEAR BASALTIC ANDESITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET - TERTIARY
IGNEOUS ROCK TYPES..... BASALTIC ANDESITE; GRANITE

PERTINENT MINERALOGY..... QUARTZ-CALCITE

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ-CALCITE STRINGERS ALONG A FISSURE ZONE IN DECOMPOSED LARAMIDE GRANITIC ROCK NEAR THE CONTACT WITH TERTIARY BASALTIC ANDESITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURE ZONE

SIGNIFICANT ALTERATION:
HIGH GOLD IN OXIDIZED ZONE

GENERAL REFERENCES

- 1) KEITH, 1974, P. 122
- 2) MINES HANDBOOK, 1920
- 3) ABM FILE DATA
- 4) GEOLOGY OF CENTRAL PAPAGO RESERVATION:
ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) BRAMWELL, A.W., 1919, NEWS OF AJO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 7) BRISKEY, J.A., JR., & HAXEL, G.B., 1978, JURASSIC PLUTONISM AND VOLCANISM IN SOUTH-CENTRAL ARIZONA (ABSTR.):

U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 73-74.

8)BRYAN, KIRK 4. EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA; WITH A SKETCH OF THE GEOLOGY: USGS BULL. 730, P. 19-90, MAP (1922)

9)EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA, WITH A SKETCH OF THE GEOLOGY WITH COMMENTS BRYAN, KIRK. IN SLOPE MORPHOLOGY, P. 146-160, ILLUS. (INCL. SKETCH MAP), DOWDEN, HUTCHINSON & ROSS, STROUDSBURG, PENNSYLVANIA, 1973, (BENCHMARK PAPER IN GEOLOGY) REPRINT OF 1922 PAPER

10)BRYAN, KIRK (SEE ALSO LONGWELL, C.R., 2) 1. GEOLOGY AND PHYSIOGRAPHY OF THE PAPAGO COUNTRY, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 52-53 (1920)

11)BRYAN, KIRK 10. THE PAPAGO COUNTRY, ARIZONA: A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 499, 436 P., MAPS (1925)

12)BRYNER, L. 1. GEOLOGY OF THE SOUTH CONOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P. (1959)

13)BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH CONOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1710-1711 (1959)

14)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.

15)DEHLINGER, M.E., 1949, REPORT ON AJO QUADRANGLE COMPASS, V. 26, P. 132-133

16) L.D., AND STANLEY, T.D., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.

17)GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTOA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.

18)HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA; A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12

19)HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACET, P.M., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE CONOBABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.

20)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEROL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.

21)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE CONOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.

22)HEINDL, L.A. 19. CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA (A PRELIMINARY SUMMARY): ARIZ. GEOL. SOC. DIG., V. 3, P. 31-34 (1960)

23)JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.

24)KAHLE, K., CONWAY, D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.

25)KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 396: ARIZ. BUR. MINES BULL. 183, 80 P.

26)MINES HANDBOOK, 1920

27)MINES HANDBOOK, 1922, V. XVI

28)MCDOWELL, R.W., 1971, K-Ar AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.

29)MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 100 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)

30)ROMSLO, T.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850

31)RYTUBA, J.J., TILL, A.B., GLAIR, W., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTOA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.

32)STEPHENS, B.A., 1884, QUIJOTOA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY

33)TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399.

34)WARGO, J.G., 1954, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 67 P.

35)WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P.

36)WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE ORES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY,

ARIZONA: ECON. GEOL., V. 58, P. 1119-1125

RECORD 00242

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030536
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... BLACK PRINCE MINE
SYNONYM NAME..... SILVER BULLION ?; AJO MINES CORP. (FORMERLY BLACK PRINCE METAL PRODUCTION CO.

MINING DISTRICT/AREA/SUBDIST. QUIJOTDA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

LATITUDE..... LONGITUDE.....
32-12-30N 112-13-21W

TWP..... 14S 14S
RANGE.... 01E 01E
SECTION.. 24 C 13 C
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: SIERRA BLANCA MTS, 85 MI. W OF TUCSON, 42 MI SE OF AJO

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU AG MO? AU ZN

MAIN COMMOD..... PB CU AG
MINOR COMMOD.... MO ZN AU

MAIN ORE MINERALS:

AZURITE, MALACHITE, GALENA, ARGENTITE

MINOR ORE MINERALS:

NATIVE SILVER, CHALCOPYRITE, PYRITE, SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT: BUNCHY

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SPOTTY, WEAK

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

150' SHAFT, OPEN CUTS (ARM FILE CARDS)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. ARM FILE CARD.

PRODUCTION COMMENTS.... ORIGINALLY FILED MID 1800'S, LOCATED BY KAISER IN 1913 PRODUCED ABOUT 150,000 AG IN 1900, 44 TONS TO 1924 SOME 50 TONS TO 1924, AVERAGING ABOUT 9 OZ AG/T, 11% PB, 1% CU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR, CRET, TERT

HOST ROCK TYPES..... LIMESTONE; GNEISS AND SCHIST; MUSCOVITE QUARTZ MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. JUR, TERT.

IGNEOUS ROCK TYPES..... DINTRUSIVE DIKES QUARTZ MONZONITE

PERTINENT MINERALOGY..... CALCITE, HEMATITE QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. ORE ON CONTACT FISSURE, SPOTTY, WEAK ALONG FAULT ZONE BETWEEN LARAMIDE GNEISS AND SCHIST AND LIMESTONE. NUMEROUS PYROMETASOMATIC DIKES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

STRONG FAULT ZONE.

SIGNIFICANT ALTERATION:

OXIDIZED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 139, 156 P., P. 140.
- 2) ARIZONA BUREAU OF GEOLOGY FILE PAGES
- 3) MINES HANDBOOK XVI, 1922 RYTUBA J.J., TILL, A.B., BLAIR, J., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTOA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.

RECORD 00243

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030522
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... BONANZA MINE
SYNONYM NAME..... SRK; MITCHELL, CALVILLO, KERR

MINING DISTRICT/AREA/SUBDIST. COYOTE DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAN VICENTE, ARIZ.

LATITUDE LONGITUDE
32-00-30N 111-30-30W

TWP..... 16S
RANGE..... 08E
SECTION.. 26
MERIDIAN. GILA AND SALT R

ALTITUDE.. 4500 FT

LOCATION COMMENTS: WEST CENTER OF SEC 26

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO ZN AG

MAIN COMMOD..... CU MO ZN AG

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, BORNITE, COVELLITE, CHALCOCITE

MINOR ORE MINERALS:

MOLYBENDITE, SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

HIGH GRADE PYROMETASOMATIC

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND ADIT OPERATIONS (KEITH, 1974)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 116

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM 1909 TO 1951, PRODUCING SOME 700 TONS OF ORE AVERAGING ABOUT 10%
CU, 0.03 OZ AU/T AND 1.7 OZ AG/T

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZ

HOST ROCK TYPES..... METASOMATIZED LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. MESOZ

IGNEOUS ROCK TYPES..... APLETIC TO PEGMETITIC QUARTZ MONZONITE (DIORITE)

PERTINENT MINERALOGY..... GARNET AND EPIDOTE

IMPORTANT ORE CONTROL/LOCUS.. FAULTED METASOMATIZED PALEOZOIC LIMESTONE CONTACT WITH LARAMIDE IGNEOUS ROCK

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 116.
- 2) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAGUE BUTTE 15' QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 3) CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: MS. THESIS, UNIV. ARIZ.
- 4) HAXEL, G., WRIGHT, J.F., MAY, D.J., AND TOSDAL, R.M. 1990, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA; A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
- 7) KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

- 8)MIN. MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS
THESIS, 90 P. (1956)
- 9)WARGO, J.G. 3. (AND KURTZ W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR.
SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 10)WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA
M.S. THESIS, 67 P.

RECORD 00244

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 0000790
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

DATE..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BROAD TAP MINE
SYNONYM NAME..... ALTA COPPER

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARIITA, ARIZONA

LATITUDE LONGITUDE
31-51-05N 110-45-24W

UTM NORTHING UTM EASTING UTM ZONE NO
3514750.0 522050.0 +12

TWP..... 18S
RANGE.... 15E
SECTION.. 24
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 108 KM NE VAGH 6175 (2 MILES E OF HELVETIA

LOCATION COMMENTS: SE 1/4 OF SEC. 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU W MO

MAIN COMMOD..... CU AG
MINOR COMMOD..... AU W MO

MAIN ORE MINERALS:
COPPER OXIDE MINERALS

MINOR ORE MINERALS:
SCHEELITE AND MOLYBDENITE, GOLD, SILVER

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA ZONE, DISSEMINATED

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
TUNNELS FROM ADJOINING EXILE CLAIM (KEITH, 1974 P. 124)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 124

PRODUCTION COMMENTS.... IN LATE 1950'S PRODUCED SOME 3,600 TONS OF ORE AVERAGING BETTER THAN 5% CU AND 10 OZ AG/T.
MINOR AU.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
HOST ROCK TYPES..... LIMESTONE AND QUARTZITE (CONCHA LS AND SCHERRER FM)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (56 M.Y.)
IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY

AGE OF MINERALIZATION..... TERT. (56 M.Y. DREWES, 1971)

IMPORTANT ORE CONTROL/LOCUS.. STRONGLY BRECCIATED PERMIAN QUARTZITE AND SILICATED LIMESTONE ALONG FAULT ZONE NEXT
TO LARAMIDE QUARTZ LATITE PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
STRONGLY BRECCIATED, FAULT ZONE

SIGNIFICANT ALTERATION:
SILICATED PERMIAN LIMESTONE, OXIDIZED COPPER MINERALS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 124.
- 2) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS, 66 P., MAP

- 3) DREWES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA, UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 5) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTION BY JAMES M. HILL: USGS BULL. 582, 373 P.
- 6) AZ. BUR. MINES FILE DATA.
- 7) HENNESSY, J.A., 1976, A REINTERPRETATION OF THE NATURE OF THE PRECAMBRIAN-PALEOZOIC CONTACT IN THE NORTHERN SANTA RITA MOUNTAINS: TUCSON, UNIV. ARIZONA DEPT. GEOSCIENCES, FOURTH ANNUAL GEOSCIENCE DAZE, P. 14.

RECORD 00245

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800263
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... C. G. H. MINE GROUP
SYNONYM NAME..... COPPER ALEX BLACK HORSE, NEVADA, GREEN MONUMENT, COYOTE

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MTNS, ARIZONA

LATITUDE LONGITUDE
31-56-11N 110-42-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3533250.0 527050.0 +12

TWP..... 17S
RANGE..... 16E
SECTION.. 21 SC
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4,020 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.95 KM NE VABM 5077

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO W

MAIN COMMOD..... CU AG
MINOR COMMOD..... AU MO W

MAIN ORE MINERALS:
COPPER CARBONATES AND SULFIDES CHALCOPYRITE AND PYRITE

MINOR ORE MINERALS:
PYRITE, SCHEELITE, POWELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW SHAFTS AND ADITS (KEITH, 1974) 60 AND 100 FT SHAFTS (ABM FILE CARD)

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 W ORE	EST	0.003	TONS	1955	1% W03

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 COPPER ORE	EST	0.1	TONS	19??-1900	3-5% CU
16 CU	EST	100	LBS	1908-1957	HEYMAN, 1958

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 124

PRODUCTION COMMENTS.... POSSIBLY SOME 100 TONS OF HANDPICKED COPPER ORE AVERAGING 3-5% CU PRODUCED PRIOR TO 1900 AND 3 TONS OF 1% AND W03 ORE IN 1955.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB., CRETACEOUS
HOST ROCK TYPES..... BRECCIATED CONGLOMERATES AND LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE DIKES AND STOCKS; QUARTZ DIORITE (FINNELL)

IMPORTANT ORE CONTROL/LOCUS.. BRECCIATED CRETACEOUS CONGLOMERATES AND FAULTED PALEOZOIC LIMESTONES IN CONTACT WITH

DIKES AND STOCKS OF LARAMIDE QUARTZ MONZONITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

BRECCIA IS GARDNER CANYON FM. CONGLOMERATE AND GLANCE CONGLOMERATE CONTACTS WITH GRANITIC AND DIORITIC INTRUSIONS.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 124.
- 2) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 3) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 136-137.
- 4) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650, P. 110.
- 5) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS
- 6) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA, UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 7) LEE, C.A. AND BORLAND, G.C., 1935, THE GEOLOGY AND ORE DEPOSITS OF THE CUPRITE MINING DISTRICT: UNIV. ARIZ., MS THESIS

RECORD 00246

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030518
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... CABABI DISTRICT
 SYNONYM NAME..... KO VAYA

MINING DISTRICT/AREA/SUBDIST. CABABI (COMORABI) DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 COMORABI

LATITUDE LONGITUDE
 32-03- N 111-57- W

TWP..... 14S TO 17S
 RANGE.... 04E TO 06E
 SECTION.. PARTLY PROTRACTED
 MERIDIAN. GILA AND SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB CU ZN W BA V

MAIN ORE MINERALS:

CHALCOPYRITE, BORNITE, CHALCOCITE, GALENA

MINOR ORE MINERALS:

TUNGSTEN MINERALS, PYRITE, STROMEYERITE, TETRAHEDRITE, SPHALERITE, GOLD, AND MOLYBDENITE; OXIDIZED MINERALS
 INCLUDE: ANGLESITE, WILLEMITE, CALEDONITE, CERUSSITE, MATLOCKITE, AURICHALCITE LEAD HILLITE, LEPIDOCROCITE,
 LINARITE, MALACHITE, WULFENITE, ATACAMITE, CERARGYRITE, AZURITE, COPPER, BROCHANTITE, BUTTGEBACHITE (?),
 DEVILLITE (?), CUPRITE, SIDERITE, TENDRITE, VANADINITE, TOPYRITE, PARATACAMITE, MINETITE, MOTTAMITE,
 MICKSITE, PYROMORPHITE, SVANBERGITE, ROSASITE, CHRYSOCOLLA, SMITHSONITE, CROCOITE, MASSICOT, LITHARGE,
 FERRIMOLYBDITE, STIBICONITE, MINIMUM, CORNUITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
NUMEROUS SCATTERED SMALL MINES AND PROSPECTS. MOSTLY RELATIVELY SHALLOW, WORKED SPORADICALLY FROM AT LEAST EARLY 1700'S TO RECENT TIMES.

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 110

PRODUCTION COMMENTS.... TOTAL PRODUCTION ESTIMATED AND RECORDED AS SOME 6,500 TONS OF ORE CONTAINING ABOUT 3,500 OZ AU, 102,000 OZ AG, 92 TONS CU, 182 TONS PB, 2 TONS ZN AND A SMALL AMOUNT OF TUNGSTEN CONCENTRATES.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR
HOST ROCK TYPES..... ANDESITE FLOWS

AGE OF ASSOC. IGNEOUS ROCKS.. LARAMIDE
IGNEOUS ROCK TYPES..... GRANITIC TO DIORITIC INTRUSIONS

PERTINENT MINERALOGY..... QUARTZ-CALCITE OR DOLOMITE AND QUARTZ - BARITE VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULTS AND FRACTURE ZONES

SIGNIFICANT ALTERATION:
OXIDATION BEGAN IN HIGHLY ACID WATERS AND PROCEEDED WITH CONTINUALLY INCREASING BASICITY AND EH. IONS RELEASED IN REACTIONS MUST HAVE BEEN CARRIED OFF BY GROUNDWATER. SOME OF THE ELEMENTS WERE EFFECTIVELY LEACHED FROM THE WALLROCKS. (WILLIAMS, 1963)

COMMENTS (GEOLOGY AND MINERALOGY):
A MOLYBDENITE SPECIMEN WAS FOUND ON THE BEACON CLAIM IN CLEAVABLE CRYSTALS INTERGROWN WITH PRIMARY GOLD AND QUARTZ. FERRIMOLYBDITE WAS FOUND AS A COMMON MINERAL ON THE 80 FOOT LEVEL OF THE LITTLE MARY MINE WHERE IT STAINS GANGUE MINERALS AND AS AN ALTERATION PRODUCT OF WULFENITE ON THE DUMPS OF THE CHICAGO MINE (NEAR LITTLE MARY) AND AT THE MILDREN MINE.
WULFENITE IS ABUNDANT AT THE MILDREN AND CHICAGO MINES, RARE AT THE BEACON AND SILVER-LEAD CLAIMS, AND ABSENT AT THE LITTLE MARY MINE. WULFENITE IS ASSOCIATED WITH VANADINITE, CERUSSITE, MINETITE, AND CHRYSOCOLLA AT THE MILDREN MINE AND WITH MALACHITE AND CERUSSITE AT THE CHICAGO MINE.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 6) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 7) BRAMWELL, A.W., 1919, NEWS OF AJD AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 8) BRISKEY, J.A., JR., & HAXEL, G.B., 1978, JURASSIC PLUTONISM AND VOLCANISM IN SOUTH-CENTRAL ARIZONA (ABSTR.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 73-74.
- 9) BRYAN, KIRK 4. EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA; WITH A SKETCH OF THE GEOLOGY: USGS BULL. 730, P. 19-90, MAP (1922)
- 10) EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA, WITH A SKETCH OF THE GEOLOGY WITH COMMENTS BY BRYAN, KIRK. IN SLOPE MORPHOLOGY, P. 146-160, ILLUS. (INCL. SKETCH MAP), DOWDEN, HUTCHINSON & ROSS, STROUDSBURG, PENNSYLVANIA, 1973, REPRINT OF 1922 PAPER
- 11) BRYAN, KIRK (SEE ALSO LONGWELL, C.R., 2) 1. GEOLOGY AND PHYSIOGRAPHY OF THE PAPAGO COUNTRY, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 52-53 (1920)
- 12) BRYAN, KIRK 10. THE PAPAGO COUNTRY, ARIZONA: A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 499, 436 P., MAPS (1925)
- 13) BRYNER, L. 1. GEOLOGY OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P. (1959)
- 14) BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1710-1711 (1959)
- 15) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. -5650.
- 16) DEHLINGER, M.F., 1949, REPORT ON AJD QUADRANGLE: COMPASS, V. 26, P. 132-133
- 17) , L. D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.
- 18) GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.
- 19) HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 20) HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACET, P.M., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE COMOBABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.
- 21) JOSEPH, P.E., 1915-1916, MOLYBDENUM; ARIZ. BUR. MINES BULL. 5
- 22) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
- 23) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAUQUE BUTTE 15° QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 24) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 25) KIRKMO, HAKOLO, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1102-E, 90 P.
- 26) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 27) KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 28) MIN, HAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1965)
- 29) MINES HANDBOOK, 1922
- 30) WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
- 31) WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 32) WILSON, F.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

- 33) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 34) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE COMOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.
- 35) HEINDL, L.A., 19. CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA (A PRELIMINARY SUMMARY): ARIZ. GEOL. SOC. DIG., V. 3, P. 31-34 (1960)
- 36) JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.
- 37) KAHLE, K., CONWAY, D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.
- 38) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
- 39) MINES HANDBOOK, 1920
- 40) MINES HANDBOOK, 1922, V. XVI
- 41) MCDOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.
- 42) MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)
- 43) ROMSLU, T.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850
- 44) RYTUBA, J.J., TILL, A.B., BLAIR, W., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTDA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.
- 45) STEPHENS, B.A., 1884, QUIJOTDA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY
- 46) TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399
- 47) WARGO, J.G., 1954, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 67 P.
- 48) WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P.
- 49) WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE DRES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA: ECON. GEOL., V. 58, P. 1119-1125

RECORD 00247

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030521
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... CATALINA DISTRICT
SYNONYM NAME..... SANTA CATALINA DISTRICT
MINING DISTRICT/AREA/SUBDIST. CATALINA (SANTA CATALINA)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MOUNT LEMON, ARIZ.

LATITUDE LONGITUDE
32-20-00N 110-55-00W

UTM NORTHING UTM EASTING UTM ZONE NO
3577000.0 500900.0 +12

TWP..... 12S 13S
RANGE.... 14E 14E
SECTION.. 33 34 03
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 3200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON THE SOUTH SIDE OF THE CATALINA MOUNTAINS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO

MAIN COMMOD..... CU AG
MINOR COMMOD.... AU MO

MAIN ORE MINERALS:
COPPER MINERALS

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FAULT ZONE

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT, PIT, AND TUNNEL OPERATIONS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 113

PRODUCTION COMMENTS.... ONLY ONE PRODUCTIVE MINE (PONTOTOC) LOCATED IN 1907 AND 1916-1917, PRODUCED A TOTAL OF SOME 5,000 TONS OF HAND PICKED ORE AVERAGING ABOUT 4% CU, 0.5 OZ AG/T AND A TRACE OF AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
HOST ROCK TYPES..... METAMORPHIC CATALINA GNEISS

IMPORTANT ORE CONTROL/LOCUS.. BRECCIA ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
WIDE ALTERED BRECCIA ZONE ALONG THE CATALINA FOOTHILL FAULT DIVIDING CATALINA GNEISS, A LARAMIDE METAMORPHIC, FROM TERTIARY TO GUATELNARY PANTANO CONGL. BEDS.

GENERAL COMMENTS
SEE RECORDS M800110 & M900127 FOR FURTHER REFERENCES

GENERAL REFERENCES

- 4) CATALINA MTS. REFERENCES:
ABU AJAMIER, M.M. THE STRUCTURE OF THE PANTANO BEDS IN THE NORTHERN TUCSON BASIN: UNIV. ARIZ., MS THESIS, 71 P. (1966)
ACKER, C.J., 1958, GEOLOGIC INTERPRETATIONS OF A SILICEOUS BRECCIA IN THE COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY
8)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

- 9)ARIZ. DEPT. MINERAL RESOURCES, 1962. MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 10)BANERJEE, ANIL K., 1957, STRUCTURE AND PETROLOGY OF THE ORACLE GRANITE, PINAL CO., ARIZONA: UNIV. ARIZONA, PHD. THESIS, 112 P.
- 11)BANKS, N.G. (1976), RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMMON QUAD, ARIZONA, U.S.G.S. MAP MF - 747.
- 12)BANKS, N.G., 1977, A TERTIARY IGNEOUS-METAMORPHIC COMPLEX IN SOUTHEASTERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 9, NO. 4, P. 385
- 13)BANKS, N.G., 1977, GEOLOGIC SETTING AND INTERPRETATION OF A ZONE OF MIDDLE TERTIARY IGNEOUS-METAMORPHIC COMPLEXES IN SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, NO. 77-376, 29 P.
- 14)BANKS, N.G., IN PRESS, GEOLOGY OF A ZONE OF METAMORPHIC CORE COMPLEXES IN SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 15)BANKS, N.G., CORNWALL, H.R., SILBERMAN, M.L., CREASEY, S.C., AND MARVIN, R.R., 1972, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA: PART 1, K-AR AGES: ECONOMIC GEOLOGY, V. 67, P. 864-878.
- 16)BANKS, N.G., DOCKTOR, R.D., BRISKEY, J.A., DAVIS, G.H., KEITH, S.B., BUDDEN, R.T., KIVEN, C.W., AND ANDERSON, P., 1977, RECONNAISSANCE GEOLOGIC MAP OF THE TORTOLITA MOUNTAINS QUADRANGLE: U.S. GEOL. SURVEY MISC. FIELD STUDIES
- 17)BANKS, N.G., MCKEE, E.H., KEITH, S.B., SHAFIQUALLAH, M., AND DAMON, P.E., 1978, RADIOMETRIC AND CHEMICAL DATA FOR ROCKS OF THE TORTOLITA MOUNTAINS 15' QUADRANGLE, PINAL COUNTY, ARIZONA: ISUCHRON/WEST, NO. 22, P. 17-21.
- 18)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 19)BRYANT, D.L., 1968, DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. GUIDEBOOK III, P. 33-49.
- 20)BUDDEN, R.T., 1975, THE TORTOLITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ., M.S. THESIS, 133 P.
- 21)BUTLER, B.S. 18. (AND GROUT, F.F., AND BROMFIELD, C.S.) SANTA CATALINA MOUNTAINS METAMORPHIC AREA: ARIZ. GEOL. SOC. GEOL. SOC. AM., GUIDEBOOK SOUTHERN ARIZ. P. 43-49, ILLUS. (1952)
- 22)BELAN, RICKY ALLEN, 1972 HYDROGEOLOGY OF A PORTION OF THE SANTA CATALINA MOUNTAINS (TUCSON, ARIZONA): MASTER THESIS UNIV. ARIZONA.
- 23)BELAN, R.A. MATLOCK, W.G., 1973, GROUNDWATER RECHARGE FROM A PORTION OF THE SANTA CATALINA MOUNTAINS
- 24)HYDROL. WATER RESOUR. ARIZ. SOUTHWEST. VOL. 3, P. 33-40, 1973. ILLUS., TABLES, SKETCH MAP S (SERIAL); ANL (ANALYTIC) 2-21 (HYDROGEOLOGY AND HYDROLOGY) ARIZONA; HYDROGEOLOGY; GROUND WATER; SANTA CATALINA MOUNTAINS; TUCSON; AQUIFERS; UNITED STATES; RECHARGE; ARTESIAN WATERS; PRECIPITATION; RUNOFF; TEMPERATURE; MOVEMENT; FLOW; LEVELS; WATER QUALITY.
- 25)BLAKE, W.P., 1908A, GEOLOGICAL SKETCH OF THE REGION OF TUCSON, ARIZONA, IN MACDOUGAL, D.T., BOTANICAL FEATURES OF NORTH AMERICAN DESERTS, CARNEGIE INST. WASHINGTON PUB. 99, P. 45-68.
- 26)BLAKE, W.P., 1908B, NOTE UPON THE SANTA CATALINA GNEISS, ARIZONA: SCIENCE, N.S., V. 28, P. 379-380.
- 27)BRAUN, E.R. (1969) GEOLOGY AND ORE DEPOSITS OF THE MARBLE PEAK AREA, SANTA CATALINA MOUNTAINS, PINA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 75 P.
- 28)BRODERICK, J.P., 1967, STRUCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PINA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 29)BROMFIELD, C.S., 1950, GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 63 P.
- 30)BROMFIELD, C.S., 1952, SOME GEOLOGIC FEATURES OF THE SANTA CATALINA MOUNTAINS, IN ARIZONA GEOL. SOC. GUIDEBOOK FOR FIELD TRIP EXCURSIONS IN SOUTHERN ARIZONA, ARIZ. GEOL. SOC. DIGEST, V. 5, P. 51-55.
- 31)BROWN, RONALD GLYN GEOCHEMICAL SURVEY OF THE VICINITY OF ORACLE, ARIZONA: ARIZ. STATE UNIV., TEMPE, MS THESIS, 56 P. (1970); (ABS.); ARIZ. ACAD. SCI. JOUR., V. 6, 1970 PROC. SUPP., P. 62 (1970)
- 32)(MONTANA), HEARTOOTH (MONTANA), AND SANTA CATALINA (ARIZONA) MOUNTAINS: GEOCHIM. COSMOCHEM. ACTA, V. 28, P. 87-124.
- 33)CHEW, R.T. 2. MID-TERTIARY ROCK UNIT FROM SOUTHERN ARIZONA (ABST.): GEOL. SOC. AM. BULL, V. 63, P. 1324 (1952)
- 34)CHEW, R.T., 3RD 1. THE GEOLOGY OF THE MINETA RIDGE AREA, PINA AND COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P., MAPS (1952)
- 35)CLAY, DONALD WAYNE STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PINA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., PHD. THESIS, 183 P. (1970); (ABS.): DISSERT. ABS. INTERNATL., SEC. B., SCI. AND ENGR., V. 31, NO. 6, P. 3478-3479 (1970)
- 36)CLAY, D.W. ALGAL INTERCLASTS FROM CARBONATE ROCKS OF THE MINETA FORMATION, SOUTHEASTERN ARIZONA. GSA ABSTR, VOL. 6, NO. 5, P. 435, 1974.
- 37)CONEY, P.J., 1979, TERTIARY EVOLUTION OF CORDILLERAN METAMORPHIC CORE COMPLEXES: SOC. ECON. MINERALOGISTS AND PALEONTOLOGISTS CENOZOIC PALEOGEOGRAPHY VOLUME, P. 15-29.

- 38)CONEY, P.J., THIS VOLUME, CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOL. SOC. AMER. MEMOIR.
- 39)CREASEY, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS AND ASSOCIATED COPPER DEPOSITS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, ANNUAL MEETING, KANSAS CITY, MISSOURI, P. 38.
- 40)CREASEY, S.C., 1967, GENERAL GEOLOGY OF THE MAMMOTH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1218, 94 P.
- 41)CREASEY, S.C., BANKS, N.G., ASHLEY, R.P., AND THEODORE, T.G.,
TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY J. OF RESEARCH, V. 5, P. 705-717.
- 42)CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH, 1962: U.S. GEOL. SURVEY PROFESSIONAL PAPER 450-D, P. D1-D5.
- 43)CREASEY, S.C., AND THEODORE, T.G., 1975, PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE BELLOTA RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 75-295.
- 44)CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1961, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-238.
- 45)DALE, V.B. (1959) TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5516.
- 46)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
- 47)DAMON, P.E., 1959, GEOCHEMICAL DATING OF IGNEOUS AND METAMORPHIC ROCKS IN ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 18.
- 48)DAMON, P.E., 1968, APPLICATION OF THE POTASSIUM-ARGON METHOD TO THE DATING OF IGNEOUS AND METAMORPHIC ROCKS WITHIN THE BASIN-RANGES OF THE SOUTHWEST: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 7-20.
- 49)DAMON, P.E., AND ASSOCIATES 1969, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANNUAL PROGRESS REPORT NO. 1969 CDD-689 TO U.S. ATOMIC ENERGY COMMISSION: TUCSON, GEODCHRONOLOGY LABS., UNIVERSITY OF ARIZONA, 90 P.
- 50)DAMON, PAUL E. 4. (AND ERICKSON, ROLFE C., AND LIVINGSTON, DONALD E.) K-AR DATING OF BASIN AND RANGE UPLIFT, CATALINA MOUNTAINS, ARIZONA: GEOPHYS. ABS., NO. 204, ITEM 12 (1964)
- 51)DAMON, P.E., ERICKSON, R.C., AND LIVINGSTON, D.E., 1963, K-AR DATING OF BASIN AND RANGE UPLIFT CATALINA MOUNTAINS, ARIZONA: NATL. ACAD. SCI. - NATL. RESEARCH COUNCIL PUB. 1075, P. 113-121.
- 52)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS, P. 443-453: IN KULP, J.L., EDITOR, GEOCHRONOLOGY OF ROCK SYSTEMS IN ANNALS: NEW YORK ACADEMY OF SCIENCE, V. 91, P. 443-453.
- 53)DAMON, P.E., D.E. LIVINGSTON, AND R.C. ERICKSON, 1962, NEW K-AR DATES FOR THE PRECAMBRIAN OF PINAL, GILA, YAVAPAI AND COCONINO COUNTIES, ARIZONA: MOGOLLAN RIM REGION GUIDEBOOK 13TH FIELD CONF., NEW MEXICO GEOL. SOC., P. 56-57.
- 54)DAMON, P.E., AND MAUGER, R.M., 1966, EPEIROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METALLOGENETIC ENGINEERS TRANS., V. 235, P. 99-112.
- 55)DAMON, P.E., SHAFIQUILLAH, M., KEITH, S.B., REYNOLDS, S.J., LIVINGSTON, D.E., AND PUSHKAR, P.D., IN PRESS, NEW Rb-Sr AND K-AR DATA FOR THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: ISOCHRON/WEST.

RECORD 00248

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 0000793
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER QUEEN MINE

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
31-53- 111-00-

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S
RANGE.... 13E
SECTION.. 06
MERIDIAN. GILA AND SALT R.

LOCATION COMMENTS: NW OF NW OF 06

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN AU MO W

MAIN COMMOD..... CU AG
MINOR COMMOD..... PB ZN AU MO W

MAIN ORE MINERALS:

COPPER SULFIDE GALENA SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... BAXTER, TWIN BUTTES MNG.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETAMORPH, ALONG BEDDING PLANES, SHEAR ZONE
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... RELATIVELY LARGE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS (KEITH, 1974): 900 FT INCLINE SHAFT, EXTENSIVE UNDERGROUND WORKINGS (ABM FILE CARDS)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC 122		TONS	1900-1957	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 134

PRODUCTION COMMENTS.... FROM EARLY 1900'S THRU 1957, SOME 122,000 TONS OF ORE, AVERAGING ABOUT 4.2% CU, 1.32 AG/T
AND MINOR ZN AND PB, PRODUCED INTERMITTENTLY

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PAL
HOST ROCK TYPES..... LIMESTONE

IMPORTANT ORE CONTROL/LOCUS.. SERIES OF RELATIVELY LARGE COPPER SULFIDE BODIES ALONG BEDDING PLANES AND A SHEARED
FAULT CONTACT ZONE IN GARNETIZED AND SILICATED, PYROMETAMORPHOSED PALEOZOIC LIMESTONE AND IN PRECAMBRIAN GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BEDDING PLANES AND SHEARED FAULT CONTACT ZONE

SIGNIFICANT ALTERATION:
GARNETIZED, SILICATED AND PYROMETAMORPHOSED PALEOZOIC LIMESTONE; SOME ENRICHMENT

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SOME ENRICHMENT, PARTLY OXIDIZED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 134
- 2) RANSOME, F.L. 1922, ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 725, P. 407-428.
- 3) CUMMINGS, J.B. AND ROMSLO, T.M., 1950, INVESTIGATION OF THE TWIN BUTTES COPPER MINES, PIMA COUNTY, ARIZONA:

USBM. RI4732. 12 P.

4)BROWN, R.L., 1926, GEOLOGY AND ORE DEPOSITS OF THE TWIN BUTTES DISTRICT: UNIV. ARIZ., MS THESIS

5)MINES HANDBOOK, 1926

6)WHITCOMB, H.A., 1948, GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA: UNIV. ARIZ., MS THESIS

7)ABM FILE DATA. ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00249

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04104
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

DATE..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER WORLD MINE
SYNONYM NAME..... BRUNSWICK, OHASKO, LITTLE DAVE

MINING DISTRICT/AREA/SUBDIST. HELVETIA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
31-51-37N 110-46-01W

UTM NORTHING UTM EASTING UTM ZONE NO
3524750.0 522120.0 +12

TWP..... 78S
RANGE..... 15E
SECTION.. 13 SW 24 NW
MERIDIAN.. GILA SALT RIVER

ALTITUDE.. 4880 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.8 KM DUE E BM 4186; ON N-S RIDGE BETWEEN SYCAMORE CANYON AND HELVETIA GULCH.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU H MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU

MINOR PRODUCTS.. AG AU

MAIN COMMOD..... CU AG AU
MINOR COMMOD.... W MO

MAIN ORE MINERALS:
CHALCOPYRITE, CHALCOCITE

MINOR ORE MINERALS:
POWELLITE, SCHEELITE, MOLYBDENITE, COPRIFEROUS PYRITE

ANALYTICAL DATA(GENERAL)
1-10% CU

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... HELVETIA COPPER CO., MICHIGAN DEVELOPMENT CO., HELVETIA COPPER CO. OF ARIZONA,
BLANKENSHIP, SANTA RITA MNG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC REPLACEMENT, DISSEMINATE
FORM/SHAPE OF DEPOSIT: POCKETS AND IRREGULAR SHAPED BODIES

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... MEDIUM

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN, DEV, CAMBRIAN
HOST ROCK TYPES..... IN LIMESTONE WITH UNDERLYING QUARTZITES OR APLITE DIKES. ABRIGO FM, MARTIN FM,
HORQUILLA FM, EPITAPH FM, SCHERKER FM.

PERTINENT MINERALOGY..... EPIDOTE, DIOPSIDE, AND GARNET, WOLLASTANITE, QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. ALASKITE APLITE DIKE FORMS FOOTWALL AND NO ORE BODIES ARE UNDER IT (SCHRADER, 1915).
ORE IS PRINCIPALLY IN DARK, LESS CRYSTALLIZED LIMESTONE NEAR FAULTS. PRIMARY ORES ARE CHALCOPYRITE IN PYRITIZED
LIMESTONE (JOHNSON, 1941)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
STRONGLY CRUSHED, FAULTED, SHATTERED CHALEDZDIC SEDIMENTARY ROCKS. STRONG FRACTURE ZONE ACCOMPANIES THRUST
FAULT PLANE (KEITH, 1974). THRUST FAULT BETWEEN CAMBRIAN BOLSA AND PRECAMBRAIN CONTINENTAL GRANODIORITE (1450
N.Y. DREWES, 1971) MAY BE DEPOSITIONAL CONTACT (KEITH, ETAL, 1979)

SIGNIFICANT ALTERATION:
SILICIFICATION AND PYRITIZATION OF LIMESTONES WITH CONTACT METAMORPHIC MINERALS PRESENT. ORE HAS ALL BEEN
SULFIDE, EITHER PRIMARY CHALCOPYRITE AND PYRITE OR SECONDARY CHALCOCITE, ALTHOUGH NARROW OXIDIZED STREAKS ARE
COMMON DOWN TO 200 FT LEVEL (SCHRADER, 1915).

COMMENTS (GEOLOGY AND MINERALOGY):
SPARSE MOLYBDENITE OCCURS ON HANGING WALL OF FAULT; POWELLITE IS DISSEMINATED WITH SCHEELITE IN GARNETIFEROUS
CONTACT ZONES.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, P 156, P. 124.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 99-106.
- 3) DREWES, HARALD, 1970, GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP -613, SCALE 1:48,000 (1970)
- 4) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. -5650, P. 110.
- 5) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS
- 6) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156.
- 8) CREASEY, S.C., AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F, P. 314-315.
- 9) JONES, W.R., 1941, THE GEOLOGY OF THE SYCAMORE RIDGE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

RECORD 00250

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030540
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

DATE..... 80 01
UPDATED..... WILT JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COMBOY MINE
SYNONYM NAME..... COMBOY MNG. AND SMLTG CD

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-52-20N 111-09-21W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S
RANGE.... 12E
SECTION.. 07 08 17 18
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4,175 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR OR IN ESPERANZE OPEN PIT

LOCATION COMMENTS: SC OF 07; SE 1/4 OF 08 / NW 1/4 OF 17; NE 1/4 OF 18

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO PB ZN

MAIN COMMOD..... CU AG MO
MINOR COMMOD..... PB ZN

MAIN ORE MINERALS:

COPPER AND MOLYBDENUM MINERALS

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM.

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS (KEITH 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 134

PRODUCTION COMMENTS.... DEVELOPED AROUND 1917-1919 AND MINED IN 1947, PRODUCING SOME 1,700 TONS OF ORE AVERAGING ABOUT 2% CU AND 0.3 OZ AG/T.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... LARAMIDE
HOST ROCK TYPES..... GRANODIORITE AND DIORITE

IMPORTANT ORE CONTROL/LOCUS.. RELATIVELY WEAK AND SPOTTY ALONG A FAULT ZONE IN LARAMIDE INTRUSIVE GRANODIORITE AND DIORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONE

SIGNIFICANT ALTERATION:
ALTERED DIORITE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 134
- 2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00251

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000119
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COYOTE DISTRICT
MINING DISTRICT/AREA/SUBDIST. COYOTE DIST./COYOTE MTS AND NORTHWEST
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA
QUAD SCALE QUAD NO OR NAME
1: 0062500 SAN VICENTE, ARIZ.
LATITUDE LONGITUDE
32-02- N 111-30-30W
TWP..... 16S 16S
RANGE.... 07E 08E
SECTION.. 32
MERIDIAN. GILA AND SALT RIVER
ALTITUDE.. 3100 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MN ZN MO

MAIN ORE MINERALS:

PARTLY OXIDIZED COPPER, ZINC AND MOLYBDENUM MINERALIZATION

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CONTACT METAMORPHIC FAULT ZONE

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW CUTS, PITS, ADITS, & SHAFT WORKINGS (KEITH, 1974, P. 116)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 116

PRODUCTION COMMENTS.... ABOUT 710 TONS OF ORE AVERAGING 10% CU, 0.03 OZ AU/T, AND 1.7 OZ AG/T PRODUCED. SOME 145 LONG TONS OF LOW GRADE MM ORE ALSO SHIPPED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC
HOST ROCK TYPES..... LIMESTONE; LARAMIDE VOLCANICS AND SEDIMENTS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET - TERT.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE INTRUSIVE; VOLCANICS

IMPORTANT ORE CONTROL/LOCUS.. FAULTED, CONTACT METAMORPHOSED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONE CUTS LARAMIDE (?) VOLCANICS AND SEDIMENTS

COMMENTS (GEOLOGY AND MINERALOGY):
MANGANESE OXIDES OCCUR ALONG STRONG FRACTURE ZONES CUTTING LARAMIDE RHYOLITES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 116.
- 2) WARGO, J.G., 1954, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS. THESIS, 67 P.
- 3) KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS. THESIS
- 4) HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1930, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12,
- 5) HEINDL, L.A. AND FAIR, C.L., 1965, MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-I
- 6) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 7) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE COMOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.
- 8) HEINDL, L.A. 19. CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA (A PRELIMINARY SUMMARY): ARIZ. GEOL. SOC. DIG., V. 3, P. 31-34 (1960)
- 9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 10) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAUQUE BUTTE 15' QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 11) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 336: ARIZ. BUR. MINES BULL. 183, 80 P.
- 12) MIN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS. THESIS, 90 P. (1965)

- 13)WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 14)CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 15)HAXEL, GORDON, IN PROGRESS, GEOLOGIC MAP OF PRESUMIDG PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
- 4) GEOLOGY OF CENTRAL PAPAGO RESERVATION:
 - 1)BRYNER, L. 1. GEOLOGY OF THE SOUTH COMOBARI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P. (1959)
 - 5)CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
 - 6)BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH COMOBARI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12 P. 1710-1711 (1959)
 - 7)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650.
 - 8)DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS
 - 9)DEHLINGER, M.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 132-133
 - 10)FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
 - 11)EBERLY, L.D., AND STANLEY T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.
 - 12)FAIR, CHARLES L. 3. PROBABLE CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
 - 13)GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTOA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.
- 14)KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 19-12-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 15)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 16)ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 17)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 18)BRAMWELL, A.W., 1919, NEWS OF AJO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 19)BRISKEY, J.A., JR., & HAXEL, G.B., 1978, JURASSIC PLUTONISM AND VOLCANISM IN SOUTH-CENTRAL ARIZONA (ABSTR.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 73-74.
- 20)BRYAN, KIRK 4. EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA: WITH A SKETCH OF THE GEOLOGY: USGS BULL. 730, P. 19-90 MAP (1922)
- 21)EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA, WITH A SKETCH OF THE GEOLOGY WITH COMMENTS BRYAN KIRK, IN SLOPE MORPHOLOGY, P. 146-160, ILLUS. (INCL. SKETCH MAP), DOWDEN, HUTCHINSON & ROSS, STROUDSBURG, PENNSYLVANIA, 1973, (BENCHMARK PAPERS IN GEOLOGY) REPRINT OF 1922 PAPER
- 22)BRYAN, KIRK (SEE ALSO LONGWELL, C.R., 2) 1. GEOLOGY AND PHYSIOGRAPHY OF THE PAPAGO COUNTRY, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 52-53 (1920)
- 23)BRYAN, KIRK 10. THE PAPAGO COUNTRY, ARIZONA: A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 499, 436 P., MAPS (1925)
- 24)ROMSLO, I.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850
- 25)RYTUBA, J.J., TILL, A.B., BLAIR, W., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTOA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.
- 26)STEPHENS, B.A., 1884, QUIJOTOA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY
- 27)TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399.
- 28)JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.
- 29)KAHLE, K., CONWAY, D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.
- 30)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

- 31)MINES HANDBOOK, 1920
- 32)MINES HANDBOOK, 1922, V. XVI
- 33)MCDOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.
- 34)MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)
- 35)WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P.
- 36)WILSON, E.O., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
- 37)WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE DRES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA: ECON. GEOL., V. 58, P. 1119-1125
- 38)WILSON, E.O., CUNNINGHAM J.B., AND BUTLER, G.W., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

RECORD 00252

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 0000799
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... DAISY MINE

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT/SIERRITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-59-10N 111-04-42W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 16S 17S
RANGE.... 12E 12E
SECTION.. 36 01
MERIDIAN. GILA NO SALT R.

ALTITUDE.. 3375 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: WEST OF PIMA MINE AT FOOT OF MINERAL HILL

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG ZN PB AU W MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU AG
MINOR PRODUCTS.. PB ZN

ORE MATERIALS (MINERALS, ROCKS, ETC.):

MAGNETITE, PYRITE, CHALCOPYRITE, BORNITE, SPHALERITE, GALENA, MOLYBENITE UNSPECIFIED W MINERAL

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
TACTITE

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND OPEN PIT WORKINGS

18 ORE	ACC	3264.	TONS	1957-1963
19 CU	ACC	52570.	LBS	1957-1963
20 PB	ACC	8.	LBS	1957-1963
21 ZN	ACC	166.	LBS	1957-1963
22 AG	ACC	411.	OZS	1957-1963
23 AU	ACC	.016	OZS	1957-1963

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC
HOST ROCK TYPES..... GARNETIZED LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. LARAMIDE (TERT.)

AGE OF MINERALIZATION..... TERT.

IMPORTANT ORE CONTROL/LOCUS.. MINERAL HILL FAULT IS AN IMPORTANT CONTROLLING STRUCTURE; MINERALIZATION IS IN GARNETIZED PALEOZOIC LIMESTONE ALONG THE CONTACT WITH LARAMIDE QUARTZ MONZONITE (KEITH, 1974)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MINERAL HILL FAULT

SIGNIFICANT ALTERATION:
PARTLY OXIDIZED, ROUGHLY BANDED AND ZONED.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 139, 156 P., 138.
- 2) STORMS, W.R. AND BOWMAN, A.B., 1957, MINING METHODS AND PRACTICES AT THE MINERAL HILL COPPER MINE, BANNER MINING CO., PIMA COUNTY, ARIZONA: U.S. BUR. MINES IC-7786
- 3) MACKENZIE, F.D., 1959, PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 193-194
- 4) BOWMAN, A.B., 1963, HISTORY, GROWTH AND DEVELOPMENT OF A SMALL MINING COMPANY: MIN. ENGR., V. 15, NO. 6, P. 42-49
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) COOPER, J.R., 1960, SOME GEOLOGIC FEATURES OF THE PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1112-C, 103 P.

RECORD 00253

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030549
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... EL TIRO MINE
SYNONYM NAME..... ARIZONA MNG. CO., EL TIRO COPPER CO., EL TIRO LEASING CO., WILLIAMS, WESTERN
AMERICAN MINES CO., CHEMICAL PROCESS COPPER CO., A.S. & R. CO.

MINING DISTRICT/AREA/SUBDIST. SILVER BELL

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-25-04N 111-32-16W

UTM NORTHING UTM EASTING UTM ZONE NO
3586725.0 449425.0 +12

TWP..... 11S 12S
RANGE.... 08E 08E
SECTION.. 33 SW 04 NW
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 2,715 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.05 KM DUE W VABM 4195

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG PB AU

MAIN COMMOD..... CU AG
MINOR COMMOD..... PB AU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

MOLYBDENITE (NW OF KURTZ SHAFT)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC

FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

PROSPECTED AND WORKED SINCE LATE 1800'S AND DEVELOPED FROM DAISY AND KURTZ SHAFTS.

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 143

PRODUCTION COMMENTS.... UNDERGROUND MINE OPERATED UNTIL 1931, PRODUCING SOME 203, 500 TONS OF ORE AVERAGING ABOUT 5%
CU, 0.2 OZ AG/T AND MINOR AU AND PB. OPEN PIT EL TIKO OPERATIONS INCLUDED UNDER SILVER BELL MINE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC

HOST ROCK TYPES..... SHEARED AND GARNETIZED LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TERT.

IGNEOUS ROCK TYPES..... ALASKITE, DACITE PORPHYRY AND MONZONITE

AGE OF MINERALIZATION..... CRET. TERT.

IMPORTANT ORE CONTROL/LOCUS.. SHEARED AND GARNETIZED LIMESTONE IN CONTACT WITH LARAMIDE ALASKITE, DACITE PORPHYRY
AND MONZONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHEARED LIMESTONE

SIGNIFICANT ALTERATION:

PARTLY OXIDIZED; GARNETIZED PALEOZOIC LIMESTONE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 143
- 2) GALEY, J.L., 1979, GENERAL GEOLOGY AND HYDROTHERMAL ALTERATION OF THE SILVER BELL PORPHYRY COPPER DEPOSIT: SOC. ECON. GEOL., PORPHYRY COPPER FIELD CONFERENCE, 18 P.
- 3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 7) TOLMAN, C.F., JR., 1909, COPPER DEPOSITS OF SILVERBELL, ARIZONA: MIN. SCI. PRESS, V. 99, P. 646-658
- 8) U.S. GEOL. SURVEY MINERAL RESOURCES 1905, P. 153 U.S. GEOL. SURVEY MINERAL RESOURCES 1907, P. 176 MINES HANDBOOK 1918
- 9) RICHARD, K. AND COURTRIGHT, J.H. (1966) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, (EDS.). UNIV. ARIZONA PRESS, TUCSON: 157-163.
- 10) BANKS, N.G., AND DOCKTER, R.D., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE VACA HILLS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF-793.
- 11) AGENBROAD, L. H., 1962, THE GEOLOGY OF THE ATLAS MINE AREA, PIMA COUNTY, ARIZONA: ARIZONA UNIV., TUCSON M.S. THESIS, 39 P.
- 12) BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L., AND NAESER, C.W., 1978, RADIOMETRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANICS AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 6, P. 439-445.
- 13) BARNEY, W.G. (1904) THE SILVERBELL MOUNTAINS, ARIZONA. ENG. MIN. JOUR. 78: 755.
- 14) BLANCHARD, ROLAND, 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.
- 15) BUSECK, PETER R., 1962, CONTACT METASOMATIC DEPOSITS AT CONCEPCION DEL ORD, MEXICO; TEN PIUTE, NEVADA; AND SILVER BELL, ARIZONA: UNPUBLISHED PH.D. DISSERTATION, COLUMBIA UNIVERSITY, NEW YORK.
- 16) CLARKE, CRAIG W. THE GEOLOGY OF THE EL TIRO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P. (1965)
- 17) DAMON, ET AL., 1963, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: UNIV. ARIZONA, ANN. PROGRESS REPORT NO. 5.
- 18) DAVIS, S.R., 1974, RECONNAISSANCE GEOLOGIC MAP AND GEOLOGIC COMPILATION OF THE SILVER BELL, AND WEST SILVER BELL MOUNTAINS, SCALE 1:62,500 (UNPUB. ASARCO INC. MAP).
- 19) DAVIS, S.R. 1974, RECONNAISSANCE GEOLOGIC MAP OF PART OF THE WEST SILVER BELL MOUNTAINS, SCALE 1:24,000 (UNPUB. ASARCO INC. MAP).
- 20) DOCKTER, R.D., 1977, MOUNT LORD VOLCANICS, PIMA COUNTY, ARIZONA, IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE U.S. GEOLOGICAL SURVEY: U.S. GEOL. SURVEY BULL. 1435-A, A117-120.
- 21) EDMISTON, R.C., 1973, THERMAL ANOMALIES AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT (ABSTR.): MIN. ENG., V. 25, NO. 12, P. 45.
- 22) EDMISTON, R., 1971, THERMAL GRADIENTS AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 23) ENGINEERING AND MINING JOURNAL, 1957, HOW ASGR RAISED MOLYBDENITE RECOVERY ON COPPER CONCENTRATE: ENG. MIN. JOUR., V. 158, NO. 8, P. 104-106.
- 24) EMMONS, W.H., 1917, THE ENRICHMENT OF ORE DEPOSITS: U.S. GEOL. SURVEY BULL 625.
- 25) HAYES, P.T., 1970, CRETACEOUS PALEOGEOGRAPHY OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: U.S. GEOL. SURVEY PROF. PAPER 658-B, 42 P.
- 26) KERR, P.F. (1951) ALTERATION FEATURES AT SILVERBELL, ARIZONA. GEOL. SOC. AMER. BULL. 62: 451-480.
- 27) MAUGER, R.L., 1966, A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIV. OF ARIZ. 212 P.
- 28) MAUGER, R.L., DAMON, P.E., GILLETTI, B.J., 1963, AGE OF ORE DEPOSITION WITHIN THE SOUTHWESTERN COPPER METALLOGENETIC PROVINCE IN ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, DALLAS, TEXAS, FEBRUARY.

- 29) MAUGER, R.L., DAMON, P.E., AND GILETTI, B.J., 1965, ISOTOPIC DATING OF ARIZONA ORE DEPOSITS: AM. INST. MINING METALL. AND PETROLEUM ENGINEERS TRANS., V. 232, P. 91-87.
- 30) MERZ, J.J. (1967) THE GEOLOGY OF THE UNION HILL AREA, SILVER BELL DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 58 P.
- 31) MITCHAM, T.W., 1955, DISCUSSION OF PAPER, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, V. 202, P. 300.
- 32) MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
- 33) RICHARD, KENYON, AND COURTRIGHT, J.H., 1954, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MINING ENG., NOVEMBER, AND AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 1095-1099.
- 34) RICHARD, K., AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.
- 35) RICHARD, K.E. 1. (AND COURTRIGHT, J.H.) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MIN. ENGR. V. 6, NO. 11, P. 1095-1099, ILLUS., MAP (1954); AIME TRANS. 1954, V. 199 (1955); (DISCUSSION BY T.W. MITCHAM AND REPLY BY AUTHORS): MIN. ENGR., V. 7, NO. 3, P. 300 (1955); AIME TRANS., 1955, V. 202 (1956)
- 36) SHOEMAKER, A.H., AND G. SOMMERS (1924) THE GEOLOGY OF THE EL TIRO MINE, SILVER BELL, ARIZONA. UNIV. ARIZONA M.S. THESIS, 40 P.
- 37) STEWART, C.A., 1912, THE GEOLOGY AND ORE DEPOSITS OF THE SILVER BELL MINING DISTRICT, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS BULL., V. 65, P. 455-505.
- 38) STEWART, C.A. 2. THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA: AIME BULL. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-290, MAP (1913); (ABST.): MIN. WORLD, V. 36, P. 1104-1147-1150 (1912)
- 39) STEWART, C.A. (1912) THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA. TRANS. AIME 43: 240-290.
- 40) WATSON, B.N. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 168 P. (1964)
- 41) WATSON, BARRY NORTON 1. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): DISSERT. ABS., V. 25, NO. 3, P. 1853 (1964)
- 42) WATSON, B.N., 1968, INTRUSIVE VOLCANIC PHENOMENA IN SOUTHERN AND CENTRAL ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK III -- GEOL. SOC. AMERICA CORDILLERA SEC., 64TH ANN. MTG., TUCSON, 1968: ARIZONA GEOL. SOC., P. 147-153.
- 43) WATSON, B.N., 1968, UPDATING THE GEOLOGY AND ORE CONTROLS AT SILVER BELL, ARIZONA: TALK TO MINING GEOLOGY DIV., ARIZ. SECTION A.I.M.E.

RECORD 00254

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 4000467
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 UPDATED..... 80 03
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... EMPIRE DISTRICT
 SYNONYM NAME..... CONTAINS CALIFORNIA, MONTANA, TOTAL WRECK AND HILTON MINE CAMPS

MINING DISTRICT/AREA/SUBDIST. EMPIRE DIST/EMPIRE MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 EMPIRE MOUNTAIN, ARIZ.

LATITUDE LONGITUDE
 31-54- N 110-35- W

TWP..... 17S 18S
 RANGE.... 17E 17E
 SECTION.. 02

POSITION FROM NEAREST PROMINENT LOCALITY: FROM DAVIDSON CANYON EAST TO CIENEGA CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AG AU MO W V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG
 MINOR PRODUCTS.. ZN CU MO AU W

MAIN COMMOD..... PR AG
 MINOR COMMOD.... ZN CU AU MO W V

MAIN ORE MINERALS:
 ARGENTIFEROUS LEAD AND COPPER ORE;

MINOR ORE MINERALS:

CERUSSITE, CERARGYRITE WULFENITE, MALACHITE, AZURITE, CHRYSOCOLLA, CHALCOPYRITE, VANADINITE

COMMODITY COMMENTS:

NO PROD = 76 TONS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... DISCOVERED IN LATE 1870'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CONTACT METAMORPHIC REPLACEMENT; FISSURE VEIN

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS MINES AND PROSPECTS MOSTLY RELATIVELY SHALLOW (KEITH, 1974, P. 117)

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	34.5	TONS		1880-1964	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 117

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM ABOUT 1880 AND THROUGH 1964 PRODUCING SOME 34,500 TONS OF ORE
CONTAINING ABOUT 172 TONS CU, 8,335 TONS PB, 258 TONS ZN, 740 OZ AU, 206,400 OZ. AG, 76 TONS MO

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET AND PERMIAN
HOST ROCK TYPES..... LIMESTONE AND SEDIMENTARY ROCKS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (71 M.Y.)
IGNEOUS ROCK TYPES..... SYCAMORE CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET. (71 M.Y.)

PERTINENT MINERALOGY..... HEMATITE, LIMONITE, CALCITE AND QUARTZ ASSOCIATED WITH ORE

IMPORTANT ORE CONTROL/LOCUS.. ORE OCCURS IN PERMIAN LIMESTONE ALONG FISSURE IN HANGING WALL OVERLYING QUARTZITE IN
FOOTWALL. DIORITE DIKES OR SYCAMORE CANYON QUARTZ MONZONITE ARE NEARLY AND HAVE CAUSED SOME TANTACT METAMORPHISM

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BADLY FAULTED AND OVER THRUST, STRONG NNW FAULTS AND FISSURES

SIGNIFICANT ALTERATION:

OXIDATION PROVIDED MOST ORE

GENERAL REFERENCES

- 4) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 150
- 5) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES H. HILL: USGS BULL. 582, 373 P.
- 6) ALBERDING, H., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
- 7) ALEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 9) BRENNAN, D.J., 2. GEOLOGICAL RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 41 (1958)
- 10) BRENNAN, D.J., 3. TERTIARY SEDIMENTARY ROCKS AND STRUCTURES OF THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 5, P. 45-58 (1962)
- 11) BUTLER, W.E., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 12) DALE, V.B., STEWAR, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
- 13) DEWEES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 14) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 15) FEISS, J.W., 1929, GEOLOGY AND ORE DEPOSITS OF HILTAND CAMP, ARIZONA: UNIV. ARIZ., MS THESIS
- 16) FINNELL, T.L., 1970, PANTANO FORMATION: IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE USGS, 1968: USGS BULL. 1294-A, P. 35-36
- 17) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT
- 18) GALBRAITH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 51, P. 1927
- 19) GALBRAITH, F.W., 4. EMPIRE MOUNTAINS OVERTHRUST: PAM-AM. GEOL., V. 73, P. 377-378 (1940)
- 20) GALBRAITH, F.W., 1949, THRUST FAULTING IN THE EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 60, P. 1889-90
- 21) GALBRAITH, F.W., 11. THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 127-133 (1959)
- 22) KING, R.R., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 23) MARVIN, T.C., 1942, THE GEOLOGY OF THE HILTON RANCH AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 24) MAYUGA, M.N., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 74 P.
- 25) METZ, R., THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 66 P. (1963)
- 26) MOORE, ROBERT A., 2. CRETACEOUS (?) STRATIGRAPHY OF THE SOUTHEAST FLANK OF THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 55 P. (1960)
- 27) SCHAFFROTH, D.W., 1965, STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS
- 28) SCHAFFROTH, DON W., 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS, 135 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 8, P. 4578-4579 (1966)
- 29) SCHRADER, F.C., 1915 SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 30) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 31) SCHRADER, F.C. AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163
- 32) SCHRADER, F.C., 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 (1910); (ABST.): MIN. WORLD, V. 33, P. 185-187 (1910)

- 33)SEARS, DAVID, 2ND GEOLOGY OF THE PANTANO HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 48 P.,
MAPS (1939)
- 34)SOOP, G.P. (1940) GEOLOGY OF THE MONTANA MINE AREA, EMPIRE MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63
P.
- 35)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168
- 36)WILSON, E.D., 1951, EMPIRE DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS, PART II, P. 49-56: ARIZ. BUR. MINES
BULL. 158
- 37)WILSON, R.A., 1934, THRUST FAULTING IN THE EMPIRE MOUNTAINS OF SOUTHEASTERN ARIZONA: JOUR. GEOL., V. 42, P.
422-429

RECORD 00255

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M002672
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER

DATE..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... ESPERANZA AND SIERRITA MINES

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-52-07N 111-07-29W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S
RANGE.... 12E
SECTION.. 16 NW
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4200 FT

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. W
MINOR PRODUCTS.. MO

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, AND MOLYBDENITE.

MINOR ORE MINERALS:

SILVER, ALTHOUGH RECOVERED IN MINOR AMOUNTS, IS NOT RECOGNIZED IN MINERAL FORM. MINOR MINERALS INCLUDE GALENA, SPHALERITE, TENNANTITE-TETRAHEDRITE, MAGNETITE, MARCASITE, FLUORITE, AND RARE BORNITE. SECONDARY MINERALS INCLUDE CHALCOCITE, CUPRITE, TNEORITE, MALACHITE, AZURITE, CHRYSOCOLLA, NATIVE COPPER, AND MINOR TURQUOISE.

ANALYTICAL DATA(GENERAL)

WITHIN THE ORE ZONE, THE PYRITE-CHALCOPYRITE RATIO IS ROUGHLY 1 TO 2; TOTAL SULFIDE CONTENT IS NORMALLY 1 TO 2 PERCENT OR LESS, SELDOM EXCEEDING 3 PERCENT BY VOLUME. THIS RATIO INCREASES TO GREATER THAN 20 TO 1 IN THE PROPYLITIC ZONE, WITH TOTAL SULFIDE CONTENT ESTIMATED AT 1 TO 3 PERCENT. (AIKEN AND WEST, 1978)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PORPH.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LGE

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

THE SIERRITA AND ESPERANZA DEPOSITS WERE BROUGHT INTO PRODUCTION AS SEPARATE OPEN PITS WITHIN PARTS OF A SINGLE LARGE MINERALIZED SYSTEM AND ARE NOW BEING INTEGRATED INTO ONE OF THE WORLD'S LARGEST COPPER-MOLYBDENUM OPERATIONS. THE COMBINED SIERRITA-ESPERANZA COMPLEX WILL EVENTUALLY BE A PIT 12,500 FEET LONG, 6,500 FEET WIDE, AND 2,250 FEET DEEP. (AIKEN & WEST, 1978)

18 ORE	337650.0 TONS	1959-1978
19 CU	3122053. LBS	1959-1978
20 PB	687.884 LBS	1959-1978
21	573.563 LBS	1959-1978
22 AG	11305.27 OZS	1959-1978
23 AU	4.543 OZS	1959-1978
24 MO	91203.15 LBS	1959-1978

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 AU		663918		1973	.32% CU
2 CU		2148			0.036% MO
3 MO		239			

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. AIKEN & WEST, 1978, P. 119

COMMENTS (RESERVES/POT RESOURCES).. 590 MILLION TONS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI, JUR., CRET, TER1.

HOST ROCK TYPES..... RHYOLITE AND ANDESITE, QUARTZ DIORITE, DACITE PORPHYRY, QUARTZ MONZONITE, AND QUARTZ MONZONITE PORPHYRY WITH AN ATTENDANT INTRUSIVE BRECCIA.

THE UPPER LEVELS OF THE ESPERANZA PIT ARE THE OX FRAME VOLCANICS OF TRIASSIC AGE. ONLY ANDESITE HAS AN IMPORTANT HOST FOR HYPOGENE MINERALIZATION. SIGNIFICANT SECONDARY COPPER ENRICHMENT HAS BEEN RESTRICTED TO HIGHLY FRACTURED ZONES IN ALL UNITS OF THE OX FRAME VOLCANICS.

THE HARRIS RANCH QUARTZ MONZONITE CONTAINS AN EXTENSIVE HYPOGENE ORE ZONE WHICH BEGINS SEVERAL HUNDRED FEET BELOW THE ORIGINAL SURFACE AND CONTINUES DOWNWARD INTO YOUNGER LARAMIDE ROCKS. THE HARRIS RANCH QUARTZ MONZONITE, WITH AN AGE DATE OF 200 ± 10 M.Y., IS THE OLDEST INTRUSIVE ROCK IN THE MINE AREA.

THE QUARTZ LATITE PORPHYRY WAS A FAVORABLE HOST FOR PRIMARY COPPER AND MOLYBDENUM AND SECONDARY ENRICHMENT IN THE MINE. HOWEVER, BECAUSE OF ITS LIMITED AREAL EXTENT, IT DOES NOT PROVIDE AN IMPORTANT SOURCE OF ORE. FIELD RELATIONSHIPS INDICATE THAT THIS ROCK TYPE IS YOUNGER THAN THE TRIASSIC VOLCANIC ROCKS BUT OLDER THAN THE RUBY STAR QUARTZ MONZONITE PORPHYRY.

THE BIOTITE QUARTZ DIORITE OF LATE CRETACEOUS (LARAMIDE) AGE (APPROXIMATELY 67 M.Y.) IS AN EXCELLENT HOST FOR HYPOGENE COPPER-MOLYBDENUM MINERALIZATION. MODERATE SHATTERING PREPARED THE CHEMICALLY RECEPTIVE ROCK FOR THE INVASION OF HYDROTHERMAL SOLUTIONS THAT ACCOMPANIED THE YOUNGER LARAMIDE INTRUSIONS.

MINERALIZATION IN THE RUBY STAR GRANODIORITE IS SPARSE, USUALLY OCCURRING AS RARE CHALCOPYRITE BLEBS REPLACING BIOTITE AND AS COPPER OXIDES AND CARBONATES. THE SEVERAL POTASSIUM-ARGON AGE DATES DETERMINED FOR THIS LARAMIDE INTRUSIVE ROCK AVERAGE APPROXIMATELY 60 M.Y.

COPPER AND MOLYBDENUM MINERALIZATION IN THE SIERRITA INTRUSIVE BRECCIA, GOOD IN UPPER LEVELS OF SIERRITA, DIMINISHES WITH DEPTH. APPARENTLY, THE INCREASED GRADE IN THE UPPER PART OF THE BRECCIA IS RELATED TO THE ABUNDANCE OF (RECEPTIVE) FRAGMENTS OF OX FRAME ANDESITE, BIOTITE QUARTZ DIORITE, AND HARRIS RANCH QUARTZ MONZONITE. (AIKEN AND WEST, 1978, P. 120-124).

AGE OF ASSOC. IGNEOUS ROCKS.. TEXT. (53.5, 56, 56.9 M.Y.)

IGNEOUS ROCK TYPES..... THE RUBY STAR QUARTZ MONZONITE PORPHYRY, A LIGHT-GRAY, PORPHYRITIC FACIES OF THE RUBY STAR GRANODIORITE, IS INTIMATELY ASSOCIATED WITH MINERALIZATION & ALTERATION AND IS CONSIDERED TO BE THE SOURCE FOR THE METAL-BEARING HYDROTHERMAL SOLUTIONS.

AGE OF MINERALIZATION..... EDUNE (53.5, 56, 56.9 M.Y.; DAMON ETAL, 1966; CREASEY & KISTLER, 1962; COOPER, 1973)

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION OF SIERRITA-ESPERANZA IS STRUCTURALLY AND LITHOLOGICALLY CONTROLLED. LINEAR MINERALIZED ZONES PARALLEL OR GIRDLE FAULT TRENDS, MAJOR JOINT SETS, AND INTRUSIVE CONTACTS. IN ADDITION, HYPOGENE MINERALIZATION IS ASSOCIATED WITH SPECIFIC ROCK TYPES AND IS GENERALLY FRACTURE CONTROLLED WITHIN THESE UNITS. MINOR DISSEMINATIONS COMMONLY OCCUR IN THE BRECCIA AND QUARTZ MONZONITE PORPHYRY. (AIKEN AND WEST, 1978)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

A DOMINANT SYSTEM OF N. 50 - 85 E. AND N. 5 - 25 W. --TRENDING, STEEPLY DIPPING, MINERALIZED FRACTURES OCCURS AT SIERRITA. THE EAST-NORTHEAST FRACTURE SET IS MOST STRONGLY MINERALIZED AND PARALLELS A MAJOR STRUCTURAL TREND IN THE MINE AREA. ALSO, THE EAST-NORTHEAST MINERALIZED SET APPEARS TO BE SUPERIMPOSED ON THE NORTHWEST-TRENDING ORE ZONES, COINCIDENT WITH CONTACTS BETWEEN THE LARAMIDE RUBY STAR QUARTZ MONZONITE PORPHYRY, BIOTITE QUARTZ DIORITE, AND HARRIS RANCH QUARTZ MONZONITE. MINERALIZATION AND ALTERATION ARE CONTROLLED BY THIS COMPOSITE STRUCTURAL FRAMEWORK.

MINERALIZATION AT ESPERANZA, OCCURRING MAINLY IN RUBY STAR QUARTZ MONZONITE PORPHYRY., TRENDS, N. 40 E., APPROXIMATELY PARALLEL TO THE CONTACT BETWEEN THE RUBY STAR QUARTZ MONZONITE PORPHYRY AND TRIASSIC OX FRAME RHYOLITE. ECONOMIC CONCENTRATIONS ALSO OCCUR IN OX FRAME ANDESITE AND BIOTITE QUARTZ DIORITE, WHICH ARE GOOD HOSTS. (AIKEN & WEST, 1978)

SIGNIFICANT ALTERATION:

ALTERATION IN THE ORE ZONE IS PREDOMINANTLY POTASSIC, WITH PHYLIC AND MINOR ARGILLIC ASSEMBLAGES. PROPYLITIC MINERALS COMMONLY OCCUR OUTSIDE THE PIT AREAS. ALL ROCK TYPES ARE MINERALIZED AND ALTERED.

POTASSIC METASOMATISM IS THE MOST SIGNIFICANT AND WIDESPREAD ALTERATION IN THE DEPOSIT. THE POTASSIC ZONE ENCOMPASSES MUCH OF THE CENTRAL PORTION OF THE SIERRITA PIT AND THE NORTHERN HALF OF ESPERANZA, WITH LOCALIZED OCCURRENCES NORTHEAST OF SIERRITA.

QUARTZ-SERICITE ALTERATION OCCURS THROUGHOUT THE DEPOSIT AND IS RELATIVELY INTENSE IN EAST ESPERANZA. AT SIERRITA, QUARTZ VEINING WITH SERICITE ALTERATION ENVELOPES OCCURS WITHIN AND PERIPHERAL TO THE POTASSIC ZONE AND DIMINISHES WITH DEPTH.

ARGILLIC ALTERATION IS MAINLY RESTRICTED TO FAULTS AND FRACTURES AND NO MAJOR PATTERN HAS BEEN DELINEATED. MUCH OF THE CLAY ALTERATION IN THE UPPER LEVELS OF THE MINES MAY BE ATTRIBUTED TO SUPERGENE EFFECTS.

PROPYLITIC ALTERATION IS PROMINENT AT SIERRITA AND ESPERANZA AND FORMS A GRADATIONAL HALO AROUND THE POTASSIC

AND PHYLIC ZONES. ORE LIMITS ROUGHLY COINCIDE WITH THE BOUNDARY BETWEEN THE PROPYLITIC AND HIGHER GRADE ALTERATION ASSEMBLAGES. (AIKEN & WEST, 1978)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

ESSENTIAL TO THE EMPLACEMENT OF THE OREBODY IS THE LARAMIDE END OF THIS PLUTON, WHICH MAKES UP MUCH OF THE SIERRITA MOUNTAINS.

COMMENTS (GEOLOGY AND MINERALOGY):

MINERALIZATION IN THE RUBY STAR QUARTZ MONZONITE PORPHYRY OCCURS PREDOMINANTLY AS CHALCOPYRITE, PYRITE, AND MOLYBDENITE FRACTURE FILLINGS, BUT CHALCOPYRITE AND PYRITE ARE ALSO PRESENT AS DISSEMINATIONS AND BLEBS.

GENERAL COMMENTS

SEE RECORD NUMBER M899997 FOR REFERENCES

RECORD 00256

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M241484
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... ESPERANZA OPEN PIT MINE
SYNONYM NAME..... ESPERANZA, WEST ESPERANZA;

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-52-07N 111-07-29W

UTM NORTHING UTM EASTING UTM ZONE NO
3525975.0 488400.0 +12

TWP..... 18S
RANGE.... 12E
SECTION.. 08 SE 16 NW 17 NE
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4,200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IS PART OF ESPERANZA AND SIERRITA DEPOSIT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU PB AN U

MAIN COMMOD..... CU MO AG AU
MINOR COMMOD.... PB AN U

MAIN ORE MINERALS:

CHALCOCITE, CHALCOPYRITE, PYRITE, MOLYBDENITE, COVELLITE, COPPER AZURITE, MALACHITE, TENORITE METACONITE

MINOR ORE MINERALS:

CUPRITE, CHALCOTRICHITE, MINOR TORBERNITE, FERRIMOLYBDITE, GALENA, SPHALERITE, NATIVE COPPER, TURQUOISE, MARCASITE

ANALYTICAL DATA(GENERAL)

THE ORE GRADE AT ESPERANZA HAS AVERAGED 0.5% CU AND 0.028% MO SINCE THE START OF OPERATIONS.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED (PORPHYRY COPPER)

FORM/SHAPE OF DEPOSIT: OVATE, TABULAR

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

THE ORE OF THE ESPERANZA MINE IS A MIXTURE OF HYPOGENE AND SUPERGENE METALLIZATION OCCURRING IN VEINS AND AS DISSEMINATED GRAINS. THE ESPERANZA ORE BODY, AS OUTLINED BY EXPLORATION AND DEVELOPMENT DRILLING, IS ROUGHLY AN OVATE SHAPE WITH AN APPROXIMATE LENGTH AND WIDTH OF 4,200 BY 2,300 FEET. THE MAXIMUM KNOWN THICKNESS OF ORE-GRADE MINERALIZATION IS 420 FEET, MEASURED AT THE DEEPEST POINT. THE THICKNESS AT THE EXTREMITIES OF THE ORE ZONE NARROWS TO A MINIMABLE 35 FEET.

THE WEST ESPERANZA ORE BODY HAS AN IRREGULAR BOUNDARY (FIG. 2) WITH AVERAGE DIMENSIONS OF ORE-GRADE MINERALIZATION OF ABOUT 2,000 FEET LONG BY 1,800 FEET WIDE (LYNCH, 1966)

PRODUCTION

YES

18 ORE	ACC	80918.57 TONS	1959-1978
19 CU	ACC	749719.0 LBS	1959-1978
20 PB	ACC	42.913 LBS	1959-1978
21 ZN	ACC	329.730 LBS	1959-1978
22 AG	ACC	3228.046 OZS	1959-1978
23 AU	ACC	.835 OZS	1959-1978
		MO	ACC
		2982.180	
		LBS	
		1959-1978	

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRIASSIC TO CRETACEOUS
HOST ROCK TYPES..... VOLCANICS, RHYOLITE WELDED TUFFS AND METAMORPHASED QUARTZITES

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... INTRUSIVE COMPLEX OF QUARTZ LATITE TO ANDESITE; QUARTZ MONZ. PORPHYRY INTRUSIONS

PERTINENT MINERALOGY..... MAGNETITE, LIMONITE, GOETHITE, HEMATITE, JAROSITE

IMPORTANT ORE CONTROL/LOCUS.. FAULTING IN THE MINE AREA ACTED AS THE "PLUMBING SYSTEM" FOR THE UPWARD MOVEMENT OF

HYPOGENE METALLIZATION AND WAS ALSO THE MAIN CHANNELWAY FOR DOWNWARD-PERCOLATING ENRICHED SOLUTIONS. PRIMARY METALLIZATION IS BEST DEVELOPED IN THE QUARTZ MONZONITE PORPHYRY, AND ANDESITE PORPHYRY IS THE PREFERRED HOST ROCK FOR SECONDARY ENRICHMENT. (LYNCH, 1966).

MINERALIZATION AT ESPERANZA, OCCURRING MAINLY IN RUBY STAR QUARTZ MONZONITE PORPHYRY TRENDS N. 40 DEGREES E., APPROXIMATELY PARALLEL TO THE CONTACT BETWEEN THE RUBY STAR QUARTZ MONZONITE PORPHYRY AND TRIASSIC OX FRAME RHYOLITE. ECONOMIC CONCENTRATIONS ALSO OCCUR IN OX FRAME ANDESITE AND BIOTITE QUARTZ DIORITE, WHICH ARE GOOD HOSTS. (AIKEN AND WEST, 1978)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE MOST PROMINENT STRUCTURAL FEATURES OF THE AREA MAPPED ARE FAULTS AND FAULT FISSURES. MAJOR TRENDS ARE NORTHEAST TO EAST-NORTHEAST, DIPPING NORTHWEST AND SOUTHEAST, NORTH-NORTHWEST TO NORTHWEST, DIPPING NORTHEAST AND SOUTHWEST, AND NORTH-SOUTH, DIPPING EAST AND WEST. JOINTING IS WELL DEVELOPED ON THE EAST SIDE OF THE MINE AND PRACTICALLY OBTAINED ON THE WEST BY A BROAD NORTHWEST-TRENDING SHEAR ZONE. LYNCH 1978

SIGNIFICANT ALTERATION:

SILICA, SERICITE, CLAY, BIOTITE, AND POTASH FELDSPAR. ALTERATION DIMINISHES IN INTENSITY AWAY FROM THE ORE ZONES. OVER THE ORE ZONE, THE COMPOSITION OF DIFFERENT ROCK TYPES HAS INFLUENCED THE MINERALOGY AND THE APPARENT INTENSITY OF ALTERATION. THE ADDITION OF POTASH IN THE FORM OF ORTHOCLASE FELDSPAR ALONG WITH SERICITE AND SILICA ARE THE MOST PROMINENT ALTERATION FEATURES. IN THE ORE ZONE, THE ABUNDANCE OF SERICITE ASSOCIATED WITH QUARTZ IN THE FORM OF VEINLETS AND PLUGS SUGGESTS THAT THE INTRODUCTION OF QUARTZ AND THE FORMATION OF SERICITE ARE CLOSELY ASSOCIATED. QUARTZ-SERICITE POTASH FELDSPAR ASSOCIATIONS ARE QUITE OBVIOUS IN QUARTZ MONZONITE PORPHYRY AND DACITE PORPHYRY IN THE ORE ZONE; HOWEVER, SERICITE SHOWS A MARKED DECREASE IN ABUNDANCE AWAY FROM THE ORE ZONE, AND QUARTZ AND K-FELDSPAR ARE STILL FAIRLY ABUNDANT.

QUARTZ MONZONITE PORPHYRY IN THE WEST SIDE OF THE MINE EXHIBITS MODERATE TO STRONG ARGILLIZATION THAT IS BEST DEVELOPED IN AREAS OF INTENSE FAULTING AND BRECCIATION.

SERICITIZATION IS PRACTICALLY LIMITED TO IGNEOUS INTRUSIVE ROCK TYPES IN THE ESPERANZA AREA. QUARTZ LATITE PORPHYRY AND QUARTZ MONZONITE PORPHYRY ARE THE ROCK TYPES THAT EXHIBIT INTENSE SERICITIZATION. WEAK TO MODERATE SERICITIZATION CAN BE FOUND IN RHYOLITIC WELDED TUFF IN THE MINE AREA. IN THE CENTER OF THE MINE ADJACENT TO THE EAST EDGE OF THE ZEBRA QUARTZ DIKE, A SMALL POD OF WELDED TUFF AND ONE OF ANDESITE PORPHYRY HAVE BEEN COMPLETELY REPLACED BY QUARTZ AND SERICITE. THIS AREA OF INTENSE HYDROTHERMAL ALTERATION REPRESENTS THE EASTERN EDGE OF THE ZONE OF STRONGEST HYDROTHERMAL ALTERATION (LYNCH, 1966)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SEQUENCE OF GEOLOGIC EVENTS IS POSTULATED AS FOLLOWS: REMNANT QUARTZITE LENSES OR STREAM CHANNELS ON AN OLD EROSION SURFACE WERE INCORPORATED IN RHYOLITIC ASH-FLOW TUFF AND INTRUDED BY QUARTZ LATITE PORPHYRY. DURING AND AFTER CONSOLIDATION, DEVITRIFICATION, AND WELDING OF THE TUFF, FAULTING TRENDING NORTHEAST TO EAST-NORTHEAST MODIFIED THE AREAL PATTERN OF THESE UNITS. EROSION, FOLLOWED BY THE DEPOSITION OF TUFF OF THE "SILVER BELL" SERIES, IS BELIEVED TO BE THE NEXT STEP. AGAIN, COOLING, COMPACTION, DEVITRIFICATION, AND WELDING OF THE TUFF WERE ACCOMPANIED AND FOLLOWED BY NORTH-SOUTH FAULTING. A BIOTITE GRANODIORITE BATHOLITH ALONG WITH ITS QUARTZ MONZONITE PORPHYRY FACIES INTRUDED THE AREA AND IN TURN WAS INTRUDED BY QUARTZ DIORITE AND ANDESITE PORPHYRY, WHICH USED PRE-EXISTING FAULT PATTERNS AS A MAJOR MEANS OF INGRESS. THE EXACT REACTION OF DACITE PORPHYRY TO ANDESITE PORPHYRY IS NOT KNOWN AT THIS TIME, BUT A STRONG POSSIBILITY EXISTS THAT TWO UNITS ARE CONTEMPORANEOUS, AS IS QUARTZ DIORITE AND ANDESITE PORPHYRY. QUARTZ LATITE OF TERTIARY (?) AGE INTRUDED ALONG FAULTS IN BIOTITE GRANODIORITE AND THE "SILVER BELL" WELDED TUFF. AFTER EMPLACEMENT, THE QUARTZ LATITE WAS IN TURN SUBJECTED TO STRESSES THAT PRODUCED FAULTING. (LYNCH, 1966)

COMMENTS (GEOLOGY AND MINERALOGY):

ROUGHLY SURROUNDING THE COPPER-MOLYBDENUM ORE ZONE IS AN AUREOLE OF VEIN-TYPE DEPOSITS THAT WAS WORKED FOR LEAD, ZINC, AND SILVER ABOUT THE TURN OF THE CENTURY. METALLIZATION WAS ASSOCIATED WITH MORE THAN ONE INTRUSIVE PULSE AND WAS FOLLOWED BY A POST-INTRUSIVE METALLIZATION PERIOD ASSOCIATED WITH HYDROTHERMAL ALTERATION AND POTASH METASOMATISM.

MOLYBDENITE (MoS_2) IS WIDESPREAD IN THE MINE AND OCCURS AS A COATING ON JOINT AND FRACTURE SURFACES AND AS A SIGNIFICANT CONSTITUENT OF QUARTZ VEINLETS. DISSEMINATION OF THIS SULFIDE IS RARE. THE HIGHEST CONCENTRATIONS OF MOLYBDENITE ARE FOUND IN SECONDARILY SILICIFIED QUARTZ MONZONITE PORPHYRY ON THE WEST SIDE OF THE PIT AND ON THE

LOWER BENCHES. IMPORTANT CONCENTRATIONS ALSO OCCUR IN A FEW SMALL AND SCATTERED BRECCIATED QUARTZ PIPES IN THE SOUTH-CENTER OF THE PIT IN ASSOCIATION WITH CHALCOPYRITE, PYRITE, SPHALERITE, AND GALENA. (LYNCH, 1966)

GENERAL REFERENCES

- 1) LYNCH, D.W. (1966) THE ECONOMIC GEOLOGY OF THE ESPERANZA MINE AND VICINITY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 267-279.
- 2) Aiken, D.M., AND WEST, R.J., 1978, SOME GEOLOGIC ASPECTS OF THE SIERRITA-ESPERANZA COPPER-MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 117-124.
- 3) SCHMIDT, H.A., D.M. CLIPPINGER, W.J. ROPER, AND H. THOMBS (1959) DISSEMINATED DEPOSITS AT THE ESPERANZA COPPER MINE, IN SOUTHERN ARIZONA GUIDEBOOK II, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 205.
- 4) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 135.
- 5) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, MOUNTAIN VIEW OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 6) ANDERSON, C.A., AND KUPFER, D.H., 1944, REPORT OF THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INVENTORY.
- 7) ANDERSON, C.A. AND KUPFER, D.H., 1943, REPORT ON THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP.
- 8) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURV., V. 2, NO. 2, P. 195-211.
- 9) COOPER, J.R., 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D.
- 10) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 11) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 135, 138.
- 12) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 13) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 171, 156, 205.
- 14) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 86.
- 15) CURTIS, C.H., 1961, THE ESPERANZA CONCENTRATOR: MINING ENG., V. 13, P. 1234.
- 16) DAMON, P.E., AND ASSOCIATES, 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-50: TUCSON, UNIVERSITY OF ARIZONA.
- 17) 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. CDD-689-60: TUCSON, UNIVERSITY OF ARIZONA.
- 18) D'ANDREA, D.V., LARSON, W.C., CHAMBERLAIN, P.C., AND OLSON, J.J., 1976, SOME CONSIDERATIONS IN THE DESIGN OF BLASTS FOR IN SITU COPPER LEACHING: SYMP. ROCK MECH., PROC., NO. 17, P. 5F1.1-5F1.4.
- 19) DENIS, M., 1977, THE SIERRITA (ARIZONA) PORPHYRY COPPER: HYDROTHERMAL ALTERATION AND FLUID INCLUSION STUDIES (ABST.): GEOL. SOC. LONDON, JOUR., V. 134, P. 390.
- 20) DREWES, H., 1976, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 699.
- 21) HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI.
- 22) HILLMAN, B.A., KILIND, I.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER DEPOSIT (ABST.): EOS, V. 53, NO. 4, P. 531.
- 23) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1975, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): MIN. ENG., V. 27, NO. 12, P. 70-71.
- 24) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1976, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): ECON. GEOL., V. 71, NO. 3, P. 700-701.
- 25) ILES, C.D., 1973, MINERALIZATION CONTROL AT THE DUVAL-SIERRITA PROPERTY, PIMA COUNTY, ARIZONA: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 26) JANCIC, T., 1971, DEVELOPMENT OF DUVAL CORPORATION'S SIERRITA MINE, PIMA COUNTY, ARIZONA (ABST.): AIME

PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14 15.

27) LYNCH, D.W. (1967) THE GEOLOGY OF THE ESPERANZA MINE AND VICINITY, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 70 P.

28) OAKLEY, C.A., 1973, A SYNOPSIS OF ALTERATION AND MINERALIZATION AT THE SIERRITA AND ESPERANZA MINES: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.

29) REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.

30) SAEVLY, J.P., 1972, ORIENTATION AND ENGINEERING PROPERTIES OF JOINTING IN THE SIERRITA PIT, ARIZONA: M.S. THESIS, UNIV. ARIZ.,

31) SMITH, V.L., 1975, HYPOGENE ALTERATION AT THE ESPERANZA MINE, PIMA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.

32) STECKLEY, R.C., LARSON, W.C., AND D'ANDREA, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUR. MINES REP. INVEST., RI 8070, 47 P.

33) TAINTER, S.L., 1947, REPORT OF INVESTIGATIONS, AMARGOSA (ESPERANZA) MOLYBDENUM-COPPER PROPERTY: U.S. BUR. MINES REPT. INV. 4016.

34) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

35) WORLD MINING, JUNE 1972, SIERRITA

RECORD 00257

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 0000802
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... GIANT MINE
SYNONYM NAME..... GRAND MOUNTAIN CLAIM

MINING DISTRICT/AREA/SUBDIST. BABOQUIVARI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 PRESUMIDO PEAK, ARIZ.

LATITUDE LONGITUDE
31-40- N 111-35- W

TWP..... 20S
RANGE.... 07E
SECTION.. 30 NC PROTRACTED
MERIDIAN. G & SR

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU AG MO

MAIN COMMOD..... W
MINOR COMMOD.... CU AG MO

MAIN ORE MINERALS:
SPOTTY SCHEELITE, POWELLITE

MINOR ORE MINERALS:
MINOR COPPER OXIDES (CHRYSCOLLA AND MALACHITE)

ANALYTICAL DATA(GENERAL)

ZG15ITE BEARING QUARTZITE BID ASSAYED 030% WOZ AND 0.056 MO OZ; GRAND MOUNTAIN CLAIM AVERAGED 0.192 WOZ AND 0.04% MO OZ

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: LENSES

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

OPEN CUTS AND PITS (KEITH, 1974, P. 108)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 108

PRODUCTION COMMENTS.... SOME 20 TONS OF LOW GRADE COPPER-SILVER ORE AND ABOUT 50 TONS OF TUNGSTEN ORE PRODUCED IN 1957.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR.

HOST ROCK TYPES..... QUARTZITE BEDS (METAMORPHIC ROCKS OF CHUTUM VAYA

AGE OF ASSOC. IGNEOUS ROCKS.. JUR.

IGNEOUS ROCK TYPES..... NARROW APLITE DIKES

PERTINENT MINERALOGY..... LOCAL EPIDOTE, ZOISITE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR, DISCONNECTED QUARTZ LENSES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BADLY FAULTED LARAMIDE QUARTZITIC BEDS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 109, 156P. P. 108
- 2) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650, P.78-81.
- 3) HAXEL, G. WRIGHT, J.E., MAY, D.J. AND TOSDAL, R.M., 1980 RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 6) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 7) CARRIGAN F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 8) CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
- 9) DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS

- 10) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
- 11) FAIR, CHARLES L. 3. PROBABLY CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
- 12) HAXEL, GORDON, IN PROGRESS, GEOLOGIC MAP OF PRESUMIDG PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
- 13) HEINDL, L.A. AND FAIR, C.L., 1965, MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-I
- 14) WILSON, E.O., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
- 15) JOSEPH, P. E. 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5
- 16) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 396: ARIZ. BUR. MINES BULL. 183, 80 P.
- 17) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORQUE BUTTE 15' QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 18) KING, W.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 19) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 19-12-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 20) KUCK, P.H., 1976, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 21) KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 22) MIN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1965)
- 23) MINES HANDBOOK, 1922
- 24) WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
- 25) WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)
- 26) WILSON, E.O. CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOBE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.

RECORD 00258

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030523
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... GUNSIGHT DISTRICT
MINING DISTRICT/AREA/SUBDIST. GUNSIGHT (MEYER) / GUNSIGHT HILLS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. AJO, ARIZ.

LATITUDE LONGITUDE
32-12- N 112-42- W

UTM NORTHING UTM EASTING UTM12ONE NO

TWP..... 14S 15S
RANGE.... 04W 04W
SECTION.. 16 21 25 02 03
MERIDIAN. GILA AND SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG AU BP ZN CU W MO BA

MAIN ORE MINERALS:
BASE METAL

MINOR ORE MINERALS:
SPOTTY TUNGSTEN, SILVER AND GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
NUMEROUS, GENERALLY SMALL AND SHALLOW, TUNNELS, SHAFTS AND PITS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 122

PRODUCTION COMMENTS.... PROSPECTED AND WORKED SPORADICALLY SINCE EARLY 1870'S. ESTIMATED AND REPORTED PRODUCTION WOULD BE OVER 15,000 TONS OF ORE CONTAINING ABOUT 776 TONS Pb, 100,600 OZ AG, 400 OZ AU AND MINOR COPPER. ONLY A FEW TONS OF SCHEELITE ORE PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. TERT.
HOST ROCK TYPES..... GRANITIC INTRUSIVE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. TERT.
IGNEOUS ROCK TYPES..... GRANITIC INTRUSIVES

PERTINENT MINERALOGY..... QUARTZ, CALCITE AND BARITE VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT AND FISSURE ZONES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 122.
- 2) MINES HANDBOOK 1920
- 3) ABM FILE DATA
- 4) GEOLOGY OF CENTRAL PAPAGO RESERVATION:
ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) BRAMWELL, A.W., 1919, NEWS OF AGO AND GUNSIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
- 7) BRISKEY, J.A., JR., & HAXEL, G.B., 1978, JURASSIC PLUTONISM AND VOLCANISM IN SOUTH-CENTRAL ARIZONA (ABSTR.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 73-74.
- 8) BRYAN, KIRK 4. EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA; WITH A SKETCH OF THE GEOLOGY: USGS BULL. 730, P. 19-90, MAP (1922)
- 9) EROSION AND SEDIMENTATION IN THE PAPAGO COUNTRY, ARIZONA, WITH A SKETCH OF THE GEOLOGY WITH COMMENTS. BRYAN, KIRK, IN SLOPE MORPHOLOGY, P. 146-160, ILLUS. (INCL. SKETCH MAP), DOWDEN, HUTCHINSON & ROSS, STROUDSBURG,

PENNSYLVANIA, 1973, (BENCHMARK PAPERS IN GEOLOGY) REPRINT OF 1922 PAPER

- 10) BRYAN, KIRK (SEE ALSO LONGWELL, C.R., 2) 1. GEOLOGY AND PHYSIOGRAPHY OF THE PAPAGO COUNTRY, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 52-53 (1920)
- 11) BRYAN, KIRK 10. THE PAPAGO COUNTRY, ARIZONA; A GEOGRAPHIC, GEOLOGIC AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 499, 436 P., MAPS (1925)
- 12) BRYNEK, L. 1. GEOLOGY OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P. (1959)
- 13) BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1710-1711 (1959)
- 14) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
- 15) DEHLINGER, H.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 132-138
- 16) L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA BULLETIN, V. 89, P. 921-140.
- 17) GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTOA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.
- 18) HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA: A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST, V. 12
- 19) HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACET, P.M., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE COMOBABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.
- 20) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 21) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE COMOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.
- 22) HEINDL, L.A. 19. CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA MARICOPA, AND PINAL COUNTIES, ARIZONA (A PRELIMINARY SUMMARY): ARIZ. GEOL. SOC. DIG., V. 3, P. 31-34 (1960)
- 23) JONES, W.C., 1974, GENERAL GEOLOGY OF THE NORTHERN PORTION OF THE AJO RANGE, PIMA COUNTY, ARIZONA: TUCSON, ARIZONA UNIVERSITY, M.S. THESIS, 77 P.
- 24) KAHLE, K., CONWAY, D., AND HAXEL, G., 1978, PRELIMINARY GEOLOGIC MAP OF THE AJO 1 DEGREES BY 2 DEGREES QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT NO. 78-1096.
- 25) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 396: ARIZ. BUR. MINES BULL. 183, 80 P.
- 26) MINES HANDBOOK, 1920
- 27) MINES HANDBOOK, 1922, V. XVI
- 28) MCDOWELL, R.W., 1971, K-AR AGES OF IGNEOUS ROCKS FROM THE WESTERN UNITED STATES: ISOCHRON/WEST, NO. 2, P. 1-17.
- 29) MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)
- 30) RIMSLO, T.M. AND ROBINSON, C.S., 1952, COPPER GIANT DEPOSITS, PIMA COUNTY, ARIZONA: U.S. BUR. MINES RI-4850
- 31) RYTUBA, J.J., TILL, A.B., BLAIR, W., AND HAXEL, G., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE QUIJOTOA MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUD. MAP, MF-937.
- 32) STEPHENS, B.A., 1884, QUIJOTOA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY
- 33) TOSDAL, R.M., 1979, PRELIMINARY COMPILATION OF ISOTOPIC AGES WITHIN THE AJO 1 BY 2 QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 79-399.
- 34) WARGO, J.G., 1954, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 67 P.
- 35) WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P.
- 36) WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE ORES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA: ECON. GEOL. V. 58, P. 1119-1125

RECORD 00259

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030528
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... HELVETIA - ROSEMONT DISTRICT

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST/SANTA RITA MTS. NORTHERN AND CENTRAL SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
 35-51-27N 110-47-17W

UTM NORTHING UTM EASTING UTM ZONE NO
 3524450.0 520050.0 +12

TWP..... 17S 18S
 RANGE..... 15E 16E
 MERIDIAN. GILA AND SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR GHOST TOWN OF HELVETIA

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO W F U, SB

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
 MINOR PRODUCTS.. AG MO PB ZN AU

MAIN COMMOD..... CU
 MINOR COMMOD..... PB AG ZN AU MO W

MAIN ORE MINERALS:

CHALCOPYRITE, CUPREFEROUS PYRITE

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOCITE, SPHALERITE, AZURITE, MALACHITE, CHRYSOCOLLA, POWELLITE, SCHEELITE, GALENA, FLUORITE,
URANINITE GOLD AND SILVER TRACES, NATIVE COPPER, BORNITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC REPLACEMENT

FORM/SHAPE OF DEPOSIT: IRREGULAR LENSING AND TABULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

COMMENTS(DESCRIPTION OF DEPOSIT):

2 LARGE SKARN COPPER PORPHYRIES BEING DEVELOPED BY ANAMAX MINING CO.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

FIFTY OR MORE SMALL TO MEDIUM SIZE MINES AND PROSPECTS HAVE BEEN OPENED OR WORKED SINCE THE EARLY 1830'S. (KEITH,
1974, P. 123)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST			TONS	1880-1972	
16 CU EST	1.75		TONS	1880-1972	
17 ZN EST	0.68		TONS	1880-1972	
18 AG EST	350		OZ	1880-1972	
19 PB EST	0.26		TONS	1880-1972	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 123.

PRODUCTION COMMENTS.... A MINOR AMOUNT OF GOLD, MOLYBDENUM AND TUNGSTEN HAVE ALSO BEEN PRODUCED. AN INDEFINITE
AMOUNT OF LIMESTONE AND MARBLE HAVE BEEN PRODUCED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. AND PALED

HOST ROCK TYPES..... LIMESTONE AND QUARTZITE; CONTINEYTAL GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT

IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY STOCKS AND DIKES

PERTINENT MINERALOGY..... GARNET DIOPSIDE, PYROXENES, EPIDOTE; IRON OXIDES; QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. LARAMIDE THRUST FAULTS LOCALIZED ORE WHERE THE FAULT IS GENTLY DIPPING AND NEAR TERT. QUARTZ LATITE PORPHYRY DIKES (56 M.Y.) ESPECIALLY CONCENTRATING SULFIDE ORE IN METAMORPHOSED (GARNETIZED OR SHEARED). PALEOZOIC LIMESTONE (AND SOME CRETACEOUS LIMESTONES FURTHER EAST).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

WNW AND NW TRENDING THRUST FAULTS.

GENERAL REFERENCES

- 1) KEITH. STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 4) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) BROWNE, J.F. (1958) THE GEOLOGY OF THE CUPRITE MINE AREA, PIMA COUNTY. UNIV. ARIZONA M.S. THESIS, 39 P.
- 7) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 8) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
- 9) DAMON, PAUL E. II. (AND MILLER, H.W., JR.) A LAVA COVERED TERTIARY FOREST IN SOUTHERN ARIZONA: ARIZ. ACAD. SCI. JOUR., V. 2, NO. 3, P. 117-119 (1963)
- 10) DUNHAM, M.S., 1937, THE GEOLOGY OF THE BLUE JAY MINE AREA, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS
- 11) DREWES, H., 1967, A GEOCHEMICAL ANALYSIS OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
- 12) DREWES, H., 1968 NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULLETIN 1274-C, P. 1-15.
- 13) DREWES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:46,000 (1970)
- 14) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
- 15) DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 659-C, 81 P.
- 16) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP, I-614
- 17) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
- 18) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
- 19) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
- 20) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
- 21) DREWES, H., 1976B, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROFESSIONAL PAPER 915, 76 P.
- 22) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERA SEC., 64TH ANN. MEET., TUCSON, P. 315-324
- 23) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

- 24) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 25) FROMDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 26) GROSS, M.P. (1969) MINERALIZATION AND ALTERATION IN THE GREATERVILLE DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 82 P.
- 27) GUILD, F.N. (1907) THE COMPOSITION OF MOLYBDITE FROM ARIZONA. AMER. JOUR. SCI. 23: 455-456.
- 28) KEYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 29) HEATWOLF, D.A., 1966, GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 30) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS
- 31) HILL, J.M., 1910, NOTES ON THE PLACER DEPOSITS OF GREATERVILLE, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 11-22
- 32) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 33) JOHNSON, V.H., 1949, GEOLOGY OF THE HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA (ABS.): ECON. GEOL., V. 44, P. 639-640; G.S. BULL., V. 60, NO. 12, PT. 2, P. 1900-1901
- 34) JONES, W.R., 1941, THE GEOLOGY OF THE SYCAMORE RIDGE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 35) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 36) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 37) LEE, C.A. AND BORLAND, G.C., 1935, THE GEOLOGY AND ORE DEPOSITS OF THE CUPRITE MINING DISTRICT: UNIV. ARIZ., MS THESIS
- 38) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. 411-1-8.
- 39) MICHEL, F.A., JR., 1959, GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P.
- 40) MILLER, R.A., 1955, CHRISTENSON-LANE MINE, HELVETIA DISTRICT, ARIZONA: U.S. ATOMIC ENERGY COMM. PRELIM. RECONNAISSANCE REPORT A-20
- 41) MILLER, R.A., 1955, KING MINE, HELVETIA DISTRICT, ARIZONA: U.S. ATOMIC ENERGY COMM. PRELIM. RECONNAISSANCE REPORT A-37
- 42) LOVSTROM, K.A., 1978, ROSEMONT DEPOSIT, PIMA COUNTY, ARIZONA, IN CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO, ED. BY LOVERING, T.G., AND MCCARTHY, J.H., JR.: J. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 232-235.
- 43) PARKER, R. (IN PRESS) (GEOPHYSICS IN THE UPPER SANTA CRUZ BASIN SOUTH OF TUCSON, ARIZONA); UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS.
- 44) POPOFF, C. (1940) THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 100 P.
- 45) SCHAFROTH, D.W., 1965, STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS
- 46) SCHAFROTH, DON W. 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS, 135 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 8, P. 4578-4579 (1966)
- 47) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 48) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 49) SCHRADER, F.C. AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163
- 50) SCHRADER, F.C. 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 (1910); (ABST.): MIN. WORLD, V. 33, P. 185-187 (1910)

- 51)SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 52)SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 53)STEWART, J.C., 1971, GEOLOGY OF THE MORNINGSTAR MINE AREA, GREATERVILLE MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 54)THOMAS, W.L., (1931) GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 54 P.
- 55)USGS MINERAL RESOURCES, 1906 P. 168
- 56)WARNER, L.A., HOLSER, W.T., WILMARTH, V.R., AND CAMERON, E.N., 1959, OCCURRENCES OF NON-PEGMATITIC BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROF. PAPER 318
- 57)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168

RECORD 00260

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030517
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... HIGH CARD MINE
SYNONYM NAME..... FARD BANK GROUP

MINING DISTRICT/AREA/SUBDIST. CABABI DIST./SOUTH COMOBABI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SELLS, ARIZONA

LATITUDE LONGITUDE
31-58-40N 111-50-30W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 17S
RANGE..... 05E
SECTION.. 04
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 3300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 6 MI. NE OF SELLS

LOCATION COMMENTS: SW 1/4 OF SEC 4 PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB ZN MO

MAIN COMMOD..... AU AG
MINOR COMMOD..... CU ZN PB MO

MAIN ORE MINERALS:

BASE METAL SULFIDES

MINOR ORE MINERALS:
SOME MOLY IN ASSAY

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW SHAFTS AND TUNNELS (KEITH 1974)

PRODUCTION

YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 111 AND FILE CARDS

PRODUCTION COMMENTS.... WORKED INTERMITTENTLY FROM 1931 TO 1940, PRODUCING A FEW TONS OF ORE AVERAGING ABOUT 0.9 OZ AU/T, 1.5 OZ AG/T, AND MINOR CU, PB, ZN.

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. DEPT MIN. RES, 1962, NO PROSPECTS-AZ

COMMENTS (RESERVES/POT RESOURCES).. MR. HOLMES IN 1942 CLAIMED "ABOUT 6 FT OF ORE RUNNING ABOUT 1% OR BETTER OF MO OZ WITH GOLD IN THE HANGING WALL. A LATER INDEPENDENT REPORT SAYS GOLD IS THE PRINCIPAL MINERAL AND MENTIONS NO OTHERS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... LARAMIDE
HOST ROCK TYPES..... GRANITIC ROCKS

IMPORTANT ORE CONTROL/LOCUS.. OXIDIZED AND WEATHERED QUARTZ VEINS ALONG A FISSURE ZONE CUTTING LARAMIDE, GRANITIC ROCKS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
GOLD ENRICHED IN SURFACE ZONE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 199, 156 P., P. 111
- 2) BRYNER, L., 1959, GEOLOGY OF THE SOUTH COMOBABI MOUNTAINS AND KO YAYA HILLS, PIMA COUNTY ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P.
- 3) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 4)ADM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 5)HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACET, P.M., AND MILLER, S.T., 1979, RECONNAISSANCE GEOLOGIC MAP OF THE COMOBABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF-964.
 - 6)HAXEL, G., WRIGHT, J.E., MAY, D.J., AND TOSDAL, R.M., 1980, RECONNAISSANCE GEOLOGY OF THE MESOZOIC AND LOWER

CENOZOIC ROCKS OF THE SOUTHERN PAPAGO INDIAN RESERVATION, ARIZONA; A PRELIMINARY REPORT: ARIZ. GEOL. SOC. DIGEST. V. 12

7)BRYNER, L. 2. FRAGMENTAL ACID INTRUSIVE IGNEOUS ROCKS OF THE SOUTH COMOBABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1710-1711 (1959)

8)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE COMOBABI AND ROSKRUGE MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-H, 15 P.

PRODUCTION COMMENTS.... FOUND IN LATE 1800'S BUT ONLY WORKED SPORADICALLY FROM 1907 TO 1969, PRODUCING SOME 9,000 TONS OF ORE AVERAGING ABOUT 7% EACH OF PB AND ZN, 2% CU, 8 OZ AG/T AND MINOR AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... ? , CAMB. DEV.
HOST ROCK TYPES..... WATERMAN ALASKITE, BOLSA QUARTZITE, ABRIGO FM, MARTIN FM, ESCABROSA LIMESTONE, AND NACO FM.

AGE OF ASSOC. IGNEOUS ROCKS.. ?
IGNEOUS ROCK TYPES..... WATERMAN ALASKITE

PERTINENT MINERALOGY..... QUARTZ, CALCITE, FLUORITE, BARITE, LIMONITE, HEMATITE GANGUE

IMPORTANT ORE CONTROL/LOCUS.. SILICEOUS LIMONITIC AND MANGANIFEROUS BRECCIA ZONES ALONG STRONG FAULTS AND FISSURES OR AT FISSURE INTERSECTIONS IN FOLDED PALEOZOIC QUARTZITES AND LIMESTONES, WITH LIMESTONES LESS FAVORABLE AND CAMBRIAN QUARTZITES AND SILLSTONES MORE FAVORABLE (RUFF, 1951)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIA ZONES AND STRONG FUALTS TREND NW AND E TO NE

SIGNIFICANT ALTERATION:
SILICIFIED AND IMPREGNATED WITH IRON OXIDE

COMMENTS (GEOLOGY AND MINERALOGY):
WULFENITE AND MINETITE ON QUARTZ POSTDATE GALENA THAT IS ALTERED TO ANGLESITE (STANLEY B KEITH) WULFENITE IS NOT AT MAIN MINE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P. 144.
- 2) RUFF, A.W., 1952 THE GEOLOGY AND ORE DEPOSITS OF THE INDIANA MINE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 64 P., MAPS
- 3) MCCLYMONDS, NEAL E., 1957, STRATIGRAPHY AND STRUCTURE OF THE SOUTHERN PORTION OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 157 P.
- 4) MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 67-76.
- 5) MCCLYMONDS, NEAL E., 1958, THE STRATIGRAPHY AND STRUCTURE OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 43-44
- 6) MCCLYMONDS, NEAL E., 1959 5. STRATIGRAPHY AND STRUCTURE OF THE CENTRAL WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1735-1736
- 7) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 8) KEITH, STANLEY B., 1977, PERSONAL COMMEN.
- 9) MINES HANDBOOK, 1926

RECORD 00263

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030533
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... ISLE ROYALE MINE
MINING DISTRICT/AREA/SUBDIST. HELVETIA - ROSEMONT DIST./SANTA RITA MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZ.

LATITUDE LONGITUDE
31-51-28N 110-46-02W

UTM NORTHING UTM EASTING UTM ZONE NO
3524550. 522050. +12

TWP..... 18S
RANGE.... 15E
SECTION.. 24
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 1000 FT SOUTH OF COPPER WORLD MINE 1 1/4 MILES E OF HELVETIA

LOCATION COMMENTS: SE 1/4 OF NW 1/4 SEC 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO W

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG

MAIN COMMOD..... CU AG
MINOR COMMOD.... AU MO W

MAIN ORE MINERALS:
CUPRIFEROUS PYRITE, COPPER CARBONATE, CHALCOITE

MINOR ORE MINERALS:
POWELLITE IN WINZE E OF SHAFT; MALACHITE, AZURITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... LOCATED IN EARLY 1880'S
BY WHOM..... LOCATED BY C E HUGHES

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT
FORM/SHAPE OF DEPOSIT: IRREGULAR, PIPELIKE

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 800 FT
LENGTH OF WORKINGS..... 4000 FT

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT AND 4000 FT WORKINGS ON 7 LEVELS (CREASEY AND QUICK)

PRODUCTION

YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	30	TONS		1880-1912	3% CU, 1 OZ AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 126

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN
HOST ROCK TYPES..... HORQUILLA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC; TERT.
IGNEOUS ROCK TYPES..... CONTINENTAL GRANODIORITE; ALASKITE APLITE DIKE IS NEARBY

AGE OF MINERALIZATION..... TERT. (56 M.Y. DREWES)

IMPORTANT ORE CONTROL/LOCUS.. ALTERED PALEOZOIC LIMESTONES ALONG A THRUST FAULT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NW STRIKING THRUST FAULT WITH LIMESTONE IN FOOTWALL AND GRANITE IN HANGING WALL

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDE ZONE (COPPER CARBONATES) DOWN TO 330 FT LEVEL; SULFIDES 300-600 FT.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 126.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 108-110
- 3) DREWES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613-, SCALE 1:48,000 (1970)
- 4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P., P. 97, 79-80.
- 5) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F, P. 312, 320

RECORD 00264

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030553
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... JACKSON MINE

MINING DISTRICT/AREA/SUBDIST. OLD BALDY DISTRICT/SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
31-45-37N 110-51-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3513650.0 5134000 +12

TWP..... 19S
RANGE.... 14E
SECTION.. 24
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4570 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.4 KM SW BM 3982; 1 MI S OF MCCLEARY CAMP ON JACKSON CANYON

LOCATION COMMENTS: SE 1/4 OF SEC 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO?

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG

MAIN COMMOD..... CU
 MINOR COMMOD.... AG AU MD?

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... MD?

MAIN ORE MINERALS:
 CHALCOPYRITE, PYRITE CHALCOCITE

MINOR ORE MINERALS:
 MOLYBDENITE, SMALL QUANTITIES OF GOLD AND SILVER, COPPER CARBONATES

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FISSURE VEIN OR STOCKWORK
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 MAX LENGTH..... 1 MILE
 MAX WIDTH..... 25 FT
 DIP OF OREBODY..... 72 NNW

DESCRIPTION OF WORKINGS
 SURFACE AND UNDERGROUND
 DEPTH OF WORKINGS BELOW SURFACE. 100 FT

PRODUCTION
 YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 HAND PICKED ORO. PST	TONS		1915-1919	9% CU AND 3 OZ AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH 1974 P. 129

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET (66 M.Y.)
 HOST ROCK TYPES..... MADERA CANYON GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y.)

PERTINENT MINERALOGY..... GANGUE IS MAGNETITE AND QUARTZ; LIMONITE STAIN AND MAGNETITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
IRON CAP

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 129
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P, P. 171-172.
- 3) DREWES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
- 4) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 5) MINES HANDBOOK, 1920.

RECORD 00265

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 0000808
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... KING - EXILE MINE GROUP
SYNONYM NAME..... IS PART OF ROSEMONT LEASE KING, EXILE, BONNIE BLUE, AMOLE, MALACHITE, CUPRITE

MINING DISTRICT/AREA/SUBDIST. HELVETIA - ROSEMONT DIST., SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
31-51-20N 110-45-29W

UTM NORTHING UTM EASTING UTM ZONE NO
3524300.0 522950.0 412

TWP..... 18S
RANGE.... 15E
SECTION.. 24
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 5,600 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 3.7 KM SE BM 4186; 2 MILES E OF HELVETIA

LOCATION COMMENTS: EAST CENTER OF SEC 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG ZN PB AU MO W U RE

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG PB ZN

MAIN COMMOD..... CU AG AU
MINOR COMMOD.... ZN MB PB W U BE

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
BORNITE, MALACHITE, AZURITE, CUPRITE, LEAD MINERALS, SCHEELITE, MOLYBDENITE, PITCHBLEND, SPHALERITE URANINITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC, FRACTURE FILLINGS
FORM/SHAPE OF DEPOSIT: STRINGERS AND POCKETS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
LENGTH OF WORKINGS..... 340 FT

COMMENTS(DESCRIP. OF WORKINGS):
ADIT AND OPEN CUT WORKINGS (KEITH, 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 126

PRODUCTION COMMENTS.... OVER 55,000 TONS OF ORE AVERAGING ABOUT 6% CU, 1 OZ AG/T, AND MINOR ZN AND PB PRODUCED
BETWEEN EARLY 1900'S AND 1959

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
HOST ROCK TYPES..... SILICATED LIMESTONE (SCHERRER FM AND CONCHA LS.)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (56 M.Y. DREWES 1971)
IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY STOCK

AGE OF MINERALIZATION..... TERT. (56 M.Y., DREWES, 1971)

PERTINENT MINERALOGY..... QUARTZ STRINGERS; GARNET BEARING LIME SILICATES; DROPSIDE

IMPORTANT ORE CONTROL/LOCUS.. ORE IS LOCALIZED IN NE STRIKING FRACTURES IN THE CONTACT METAMORPHASED LIMESTONE
ALONG THE MORE GENTLY DIPPING CONTACTS WHERE LARAMIDE QUARTZ LATITE (QUARTZ MONZONITE) PORPHYRY INTRUDED A THRUST
FAULT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
INTRUSIVE ALONG THRUST FAULT

SIGNIFICANT ALTERATION:

ZONE OF CONTACT METAMORPHISM, WHICH CONSISTS OF GARNETIZED ROCK ADJACENT TO THE PORPHYRY, DROPSIDE, MARBLE AND UNALTERED LIMESTONE, IS THICKEST (15 TO 50 FT) WHERE INTRUSIVE CONTACT IS MORE GENTLY DIPPING AND EXTENDS FARTHER WHERE FRACTURING IS MORE PERVASIVE.

SECONDARY ALTERATION WAS CONTROLLED BY A FRACTURE SYSTEM FORMED AFTER CONTACT METAMORPHISM. PRESENT ARE CHLORITIZATION, ESPECIALLY WHERE THE SILICATE ZONE IS SHEARED; ARGILLIZATION, WHICH IS COMMON IN THE SILICATE ZONE AND ACCOMPANIES SERICITIZATION OF FELDSPARS IN THE QUARTZ MONZONITE BORDERING QUARTZ - MOLYBDENITE VEINS; AND TREMOLITIZATION OF DROPSIDE. (MICHEL, 1958)

COMMENTS (GEOLOGY AND MINERALOGY):

PODS OF MOLYBDENITE OCCUR IN LATE QUARTZ STRINGERS IN QUARTZ MONZONITE NEAR CONTACT, AS DISSEMINATIONS IN VEINS, AND AS SMALL BUNCHES AND DISSEMINATIONS IN GARNET SKARN.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 126.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 119.
- 3) DREWES, HAROLD, 1970, GEOLOGIC MAP OF THE SAHUARITE QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 4) MICHEL, F.A., JR., 1959, GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P.
- 5) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F, P. 312
- 6) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS
- 7) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 8) MILLER, R.A., 1955, KING MINE, HELVETIA DISTRICT, ARIZONA: U.S. ATOMIC ENERGY COMM. PRELIM. RECONNAISSANCE REPORT A-37
- 9) WARNER, L.A., HOLSER, W.T., WILMARTH, V.R., AND CAMERON, E.N., 1959, OCCURRENCES OF NON-PEGMATITIC BERYLLIUM IN THE UNITED STATES: U.S. GEOL. SURVEY PROF. PAPER 318, P. 103.

RECORD 00266

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030543
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... KORN KOB MINE

MINING DISTRICT/AREA/SUBDIST. REDINGTON DIST./E SIDE CATALINA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 BELLOTA RANCH, ARIZ.

LATITUDE LONGITUDE
32-23-12N 110-34-38W

TWP..... 12S
RANGE.... 17E
SECTION.. 14 23
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3460 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 18 MILES ENE OF TUCSON IN BUCHMAN CANYON, 5 MILES N OF REDINGTON PASS ROAD

LOCATION COMMENTS: S CENTRAL SEC 14 NORTH CENTRAL SEC 25

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU FE ZN MO AG AU W

MAIN ORE MINERALS:
MALACHITE, TENORITE, AND CHRYSOCOLLA

MINOR ORE MINERALS:
AZURITE, MOLYBDENITE, AND POWELLITE, SCHEELITE; RARE CHALCOPYRITE

ANALYTICAL DATA(GENERAL)

0.1-2.0% CU IN SKARN; 50 PPM MO; 100-1700 PPM ZN, 1-12 PPM AG, TRACE AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINLETS, SKARN, PEGMATITE DIKES, QUARTZ VEINS

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 130 FT

LENGTH OF WORKINGS..... 3900 FT

COMMENTS(DESCRIP. OF WORKINGS):

130 FT DEEP SHAFT AND TUNNELS WITH 3900 FT OF WORKINGS ON 2 LEVELS; DEVELOPED AROUND 1910

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV CAMB, TERT.

HOST ROCK TYPES..... MARTIN FM, GARNET SKARN ABRIGO FM

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. TERT (70-65 M.Y.)

IGNEOUS ROCK TYPES..... CATALINA GRANITE (?) PEGMATITE DIKES (50-45 M.Y. ARE MINOR)

IMPORTANT ORE CONTROL/LOCUS.. THE MOST ECONOMICALLY SIGNIFICANT MINERALIZATION IS ASSOCIATED WITH SKARN SILICATE MINERALS AND WAS CONTROLLED BY PRIMARY SKARN PERMEABILITY. POST-MINERALIZATION FRACTURING WAS IMPORTANT IN LOCALIZING SECONDARY COPPER MINERALS. PEGMATITE DIKES & "BULL" QUARTZ VEINS CONTAIN COPPER OF VERY LITTLE ECONOMIC SIGNIFICANCE.

LOCAL GEOLOGY

NAMES/AGE OF IGNEOUS UNITS OR IGNEOUS ROCK TYPES

1) NAME: LEATHERWOOD QUARTZ DIORITE IS MAJOR MINERALIZER OF SKARNS
AGE: CRET. TERT. (70-60 M.Y.)

SIGNIFICANT ALTERATION:

SKARNS; SERICITIZATION, SILICIFICATION AND QUARTZ-EPIDOTE-MUSCOVITE VEINING

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE OCCURS AS 1-5MM DISSEMINATED BLEBS NEAR & REPLACING GARNET; POWELLITE GENERALLY APPEARS TO BE REACTION RIMS AROUND MOLYBDENITE.

GENERAL REFERENCES

- 1) WILSON, J.R., 1977, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE KORN KOB MINE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 103 P.
- 2) CREASEY, S.C., AND THODORE, T.G., 1975, PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE BELLOTA RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 75-295.
- 3) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P. 141.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255

P., P. 141

5)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

6)RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUCHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS

7) SCHLODERER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REDINGTON PASS AREA, PIMA COUNTY, ARIZONA; UNIVERSITY OF ARIZONA MS THESIS

8)MCKENNA, JOHN, J. BUCHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)

9)BRÖDERICK, J.P., 1967, STURCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

RECORD 00267

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000573
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... LEADER MINE
 SYNONYM NAME..... IS ON COPPER FEND, COPPER WORLD AND OWASKO PATENTED CLAIMS

MINING DISTRICT/AREA/SUBDIST. HELVETIA - ROSEMONT DIST.SANT RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
 31-51-34N 110-46-09W

UTM NORTHING UTM EASTING UTM ZONE NO
 3524750.0 521900.0 +12

TWP..... 18S
 RANGE..... 15F
 SECTION.. 24 13
 MERIDIAN. GILAAND SALT RIVER

ALTITUDE.. 4765 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 3 AIR MILES NW OF ROSEMONT ABOUT 1 1/5 MILE E OF HELVETIA; 1/8 MI
 W. OF COPPER WORLD MINE

LOCATION COMMENTS: N 1/2 SEC 24 AND SE 1/4 SEC 13

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO W AN AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
 MINOR PRODUCTS.. AG AU

MAIN COMMOD..... CU AG MO
MINOR COMMOD..... W ZN AU

MAIN ORE MINERALS:

CHALCOPYRITE, CUPRIFEROUS PYRITE, AND MOLYBDENITE

MINOR ORE MINERALS:

POWELLITE, SPHALERITE, SCHEELITE CHALCOCITE AND BORNITE COATING CHALCOPYRITE COPPER CARBONATES

COMMODITY COMMENTS:

MO PROD = 13 TONS OF 50% MO S2 CONCENTRATE SHIPPED IN 1934.

ANALYTICAL DATA(GENERAL)

EARLY DAYS ORE AV. 14% CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED IN 1955 BY MRS LON BLANKENSHIP OF TUCSON

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC REPLACEMENT

FORM/SHAPE OF DEPOSIT: BANDED SEAMS AND IRREGULAR LENSES

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 180 FT

MAX WIDTH..... 8 FT

MAX THICKNESS..... 100 FT

DIP OF OREBODY..... 40 DEGREE E

DIRECTION OF PLUNGE.. N

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 140 FT

LENGTH OF WORKINGS..... 2000 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND ADIT WORKINGS (KEITH, 1974): 60 FT VERTICAL SHAFT, ADIT, OVER 2000 FT OF WORKINGS DOWN TO 140 FT LEVEL;

MAIN ENTRANCE IS 400 FT LONG TUNNEL

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	MO	CONCENTRATED	TONS	1934	50% MO S2 CONCENTRATES

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRUN.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	30	TONS		6% CU, 1 07 AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 126

PRODUCTION COMMENTS.... PRODUCED SPORADICALLY SOME 30,000 TONS OF ORE AVERAGING ABOUT 6% CU, 10Z AG/T AND MINOR AU.
IN 1934 ABOUT 13 TONS OF 50% MOS₂ CONCENTRATE SHIPPED

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. CREASEY AND QUICK, 1955B P. 318

COMMENTS (RESERVES/POT RESOURCES).. THE LEADER MINE CONTAINS SEVERAL THOUSAND TONS OF LOW GRADE
PYRITE-CHALCOPYRITE MINERALIZED ROCK IN A ZONE ABOUT 400 FT. NORTH OF THE PORTAL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN.
HOST ROCK TYPES..... LIMESTONE (HORQUILLA LIMESTONE)

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.
IGNEOUS ROCK TYPES..... GRANITE CONTINENTAL GRANODIORITE IN THRUST FAULT

AGE OF MINERALIZATION..... TERT. (56 M.Y. DREWES)

PERTINENT MINERALOGY..... MAGNETITE, GARNET, EPIDOTE, PYROXENE IN TACTITE; QUARTZ GANGUE

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION OCCURS IN SILICATED PALEOZOIC LIMESTONE IN FOOTWALL OF GENTLY DIPPING
THRUST FAULT OVERLYING PRECAMBRIAN GRANITE IN HANGING WALLS OF THRUST. WHERE THRUST FAULT IS STEEPER IN THE MINE
MINERALIZATION IS RARE OR ABSENT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHATTERED THRUST FAULTED

SIGNIFICANT ALTERATION:
SILICATED LIMESTONE (MAGNETITE, GARNET, EPIDOTE, DIOPSIDE); ALTERED AND IRON STAINED

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
DEPOSITION OF MOLYBDENITE IS MAINLY CONTEMPORANEOUS WITH QUARTZ

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE IN DISSEMINATED SCATTERED BUNCHES AND POCKETS ALONG SEAMS IN LIMESTONE AND SILICATED LIMESTONE ON
FOOTWALL OF FAULT; DISSEMINATIONS AND STRINGERS OF SCHEELITE AND POWELLITE IN GARNETIFEROUS CONTACT ZONES
ASSOCIATED WITH MOLYBDENITE. MOLYBDENITE IS IN ZONE BELOW

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 126.
- 2) SCHRADER, R.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 106-108
- 3) DREWES, HAROLD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS

MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

4)JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P., P. 85

5)SCHRADER, F.C. 4. (AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANT RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 P. 156-157 (1910); (ABST.); MIN. WORLD, V. 33, P. 185-187

6)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

7)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

8)ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

9)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

10)CREASEY, S.C. AND QUICK G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F, P. 316-318

11)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #30.

12)WARNER, L.A., HOLSER, W.T., WILMARTH, V.R., AND CAMERON, R.N., 1959, OCCURRENCES OF NON-PEGMATITIC BERYLLIUM IN THE UNITED STATES: US. GEOL. SURVEY PROF. PAPER 318, P. 103.

13)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 36

RECORD 00268

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030516
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... LITTLE MARY MINE
SYNONYM NAME..... STEPPE MINE

MINING DISTRICT/AREA/SUBDIST. COBABI DIST./S. CONOBABI MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 CONOBABI, ARIZONA

LATITUDE LONGITUDE
32-01-00N 111-54-45W

TWP..... 16S
RANGE.... 04E
SECTION.. 23 26
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 2630 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF WICKCHOUPAI VILLAGE; WESTSIDE OF S. CONOBABI MTS

LOCATION COMMENTS: SW CORNER OF SEC 25, NW CORNER OF SEC 26, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU MO PB RE ZN

MAIN COMMOD..... AU AG PB
MINOR COMMOD.... CU ZN

MAIN ORE MINERALS:

CHALCOPYRITE, HORNITE, CHALCOCITE, GALENA

MINOR ORE MINERALS:

SPHALERITE, GOLD, AND OXIDIZED MINERALS INCLUDE: ANGLESITE, CERUSSITE, MALACHITE, WULFENITE, NATIVE COPPER, BROCHANTITE, BUTTGENBACHITE (?) DEVILLITE (?), CUPRITE, SIDERITE, TENORITE, IODYRITE, ROSASITE, CHRYSOCOLLA, SMITHSONITE, CROCOITE, MASSICOT, LITHARGE, FERRIMOLYBDITE, CORNUITE, GOSLARITE.

COMMODITY COMMENTS:

RHENIUM FOUND SPECTROGRAPHICALLY IN BORNITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BEINS

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 10 FT

STRIKE OF OREBODY.... NW

DIP OF OREBODY..... 70 NE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND TUNNEL WORKINGS (KEITH, 1974 P. 111) 370 FT. DEEP (WILLIAMS, 1962)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU EST	40		LBS	1890'S-1933	
16 PB EST	100		LBS	1890'S-1933	
17 AG EST				1890'S-1933	\$15,000

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 111

PRODUCTION COMMENTS.... FROM 1917 TO 1970, SOME 800 TONS OF PICKED ORE AVERAGING ABOUT 0.2 OZ AU/T, 15 OZ AG/T, 54% PB, 4% CU, AND A LITTLE ZN.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR

HOST ROCK TYPES..... AMYGDALOIDAL ANDESITE FLOWS

PERTINENT MINERALOGY..... QUARTZ FISSURE VEINS WITH SHOOTS OF BARITE AND STRINGERS OF DOLOMITE; IRON OXIDES

AND SULFATE.

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ FISSURE VEINS, PARTLY BRECCIATED, BUT GENTLY DIPPING ANDESITES; SULFIDES ALSO IN ALTERED ANDESITE FOOTWALL.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NE STRIKING FAULT IS NEARLY VERTICAL AND DISPLACES BOTH LITTLE MARY AND CHICAGO VEINS WITH 60 FT RIGHT LATERAL DISPLACEMENT; NW STRIKING FAULT DIPS 40 NE AND DISPLACES THE LITTLE MARY BEIN ON THE 80 FT LEVEL

SIGNIFICANT ALTERATION:

OXIDATION BEGAN IN HIGHLY ACID WATERS AND PROCEEDED WITH CONTINUALLY INCREASING BASICITY AND EH. IONS RELEASED IN REACTIONS MUST HAVE BEEN CARRIED OFF BY GROUNDWATER. SOME OF THE ELEMENTS WERE EFFECTIVELY LEACHED FROM THE WALLROCKS. (WILLIAMS, 1963)

COMMENTS (GEOLOGY AND MINERALOGY):

A MOLYBDENITE SPECIMEN WAS FOUND ON THE BEACON CLAIM IN CLEAVABLE CRYSTALS INTERGROWN WITH PRIMARY GOLD AND QUARTZ. FERRIMOLYBDITE WAS FOUND AS A COMMON MINERAL ON THE 80 FOOT LEVEL OF THE LITTLE MARY MINE WHERE IT STAINS GANGUE MINERALS AND AS AN ALTERATION PRODUCT OF WULFENITE ON THE DUMPS OF THE CHICAGO MINE (NEAR LITTLE MARY) AND AT THE MILDREN MINE.

WULFENITE IS ABUNDANT AT THE MILDREN AND CHICAGO MINES, RARE AT THE BEACON AND SILVER-LEAD CLAIMS, AND ABSENT AT THE LITTLE MARY MINE. WULFENITE IS ASSOCIATED WITH VANDINITE, CERUSSITE, MINETITE, AND CHRYSOCOLLA AT THE MILDREN MINE AND WITH MALACHITE AND CERUSSITE AT THE CHICAGO MINE.

GENERAL REFERENCES

- 1) WILLIAMS, S.A., (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, P. 25, 46, 91.
- 2) WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE ORES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA: ECON. GEOL., V. 58, P. 1119-1125
- 3) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 110.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) BRYNER, L. I. GEOLOGY OF THE SOUTH COCHABABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 156 P. (1959)
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 102, 141, 205
- 7) MACKALLOR, J.A. GEOLOGY OF THE WESTERN PART OF THE COBABI MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52 (1958)
- 8) HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., PERGQUIST, J.R., BLACET, P.M., AND MILLER, S.T., 1979, RECONNAISSANCE GEOLOGIC MAP OF THE COCHABABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.

RECORD 00269

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030519
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... LOST HORSE GROUP
SYNONYM NAME..... HENSHAW

MINING DISTRICT/AREA/SUBDIST. BABOGUIVARI DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 BABOGUIVARI PEAK, ARIZ.

LATITUDE LONGITUDE
31-50-57N 111-34-56W

TWP..... 18S
RANGE.... 07E
SECTION.. 24 C
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4625 FT

POSITION FROM NEAREST PROMINENT LOCALITY: RIDGE NORTH EAST OF FRESNAL CANYON SPRING

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU CU PB MO

MAIN COMMOD..... CU AG AU
MINOR COMMOD..... PB MO

MAIN ORE MINERALS:
COPPER, LEAD, ZINC SULFIDES

MINOR ORE MINERALS:
PROBABLY WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW TUNNELS AND SHAFTS (KEITH, ABM FILE CARDS)

PRODUCTION

YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH ABM FILE CARDS

PRODUCTION COMMENTS.... PRODUCED 9 TONS IN 1938 OF 3% CU, 64 OZ AG/T? CHECK CARD AGAIN NO UNITS GIVEN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERTIARY-CRETACEOUS
HOST ROCK TYPES..... SEDIMENTS AND METAMORPHOSED SEDIMENTS

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ CALCITE VEINS, OXIDIZED TO SHALLOW DEPTHS ALONG STRONG FAULT ZONE CUTTING
TERTIARY CRETACEOUS SEDIMENTS AND METAMORPHOSED CRETACEOUS SEDIMENTS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
OXIDIZED TO SHALLOW DEPTHS ALONG STRONG FAULT ZONE.

GENERAL REFERENCES

4) GENERAL AREA:

- JOSEPH, P.E., 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5
- 5)KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
- 6)KEITH, W.J., 19768 RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAQUE BUTTE 15" QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
- 7)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238
- 8)KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 9)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 10)KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 11)MIN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1965)
- 12)MINES HANDBOOK, 1922
- 13)WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
- 14)WARGO, J.G. 3. (KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)

- 15) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1957, ARIZONA LODGE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 16) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 199, 156 P.
- 17) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650.
- 18) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 19) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 20) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 21) CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 22) CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
- 23) DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS
- 24) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ., PHD THESIS
- 25) FAIR, CHARLES L. 3. PROBABLE CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
- 26) HAZEL, GORDON, IN PROGRESS, GEOLOGIC MAP OF PRESUMIDO PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
- 27) HEINDL, L.A. AND FAIR, C.L., 1965, MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-I
- 28) WILSON, E.D., 1961, GOLD PLACERS AND PLACERTING IN ARIZONA: ARIZ. BUR. MINES BULL. 168

RECORD 00270

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... D000105
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... LUCKY STRIKE NO. 1

MINING DISTRICT/AREA/SUBDIST. REDINGTON DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 BELLOTA RANCH, ARIZ.

LATITUDE LONGITUDE
32-28- N 110-35- W

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MI. NW FROM REDINGTON

LOCATION COMMENTS: GEOLOGY DESCRIBED DOES NOT MATCH LOCATION OF T11S, R19E, WHICH IS NE OF REDINGTON IN GRAHAM CO.
GEOLOGY OF AREA 4 MILES NW OF REDINGTON DOES CONSIST OF PALEOZOIC LIMESTONES, BUT NO PORPHYRITIC, INTERMEDIATE IN
ACIDITY PLUTONIC ROCK OR ANY OTHER IGNEOUS ROCK IS MAPPED. LOCATION MAY BE T11S, R18E, SEC 29 OR 32.

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD V CU ZN AG AU

MAIN ORE MINERALS:
COPPER OXIDES AND LEAD ORE

MINOR ORE MINERALS:
WULFENITE AND VANADINITE

ANALYTICAL DATA(GENERAL)

ASSAY RETURN FROM OWNER'S SAMPLE OF 0.07 OZ AU, 2.2 OZ AG, 1.63%
MD

3.91% MD. (DEPT. MIN. RES. 1962,

RECORD 00271

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030551
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... MAGONIGAL MINE
SYNONYM NAME..... GORDON

MINING DISTRICT/AREA/SUBDIST. SILVER BELL

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-25-41N 110-37-33W

UTM NORTHING UTM EASTING UTM ZONE NO
35R7600.N 440075.E +12

TWP..... 11S
RANGE.... 07E
SECTION.. 34 EC
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 2,235 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 6 MI W OF SILVER BELL

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB MO MN

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG

MAIN COMMOD..... CU AG

MINOR COMMOD.... PB MD MN

MAIN ORE MINERALS:
COPPER OXIDES, COPPER SULFIDES

MINOR ORE MINERALS:
WULFENITE, MANGANESE AND IRON OXIDES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT: SPOTTY

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW SHAFT AND SURFACE WORKINGS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	0.3	TONS		1950-1960	2.5% CU, 0.14 OZ AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 143

PRODUCTION COMMENTS.... IN MID 1950'S PRODUCED ABOUT 300 TONS OF ORE AVERAGING ABOUT 2.5% CU AND 0.14 OZ. AG/T

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEO. CRET.
HOST ROCK TYPES..... LIMESTONE AND SEDIMENTS AND ANDESITIC VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET - TERT. (?)
IGNEOUS ROCK TYPES..... ANDESITIC VOLCANICS

AGE OF MINERALIZATION..... CRET- TERT (?)

IMPORTANT ORE CONTROL/LOCUS.. ALONG A FAULT ZONE CUTTING CRETACEOUS SEDIMENTS AND ANDESITIC VOLCANICS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONE

COMMENTS (GEOLOGY AND MINERALOGY):

APPARENTLY PERIPHERAL TO SILVER BELL MINERALIZATION

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 143
- 2) CLARKE, CRAIG W., 1965, THE GEOLOGY OF THE EL TIRO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P.
- 3) ARIZ. BUR. MINES FILE DATA

RECORD 00272

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030552
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... MCLEARY PROSPECTS
SYNONYM NAME..... MCLEARY

MINING DISTRICT/AREA/SUBDIST. MADERA CANYON / OLD BALDY DIST/SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-43-37N 110-52-47W

UTM NORTHING UTM EASTING UTM ZONE NO
3509950. 511400. 12

TWP..... 19S
RANGE..... 14E
SECTION.. 35
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4500-5000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10 MI. SSW OF HELVETIA; 35 MI S. OF TUCSON

LOCATION COMMENTS: W 1/2

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
MOLYBDENITE, PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:

FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEINS; STOCKWORKS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 1500 FT

MAX WIDTH..... 12 FT

STRIKE OF OREBODY.... N60E

DIP OF OREBODY..... 70N

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT 40 FT DEEP; 10 FT TUNNEL, 3 OTHER PROSPECTS (SCHRADER, 1915)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT- CRET.

HOST ROCK TYPES..... MADERA CANYON GRANODIORITE (COARSE GRAINED PHASE (68 M.Y. K-AR) AND ELEPHANT HEAD

QUARTZ MONZONITE (OF THE QUANTRELL STOCK, FINE GRAINED OR APLITIC PHASE) (COARSE GRAINED PHASE IS 68, 69 M.Y.

K-AR) (DREWES, 1971) MADERA CANYON GRANODIORITE (COARSE GRAINED GRANODIORITE PORPHYRY PHASE) MAY UNDERLIE

ALLUVIUM ALSO AS IT IS EXPOSED NEARBY TO THE NORTHEAST. TERTIARY QUARTZ VEINS AND RHYOLITE DIKES ARE ALSO WITHIN
1/2 MILE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT - CRET.

IGNEOUS ROCK TYPES..... SAME AS SUA

PERTINENT MINERALOGY..... LIMONITE AND FERROUS IRON SULPHATE ON JOINTS NEAR SURFACE; MANGANESE AND SILICA;
QUARTZ VEIN

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN JOINTS AND FAULT FISSURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

JOINTS AND FAULTS

SIGNIFICANT ALTERATION:

ALTERED GRANITE

COMMENTS (GEOLOGY AND MINERALOGY):

FLAKES OF MOLYBDENITE 1/4 INCH THICK BY 1 SQUARE INCH

GENERAL REFERENCES

- 1) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 173-175, 168.
- 3) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 158-159.
- 4) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS 255 P., P. 102, 141
- 6) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 61
- 7) GUILD, F.N. (1907) THE COMPOSITION OF MOLYBDITE FROM ARIZONA. AMER. JOUR. SCI. 23: 455-456.
- 8) DREWES, HARALD B. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

RECORD 00273

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030555
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 90 03

NAME AND LOCATION

DEPOSIT NAME..... MILDREN MINE GROUP
MINING DISTRICT/AREA/SUBDIST. CABABI DIST./S. COMQBABI MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA
QUAD SCALE QUAD NO OR NAME
1: 0062500 COMQBABI, ARIZONA
LATITUDE LONGITUDE
32-02-19N 111-55-42W
UTM NORTHING UTM EASTING UTM ZONE NO
TWP..... 16S
RANGE.... 04E
SECTION.. 16 EC PROTRACTED
MERIDIAN. GILA SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: 2 KM NE USMM N06

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG AU CU ZN V MO

MAIN COMMOD..... PB AG AU CU
MINOR COMMOD.... ZN V MO

MAIN ORE MINERALS:
GALENA

MINOR ORE MINERALS:
CHALCOPYRITE, BORNITE, CHALCOCITE, COVELLITE, STROMAYERITE, TETRAHEDRITE, SPHALERITE, GOLD AND MOLYBDENITE,
OXIDIZED MINERALS INCLUDE: ANGLESITE, WILLEMITE, CALEDONITE, CERUSSITE, MATLOCKITE, AURICHALCITE

LEADHILLITE, LEPIDOCROCITE, LINARITE, MALACHITE, WULFENITE, ATACAMITE, CERARGYRITE, AZURITE, BROCHANTITE, SIDERITE, DESCLOIZITE, VANADINITE, IDOYRITE, PARATACAMITE, MINETITE, MOTTAMITE, MICRSITE, PYROMORPHITE, SVANBERGITE, ROSASITE, CHRYSOCOLLA, SMITHSONITE, CROCOITE, MASSICOT, LITHARGE, FERRIMOLYBDITE, STIBICONITE, MINUM, CORNUITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT: LENSING; PODS AND LENSES

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NW

DIP OF OREBODY..... 76NE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFTS AND PITS (KEITH, 1974, P. 112)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 112

PRODUCTION COMMENTS.... WORKED MAINLY IN 1932-1934 AND 1940-1941, PRODUCING SOME 460 TONS OF ORE AVERAGING ABOUT 7% PB, 12 OZ AG/T, 0.2 OZ AU/T AND 1.6% CU.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR

HOST ROCK TYPES..... AMYGDALOIDAL ANDESITE FLOWS

PERTINENT MINERALOGY..... CRYSTALLINE QUARTZ FISSURE VEINS WITH SOME DOLOMITE, BARITE, CALCITE

IMPORTANT ORE CONTROL/LOCUS.. BRECCIATED QUARTZ FISSURE VEINS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

OXIDATION BEGAN IN HIGHLY ACID WATERS AND PROCEEDED WITH CONTINUALLY INCREASING BASICITY AND EH. IONS RELEASED REACTIONS MUST HAVE BEEN CARRIED OFF BY GROUNDWATER. SOME OF THE ELEMENTS WERE EFFECTIVELY LEACHED FROM THE WALLROCKS. (WILLIAMS, 1963)

COMMENTS (GEOLOGY AND MINERALOGY):

A MOLYBDENITE SPECIMEN WAS FOUND ON THE BEACON CLAIM AS CLEAVABLE CRYSTALS INTERGROWN WITH PRIMARY GOLD AND QUARTZ. FERRIMOLYBDITE WAS FOUND AS A COMMON MINERAL ON THE 80 FOOT LEVEL OF THE LITTLE MARY MINE WHERE IT STAINS

GANGUE MINERALS AND AS AN ALTERATION PRODUCT OF WULFENITE ON THE DUMPS OF THE CHICAGO MINE (NEAR LITTLE MARY) AND AT THE MILDREN MINE.

WULFENITE IS ABUNDANT AT THE MILDREN AND CHICAGO MINES, RARE AT THE BEACON AND SILVER-LEAD CLAIMS, AND ABSENT AT THE LITTLE MARY MINE. WULFENITE IS ASSOCIATED WITH VANDONITE, CERUSSITE, MINETITE, AND CHRYSOCOLLA AT THE MILDREN MINE AND WITH MALACHITE AND CERUSSITE AT THE CHICAGO MINE.

GENERAL REFERENCES

- 1) WILLIAMS, S.A. (1962) THE MINERALOGY OF THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 145 P, P. 25, 46, 91
- 2) WILLIAMS, S.A., 1963, OXIDATION OF SULFIDE ORES IN THE MILDREN AND STEPPE MINING DISTRICTS, PIMA COUNTY, ARIZONA: ECON. GEOL., V. 58, P. 1119-1125
- 3) KEITH, STANTON R., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 112.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) BRYNER, L. I. GEOLOGY OF THE SOUTH COCHABE MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ. PHD THESIS, 156 P. (1959)
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 102, 141, 205.
- 7) HAXEL, G., BRISKEY, J.A., RYTUBA, J.J., BERGQUIST, J.R., BLACET, P.H., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE COCHABE QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF 964.
- 8) MACKALLOR, J.A., 1958, GEOLOGY OF THE WESTERN PART OF THE COCHABE MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 108 P. (1957); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 51-52

RECORD 00274

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... #002676
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... MISSION MINE
SYNONYM NAME..... EAST PIMA

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-59- N 11-04- W

TWP..... 16S 16S
RANGE.... 12E 13E
SECTION.. 36
MERIDIAN. GCSR

ALTITUDE.. 3225 FT

LOCATION COMMENTS: EC OF 36 AND W.C. OF 31

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG ZN MO PB AU SU W F

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. MO AG ZN PB AU

MAIN COMMOD..... CU AG ZN
MINOR COMMOD..... MO PB AU SN W F

MAIN ORE MINERALS:

CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:

MOLYBDENITE, SPHALERITE, BORNITE, GALENA, COPPER CARBONATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC SEAMS AND DISSEM, REPLACEMENT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO TOP 200 FT

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

OPEN PIT OPERATION (KEITH 1974)

PRODUCTION

YES

MEDIUM PRODUCTION

18 ORE	ACC	118041.	TONS	1961-1978
19 CU	ACC	1442117.	LBS	1961-1978
20 PB	ACC	2195.	LBS	1961-1978
21 ZN	ACC	6010.	LBS	1961-1978
22 AG	ACC	10714.		1961-1978
23 AU	ACC	12.	OZS	1961-1978

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 136

PRODUCTION COMMENTS.... FROM 1961 THROUGH 1972, PRODUCED OVER 77.6 MILLION TONS OF ORE AVERAGING ABOUT 0.7% CU, 0.130Z AG/T AND CONSIDERABLE BY-PRODUCT ZN, MO, AND PB, VERY LITTLE GOLD

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELYE, 1978, P. 83

COMMENTS (RESERVES/POT RESOURCES).. 104.455 MILLION TONS OF SULFIDE COPPER RESERVES OF 0.73% CU (EXCLUDES CONTRIBUTION OF 31.5 MILLION TONS TO EISENHOWER MINING CO.)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PAL. AND TRI; TERT.

HOST ROCK TYPES..... LIMESTONE AND SEDIMENTARY ROCKS; QUARTZ MONZONITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. ALL ROCKS IN THE MISSION ALTERED ZONE ARE RECRYSTALLIZED AND (OR) METASOMATIZED TO

VARIOUS SILICATE MINERALS, AND ALL ARE IMPREGNATED WITH SULFIDES.

THE LIMY ROCKS--TACTITE AND HORNFELS--CONSTITUTE THE MAIN SOURCE OF COPPER AND HAVE A HIGHER AVERAGE GRADE THAN ORE IN ARGILLITE, WHICH IS THE SECOND PRINCIPAL COPPER HOST ROCK; QUARTZITE AND MONZONITE HAVE THE LEAST COPPER PER UNIT VOLUME. BEDDING CONTACTS, PARTICULARLY BETWEEN TACTITE-HORNFELS AND QUARTZITE, OFTEN MARK A SHARP CHANGE IN COPPER CONTENT. (RICHARD AND COURTRIGHT, 1958).

THE UNCONFORMABLE CONTACT BETWEEN THE PAPAGO FORMATION AND THE UNDERLYING SILICATED SEDIMENTS OF THE PALEOZOIC SECTION HAS SERVED AS A LOCALIZING FEATURE. SULFIDES FOLLOW THIS CONTACT IN GREATER QUANTITY AND MORE UNIFORMLY GRADE IN EXCESS OF 0.4 PERCENT CU THAN IS THE CASE AT DISTANCES ABOVE OR BELOW THE CONTACT. EVEN THE QUARTZITE BEDS ARE WELL MINERALIZED WHERE THEY ABUT THIS SURFACE. SIMILARLY, THE BOTTOM SIDES OF QUARTZITE BEDS ACT AS LOCAL CONTROLS. A HIGH-ANGLE FAULT IS SEEN TO CAUSE EVEN THE UNFAVORABLE MARBLE UNIT TO BECOME CONVERTED TO TACTITE AND HORNFELS AND CHARGED WITH SULFIDES.

IN THE EASTERN PART OF THE ORE BODY CERTAIN LOW-ANGLE FAULTS OF THRUST ASPECT CONTAIN THICK--10 TO 40 FEET--BANDS OF 1 TO 6 PERCENT CU ABOVE THEM. THE VERTICAL FAULT ON THE FAR EAST TERMINATES THE ORE BODY BUT NOT THE SULFIDE DISSEMINATION, AND ALONG THIS FAULT ARE CONCENTRATIONS OF MASSIVE SULFIDES. (KINNISON, 1966)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MOST OF THE THRUST AND NORMAL FAULTS ARE PROBABLY OF PRE-MINERAL ORIGIN BECAUSE BRECCIA ALONG MOST OF THE FAULTS IS LOCALLY MINERAL-HEALED. HOWEVER, THE FAULTS USUALLY ARE MARKED ALSO BY POST-MINERAL GOUGE AND BRECCIA, AND THE RELATIVE MAGNITUDES OF THE PRE- AND THE POST-MINERAL MOVEMENTS ARE NOT KNOWN. (RICHARD AND COURTRIGHT, 1958)

SIGNIFICANT ALTERATION:

ALTERATION PRODUCTS IN THE FELDPATHIC ROCKS ARE SERICITE, ORTHOCLASE, QUARTZ, BIOTITE, AND CLAY. THE ROCKS SO ALTERED ARE QUARTZ MONZONITE PORPHYRY, ARGILLITE, AND QUARTZITE.

THE PALEOZOIC SEDIMENTS, WHICH ARE PRINCIPALLY CHERTY LIMESTONE, PURE LIMESTONE, AND MARL, HAVE BEEN CONVERTED IN THE MISSION ALTERED ZONE TO VARIOUS LIME-SILICATE MINERALS. TWO GENERAL GROUPS ARE DOMINANT: 1. TACTITE, WHICH CONSISTS CHIEFLY OF GARNET; AND 2. HORNFELS, WHICH CONSISTS OF DIOPSIDE AND CALCITE. ALTERED ZONE IS ROUGHLY 3 BY 2 MILES IN AREAL DIMENSION, WHEREAS ORE OR POSSIBLE ORE APPEARS TO BE LIMITED TO AN AREA NOT MUCH LARGER THAN 1 1/2 BY 1 MILES. (KINNISON, 1966)

LEACHING AND ENRICHMENT OF COPPER ARE CONFINED TO A THIN LAYER AT THE TOP OF BEDROCK. THE AMOUNT OF SUPERGENE COPPER PRESENT IS TRIVIAL AS COMPARED TO THE AMOUNT OF CHALCOPYRITE WHICH ONCE MUST HAVE EXISTED IN THE ERODED PART OF THE MINERALIZED ZONE. (RICHARD AND COURTRIGHT, 1958).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

ALTHOUGH THE TACTITE-HORNFELS IS OF THE TYPE COMMONLY TERMED CONTACT METAMORPHIC OR PYROMETASOMATIC, THE MINERALOGICAL VARIATIONS IN THIS DEPOSIT SHOW NO PARTICULAR SPATIAL RELATIONSHIP TO THE MONZONITE. THE MONZONITE IS ALSO HYDROTHERMALLY ALTERED BY THE SAME PROCESSES WHICH ALTERED THE SEDIMENTARY ROCKS. THE INFERENCE IS DRAWN THAT THE MINERALIZATION PROCESS IS HYDROTHERMAL-METASOMATIC RATHER THAN PYROMETASOMATIC, AND IS UNRELATED TO ANY SPECIFIC CONTACT ACTION OF THE MONZONITE. HYDROTHERMAL-METASOMATISM IS ENVISIONED HERE AS INVOLVING TWO MECHANISMS: (1) TRANSPORTATION OF MATERIALS IN FLUIDS CIRCULATING ALONG FAULTS AND FRACTURES; AND (2) TRANSFER THROUGH UNFRACTURED ROCK BY IONIC DIFFUSION. THE LATTER MAY HAVE FUNCTIONED EXTENSIVELY. (RICHARD AND COURTRIGHT, 1958)

THE PORPHYRY, RATHER THAN BEING THE DIRECT SOURCE OF MINERALIZING SOLUTIONS, IS ITSELF MOST OBVIOUSLY A HOST ROCK BECAUSE IT WAS ALTERED AND IMPREGNATED WITH SULFIDES AFTER SOLIDIFICATION. THE PORPHYRY MAY HAVE A GENETIC RELATION TO MINERALIZATION TO THE EXTENT THAT IT MAY HAVE BEEN INTRUDED FROM A DEEPER SOURCE OF MAGMA, WHICH LATER FURNISHED THE ELEMENTS THAT WERE INTRODUCED INTO THE ALTERED ZONE. KINNISON, 1966.

COMMENTS (GEOLOGY AND MINERALOGY):

A LARGE PART OF THE SULPHIDES OCCUR AS DISCRETE GRAINS AND SMALL BLENDS -- THE REMAINDER, AS VEINS AND VEINLETS PLUS A FEW SIZEABLE PODS OF RATHER MASSIVE SULPHIDES. SIZEABLE ZONES EXIST WHICH CONTAIN SULPHIDES ONLY IN THE FORM OF GRAINS AND BLENDS.

GENERAL COMMENTS

SEE RECORD NUMBER M899991 FOR REFERENCES

RECORD 00275

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M800115
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... NEW CORNELIA (AJO) MINE
SYNONYM NAME..... AJO MINE

MINING DISTRICT/ARFA/SUBDIST. AJO DIST./LITTLE AJO MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

LATITUDE LONGITUDE
32-21- N 112-52- W

TWP..... 12S
RANGE.... 06 W
SECTION.. 2E 22; SW 23; NW 26 NE 27

ALTITUDE.. 1800 FT.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU AU AG
MINOR PRODUCTS.. ZN MO

MAIN COMMOD..... CU AG AU
MINOR COMMOD..... MO ZN

MAIN ORE MINERALS:

CHALCOPYRITE, BORNITE, PYRITE; CHALCOCITE

MINOR ORE MINERALS:

MINOR SPOTTY MOLYBDENITE AND SPHALERITE; TENNANTITE, MAGNETITE AND SPECULARITE; MALACHITE, AZURITE, CUPRITE,
TENORITE, CHRYSOCOLLA, NATIVE COPPER, SHATTUCKITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: THE DEPOSIT IS MINED BY AN OPEN PIT THAT IS ROUGHLY ELLIPTICAL IN PLAN. THE LONG AXIS OF THE PIT TRENDS ABOUT N. 30 DEGREE W.

THE PLUS 0.8 PERCENT COPPER ORE ZONE FOLLOWS THE LONG AXIS OF THE PIT AND AT THE SOUTH END TURNS ABRUPTLY TO THE EAST AND DISAPPEARS ABOUT 1,000 FEET EAST OF THE LONG AXIS OF THE PIT. TO THE EAST OF THE PIT AXIS, THE ORE CONTAINS LESS THAN 0.6 PERCENT COPPER (DIXON, 1966)

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 3600 FT LONG BY 2500 FT ACROSS WITH MAXIMUM THICKNESS OF 1000 FT (GILLULY, 1942)

MAX LENGTH..... 1 1/4 MI

MAX WIDTH..... 3/4 MI

MAX THICKNESS..... 1000 FT

STRIKE OF OREBODY.... N30W

COMMENTS(DESCRIPTION OF DEPOSIT):

THE MINERALIZATION IN ALL THE SAMPLES IS ALONG VEINLETS AND DISSEMINATED THROUGHOUT THE ROCK.

THE DISSEMINATED MINERALIZATION IN THE MONZONITE IS ASSOCIATED WITH THE QUARTZ-ORTHOCLASE MATRIX AND RARELY WITH THE PLAGIOCLASE AND CHLORITE PHENOCRYSTS. THE ASSOCIATION WOULD BE EXPECTED IF THE SULFIDE AND ORTHOCLASE ARE BOTH LATER STAGE MINERALS. THE VEIN MINERALIZATION IS ASSOCIATED WITH QUARTZ, WHICH IS THE MAIN VEIN FILLING, AND THE SULFIDE IS SCATTERED ALONG THE VEINLETS. (DIXON, 1966)

PRODUCTION

YES

LARGE PRODUCTION

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... CORNELIA QUARTZ MONZONITE AND BORDERING QUARTZ DIORITE PHASE AND CONCENTRATOR VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (62.8, 63.1 M.Y.)

IGNEOUS ROCK TYPES..... CHICO SHUN1 (CORNELIA) QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... QUARTZ AND ORTHOCLASE; HEMATITE AND LIMONITE

IMPORTANT ORE CONTROL/LOCUS.. THE PRIMARY ORE CONTROL APPEARS TO HAVE BEEN THE LINE OF FRACTURING ON THE LONG AXIS OF THE PIT. THIS "PEGMATITE" AXIS CORRESPONDS WITH THE ZONE OF PLUS 0.8 PERCENT COPPER MINERALIZATION.

GENERALLY, THE VALUES ARE CONCENTRATED IN THE MONZONITE AND TO A SLIGHTLY LESSER DEGREE IN THE QUARTZ DIORITE. IN THE RHYOLITE, THE DISSEMINATED MINERALIZATION IS RESTRICTED TO MICROFRACTURES THAT SOON BECOME BARREN. AT DEPTH THE APEX OF THE MONZONITE COMES IN CONTACT WITH RHYOLITE AND ANDESITE; THIS IS THE LIMIT OF THE ECONOMIC MINERALIZATION. ONLY IN THE PLUS 0.8 PERCENT ORE ZONE THAT HOOKS TO THE EAST DOES THE RHYOLITE CARRY SIGNIFICANT VALUES. TO THE NORTH, MINERALIZATION ENDS AT THE PRE-MINERAL FAULT, AND TO THE SOUTH THE APEX OF QUARTZ MONZONITE IS TRUNCATED BY EROSION. (DIXON, 1966)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NNW FISSURE ZONES GUIDED EMPLACEMENT OF QUARTZ MONZONITE. THE FAULT BLOCK WHICH INCLUDES THE MINE AREA IS

BOUNDED BY TWO NORTHEAST-TRENDING NORMAL FAULTS--THE GIBSON AND THE BLACK MOUNTAIN--AND THE NORTHWEST-TRENDING LITTLE AJO MOUNTAIN FAULT.

THE OLDEST OF THESE IS THE GIBSON ARROYO FAULT, A NORMAL FAULT THAT HAS BROUGHT THE CONCENTRATOR VOLCANICS DOWN AGAINST THE CARDIGAN GNEISS. ESTIMATED DISPLACEMENT IS ABOUT 4,000 FEET, AND THE FAULT IS BELIEVED TO BE POST-CORNELIA MONZONITE.

NEXT IN AGE IS THE LITTLE AJO MOUNTAIN FAULT, WHICH BOUNDS THE LITTLE AJO MOUNTAINS ON THE NORTH, TRENDS ABOUT N. 60 DEGREE W., AND DIPS STEEPLY NORTH. IT MAY HAVE AS MUCH AS 10,000 FEET DISPLACEMENT. ROTATIONAL MOVEMENT ALONG THIS FAULT TILTED THE ENTIRE MOUNTAIN RANGE ABOUT 50 DEGREE TO THE SOUTH.

ON THE EAST THE LITTLE AJO MOUNTAINS ARE CUT OFF BY THE BLACK MOUNTAIN FAULT, A NORTHEAST-TRENDING FAULT THAT IS EXPOSED ON THE WEST FLANK OF BLACK MOUNTAIN. THIS FAULT, DOWNTHROWN ON THE EAST, IS BELIEVED TO TERMINATE THE LITTLE AJO MOUNTAIN FAULT AT ITS EASTERN EXTREMITY.

THE ABLE FAULT IS A VERY STRONG PRE-MINERAL FAULT THAT CUTS ACROSS THE NORTHWEST CORNER OF THE PIT. THE FAULT STRIKES N. 40 DEGREE E. AND DIPS ABOUT 60 DEGREE SE. ECONOMIC MINERALIZATION IS FOUND IN THE HANGING WALL OF THE FAULT. NORTHWEST OF THE FAULT THE MINERALIZATION DROPS TO TRACES OF COPPER. A ZONE OF STRONG HYDROTHERMAL ALTERATION ABOUT 20 FEET WIDE FOLLOWS THE FAULT SURFACE. THE CHARLIE FAULT IS A MAJOR FAULT WHICH EXTENDS FROM THE NORTHEAST RIM OF THE PIT SOUTHWESTERLY TO THE BOTTOM OF THE PIT, THENCE SOUTHERLY ALONG THE PIT AXIS ALMOST TO THE FANGLOMERATE CONTACT WHERE IT IS CUT OFF BY A NORTHEAST-TRENDING FAULT. IT HAS A DIP VARYING FROM 40 DEGREE TO 65 DEGREE E. AND IS BY FAR THE MOST SIGNIFICANT FAULT IN THE PIT. THE ROCKS IN THE FOOTWALL OF THIS FAULT ARE HARD MASSIVE MONZONITE, USUALLY CONTAINING CHALCOPYRITE-BORNITE MINERALIZATION AND MINOR AMOUNTS OF PYRITE. THESE ROCKS SHOW HEAVY FRACTURING IN SOME AREAS NEAR THE FAULT. AT THE SOUTH END OF THE FAULT, THE FOOTWALL ROCK IS A MONZONITE BRECCIA, AND THE ROCKS IN THE HANGING-WALL BLOCK ARE A COMPLEX MIXTURE OF DIORITE, RHYOLITE, AND MONZONITE. THEY ARE MUCH SOFTER THAN THE FOOTWALL ROCKS AND INVARIABLY SHOW MUCH MORE INTENSE HYDROTHERMAL ALTERATION. THE MINERALIZATION IN THESE ROCKS IS PYRITE AND CHALCOPYRITE WITH RARE BORNITE.

DUG FAULT. THE TIP OF THE MONZONITE APEX AND ITS ACCOMPANYING RHYOLITE CAPPING WERE LEACHED IN MIDDLE TERTIARY TIME. OXIDATION AND ENRICHMENT EXTENDED TO ABOUT 600 FEET. AFTER SUBSTANTIAL ENRICHMENT, A LOW-ANGLE FAULT (25 DEGREE) THAT ROUGHLY PARALLELED THE EROSION SURFACE SHIFTED THE RHYOLITE CAPPING AND THE ACCOMPANYING CHALCOHITE BLANKET ABOUT 1,200 FEET TO THE SOUTHEAST. (DIXON, 1966)

SIGNIFICANT ALTERATION:

THE PRINCIPAL PRODUCTS OF HYDROTHERMAL ALTERATION ARE SERICITE AND LESSER AMOUNTS OF CLAY, WHICH WERE DEVELOPED FROM THE PLAGIOCLASE. CHLORITE WITH MINOR LEUCOXENE AND RUTILE OCCUR AS ALTERATION PRODUCTS OF BIOTITE. CALCITE APPEARS AS A LATE MINERAL ON VEINLETS.

THE N-S CHARLIE FAULT SEPARATES THE PIT ROCKS INTO TWO GROUPS. TO THE WEST THE MONZONITE IS VERY HARD, MASSIVE, PORPHYRYTIC QUARTZ MONZONITE WITH STRONG SILICIFICATION AND MINOR SERICITIZATION OF FELDSPAR. ON THE EAST THE MONZONITE IS SOFTER PORPHYRYTIC QUARTZ MONZONITE WITH MUCH SERICITE AND MINOR CLAY ALTERATION. (DIXON, 1966)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE OLDEST POST-PRECAMBRIAN ROCKS IN THE MINE AREA ARE THE CONCENTRATOR VOLCANICS, WHICH ARE CRETACEOUS FLOWS THAT WERE DEPOSITED ON THE BASEMENT GNEISS. AFTER BEING CHLORITIZED, ALBITIZED, AND SERICITIZED, THE FORMATION WAS INTRUDED BY THE CORNELIA QUARTZ MONZONITE OF EARLY TERTIARY AGE. THE COPPER ORE BODY IS LOCALIZED IN THE APEX OF AN OFFSHOOT OF THE LARGE MONZONITE STOCK TO THE WEST. AT THE TIME OF INTRUSION, A BORDER FACIES OF QUARTZ DIORITE DEVELOPED AROUND THE APEX. SOON AFTER CONSOLIDATION, NORTH-SOUTH FRACTURES DEVELOPED IN THE APEX AND WERE FILLED BY ORTHOCLASERICH PEGMATITES. THE MINERALIZING SOLUTIONS CHLORITIZED AND SERICITIZED THE APICAL ROCK AND DEPOSITED THE COPPER SULFIDE.

FOLLOWING THE PERIOD OF MINERALIZATION, THE GIBSON FAULT DROPPED THE HANGING WALL BLOCK SEVERAL THOUSAND FEET. THE MINERALIZED APEX WAS IN THIS BLOCK. AFTER LONG EROSION, THE RHYOLITE CAPPING WAS REMOVED TO WITHIN ABOUT 500 FEET OF THE TIP OF THE MINERALIZED MONZONITE APEX. DURING THIS PERIOD LEACHING PENETRATED ABOUT 600 FEET INTO THE RHYOLITE AND UNDERLYING MONZONITE. THIS LEACHING CAUSED SECONDARY ENRICHMENT IN THE RHYOLITE CAPPING OVER THE APEX WITH THE FORMATION OF A CHALCOHITE BLANKET. THEN A LOW-ANGLE FAULT SHIFTED THE RHYOLITE CAPPING ABOUT 1,200 FEET TO THE SOUTHEAST. THIS MOVEMENT EXPOSED A SMALL AREA OF MONZONITE AT THE TIP OF THE APEX. THIS AREA WAS ALONG THE "PEGMATITE" AXIS AND CARRIED STRONG CHALCOPYRITE-BORNITE MINERALIZATION. A BRIEF PERIOD OF ENRICHMENT FOLLOWED AND ALLOWED LEACHING TO A MAXIMUM DEPTH OF 150 FEET. IN SOME AREAS MONZONITE WITH PRIMARY MINERALIZATION OCCURS AS THE OLD EROSION SURFACE, DIRECTLY UNDER THE FANGLOMERATE. ENRICHMENT WAS BROUGHT TO A QUICK END BY THE DEPOSITION OF THE RAPIDLY ACCUMULATING FANGLOMERATE AND THE INTERBEDDED AJO VOLCANICS.

AFTER DEPOSITION OF THE FANGLOMERATE, THE NORTHWEST-TRENDING LITTLE AJD MOUNTAIN FAULT DEVELOPED AND TILTED THE ENTIRE LITTLE AJD MOUNTAIN BLOCK NO MORE THAN ABOUT 50 DEGREE S. LIMITED OXIDATION OF THIS EXPOSURE TOOK PLACE WITH DEVELOPMENT OF CARBONATE MINERALS.

ONCE AGAIN AFTER PROLONGED EROSION, THE MINERALIZED MONZONITE APEX WAS EXPOSED AT THE SURFACE. (DIXON, 1966)

COMMENTS (GEOLOGY AND MINERALOGY):

THE PIT ROCKS FALL INTO TWO GROUPS, SEPARATED IN SPACE BY THE CHARLIE FAULT. THIS A NORTH-SOUTH FAULT THAT DIPS STEEPLY TO THE EAST AND PASSES THROUGH THE CENTER OF THE PIT. THE ROCKS ON THE WEST SIDE, IN THE FOOTWALL OF THE FAULT, ARE HARD MASSIVE QUARTZ MONZONITE WITH BORNITE-CHALCOPYRITE MINERALIZATION AND WEAK HYDROTHERMAL ALTERATION. THE ROCKS IN THE HANGING-WALL BLOCK, ON THE EAST SIDE OF THE PIT, ARE SOFT QUARTZ MONZONITE, QUARTZ DIORITE, AND RHYOLITE WITH ABUNDANT FLOW SHEETING AND STRONG HYDROTHERMAL ALTERATION. MINERALIZATION IS PYRITE AND CHALCOPYRITE.

THE METALLIZATION OCCURS AS DISSEMINATED BLEBS SCATTERED THROUGHOUT THE ROCK TYPES AND AS DISCRETE GRAINS ALONG VEINLETS AND SEAMS AND IS GENERALLY LESS THAN 3 PERCENT OF THE ROCK. (DIXON, 1966)

GENERAL COMMENTS

SEE RECORD NUMBER M899999 FOR REFERENCES

RECORD 00276

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4000931
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... NEW YORK MINE
SYNONYM NAME..... BEECHMAN MINE

MINING DISTRICT/AREA/SUBDIST. HELVETIA - ROSEMONT DIST/SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAIN, ARIZ

LATITUDE LONGITUDE
31-55-58N 110-43-26W

UTM NORTHING UTM EASTING UTM ZONE NO
3532850.0 525050.0 12

TWP..... 17S
RANGE.... 16E
SECTION.. 29
MERIDIAN. GILA & SALT RIVER

ALTITUDE.. 4080 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5.53 KM NE VABM 6186; W. SLOPE OF BEECHMAN HILL, 3/4 MILE W. OF CUPRITE MINE

LOCATION COMMENTS: NE 1/4 OF SEC 29

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU AG ZN MO SE F

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB CU AG

MAIN COMMOD..... PB CU AG ZN
 MINOR COMMOD.... MO SB F

MAIN ORE MINERALS:
 CHALCOPYRITE: GALENA, SPHALERITE

MINOR ORE MINERALS:
 FLUORITE, PYRITE, AZURITE, MALACHITE CHRYSOCOLLA

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 PYROMETAMORPHASED

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
 2 TUNNELS AND SHAFTS (KEITH 1974)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	0.1	TONS	1890-1900'S	6% PB, 4% CU 20 OZ.T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 127

PRODUCTION COMMENTS.... WORKED FROM 1890'S AND PRODUCED SPORADICALLY IN EARLY 1900'S SOME 50-100 TONS OF ORE
 AVERAGING ABOUT 6% PB, 4% CU, AND 20 OZ AG/T.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. PALEOZOIC
 HOST ROCK TYPES..... LIMESTONE (GLANCE CONGL. ON FINNELS MAP)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT CRET
 IGNEOUS ROCK TYPES..... QUARTZ, MONZONITE INTRUSIVE (QUARTZ DIORITE (SCHRADER)

PERTINENT MINERALOGY..... QUARTZ, CALCITE, FLUORITE, MANGANESE AND IRON OXIDES; GARNETIZED LIMESTONE; EPIDOTE,

IMPORTANT ORE CONTROL/LOCUS.. SHEAR ZONES IN PYROMETAMORPHASED PALEOZOIC LIMESTONE ALONG THE CONTACT WITH LARAMIDE
 QUARTZ MONZONITE INTRUSIVE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 30-70 FT SHEAR ZONE TRENDS N10 TO 25 W AND DIPS 40 W AND TO THE N TRENDS N 50-80 W AND DIPS

SIGNIFICANT ALTERATION:

SILICATED GARNETIFEROUS LIMESTONE. SHEAR ZONE STRONGLY ALTERED TO FORM PROMINENT BLACK OUTCROP IN MARBLE BRECCIA

COMMENTS (GEOLOGY AND MINERALOGY):

GREEN FLUORITE CONTAINING ANTIMONY

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189. 156 P., P. 127
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 137-138
- 3) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 4) BROWNE, J.F. (1958) THE GEOLOGY OF THE CUPRITE MINE AREA, PIMA COUNTY. UNIV. ARIZONA M.S. THESIS, 39 P., P. 36
- 5) LEE, C.A. AND BORLAND, G.C., 1935, THE GEOLOGY AND ORE DEPOSITS OF THE CUPRITE MINING DISTRICT: UNIV. ARIZ., MS THESIS
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

RECORD 00277

CR10 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030547
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... NORTH SILVER BELL DEPOSIT

MINING DISTRICT/AREA/SUBDIST. SILVER BELL DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-26-00N 111-32-14W

UTM NORTHING UTM EASTING UTM ZONE NO
3588500. 449500. +12

TWP..... 11S
RANGE.... 08E
SECTION.. 33 32
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 2500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 NW OF SILVER BELL MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN

MAIN COMMOD..... CU MO

REMARKS:

CHRYSOCOLLA

ANALYTICAL DATA(GENERAL)
1000 PPM CU, 50 PPM MO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PRESENT/LAST OWNER..... PROPERTY IS INACTIVE
MINERALS EXPLORATION (UNION OIL) AND ASARCO

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEMINATED; STOCKWORKS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT-CRET.
HOST ROCK TYPES..... DACITE PORPHYRY (RHYODACITE POR.) OR QUARTZ, LAVITE PORPHYRY, QUARTZ MONZONITE
PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY

AGE OF MINERALIZATION..... TERT-CRET.

PERTINENT MINERALOGY..... QUARTZ, IRON OXIDES; ALUNITE; MN OXIDES; TERT. GARNET, BARITE, FLUORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ABUNDANT CLOSE FRACTURES

SIGNIFICANT ALTERATION:
POTASSIC ALTERATION LATERALLY YIELDS TO PHYLIC AND THEN PROPYLITIC ALTERATION ASSEMBLAGES WITH VARIABLE
SILICIFICATION (A 6 KM DIAMETER ALTERATION PATTERN).

COMMENTS (GEOLOGY AND MINERALOGY):
RED HEMATITE IN GOSSAN, RATHER THAN YELLOW JAROSITE AND GOETHITE, INDICATE CHALCOCITE BLANKET

GENERAL REFERENCES

- 1) GUILBERT, 1979, NORTH SILVER BELL TOUR GUIDE; SOC. ECON. GEOL. PORPHYRY COPPER FIELD SYMPOSIUM, 7 P.
- 2) BANKS, N.G. AND DOCKTER, R.D., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE VACA HILLS QUADRANGLE, ARIZONA: U.S.
GEOL. SURVEY, MF-793

RECORD 00278

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... 0000106
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 UPDATED..... 79 04
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... OLD YUMA MINE
 MINING DISTRICT/AREA/SUBDIST. AMOLE/N TUCSON MT.
 COUNTRY CODE..... US
 STATE CODE..... 04
 COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0024000 JAYNES, ARIZONA

LATITUDE LONGITUDE
 32-18-23N 111-07-16W

UTM NORTHING UTM EASTING UTM ZONE NO
 3568115.0 488590.0 +12

TWP..... 13S
 RANGE.... 12E
 SECTION.. 09 C
 MERIDIAN. GILA & SALT RIVER

ALTITUDE.. 2,600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.25 KM SE BM 2361

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU ZN MO AG AU V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB
 MINOR PRODUCTS.. CU ZN MO AG AU

MAIN COMMOD..... PB CU ZN MO AU AG

MAIN ORE MINERALS:
BASE METAL SULFIDES

MINOR ORE MINERALS:
WULFENITE CERUSSITE VANADINITE

COMMODITY COMMENTS:
MO PRODUCTION (AMOLE DIST=17 TONS MO)

ANALYTICAL DATA(GENERAL)
3 GOLD/TON; AVERAGE MINE ORE 2-3% WULFENITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA
DIP OF OREBODY..... STEEP

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT AND UNDERGROUND WORKINGS (KEITH, 1979, P 102)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 102

PRODUCTION COMMENTS.... PRODUCED SPORADICALLY FROM 1916 THROUGH 1947, WITH A TOTAL OF SOME 5,700 TONS OF ORE
AVERAGING ABOUT 4% PB, 1% CU, 0.6% ZN, 0.3% MO, 1 OZ AG/T AND 3.1 OZ AU/T; REPORTED, MAY, 1916, TO BE SHIPPING ORE
TO TUCSON, ORE CHIEFLY CONTAINING MOLYBDENUM WITH ABOUT 3 GOLD/TON. (MINES HANDBOOK, 1918, P. 554).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS
HOST ROCK TYPES..... ANDESITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... ANDESITE & ANDESITE FLOW BRECCIAS

PERTINENT MINERALOGY..... QUARTZ AND CALCITE GANGUE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULTED OREBODY ALONG A FRACTURE ZONE

COMMENTS (GEOLOGY AND MINERALOGY):

MULFENITE AS DEEP ORANGE-RED CRYSTAL GROUPS WITH SPECTACULAR VANADINITE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P P. 102
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 3) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: AMER. MINERAL., V. 19, P. 209-220.
- 4) MAYO, E.B., 1968, A HISTORY OF GEOLOGIC INVESTIGATION IN THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK III, P. 155-170
- 5) GUILD, F.N. (1911) MINERLOGISCHE NOTIZEN. ZEIT. KRYSTAL. UND MINERAL. 49: 321-331.
- 6) BOWMAN, H.L., 1903, NOTE ON THE REFRACTIVE INDICES OF PYROMORPHITE, MIMETITE, AND VANADINITE: MIN. MAG., V. 13, P. 324-329.
- 7) FRONDEL, C., 1935, CATALOG OF MINERAL PSEUDOMORPHS IN THE AMERICAN MUSEUM: BULL. AMER. MUS. NAT. HIST., LXVII
- 8) GUILD, F.N., 1910, THE MINERALOGY OF ARIZONA: THE CHEMICAL PUBLISHING CO., EASTON PA., 103 P.
- 9) GUILD, F.N., 1905, PETROGRAPHY OF THE TUCSON MOUNTAINS AMER. JOUR. SCI., 4TH SER., V. 20, P. 313.
- 10) MINES HANDBOOK, 1918, OLD YUMA MINE: MINES HANDBOOK, V. 13, P. 554.
- 11) U.S. BUR. MINES, 1916, ASM BULL. 111
- 12) CHAMPNEY, R.D., 1962, STRUCTURAL GEOLOGY OF A RHYOLITE FLOW IN THE TUCSON MOUNTAINS: UNIV. ARIZONA, MS THESIS, 43 P.
- 13) WHITNEY, R.L., 1957, STRATIGRAPHY AND STRUCTURE OF THE NORTHEASTERN PART OF THE TUCSON MOUNTAINS: UNIV. ARIZ., MS THESIS
- 14) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 15) JENKINS, O.P. AND E. D. WILSON (1920) A GEOLOGICAL RECONNAISSANCE OF THE TUCSON AND AMOLE MOUNTAINS. ARIZ. BUR. MINES BULL. 106, GEOL. SERIES, NO. 2 P. 17.

RECORD 00279

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030534
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... OMEGA TUNNEL
SYNONYM NAME..... AND OMEGA EXTENSION

MINING DISTRICT/AREA/SUBDIST. HELVETIA - ROSEMONT DIST/SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZ.

LATITUDE LONGITUDE
31-51-22N 110-46-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3524350. 521850. +12

TWP..... 18S
RANGE.... 15E
SECTION.. 24
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 E OF HELVETIA AND 1/4 MI S. OF ISLE ROYALE MINE

LOCATION COMMENTS: WEST CENTER SEC 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN AU MO W MN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU

MINOR PRODUCTS.. AG PB

MAIN COMMOD..... CU AG
 MINOR COMMOD.... PB ZN AU MO MN (?) W

MAIN ORE MINERALS:
 CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
 POWELLITE SPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 300 FT
 LENGTH OF WORKINGS..... 2000 FT

COMMENTS(DESCRIP. OF WORKINGS):

4 TUNNELS, SHAFT AND OPEN CUTS AND WINZE (CREASEY AND QUICK)

PRODUCTION

YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	7		TONS	1880-1920	6% CU, 1 OZ AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 127

PRODUCTION COMMENTS.... FIRST COPPER PRODUCED IN ANY CONSIDERABLE QUANTITY IN PIMA COUNTY CAME FROM THIS MINE IN 1884.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV. MISS.
 HOST ROCK TYPES..... MARTIN FM, ESCABROSA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.; TERT
 IGNEOUS ROCK TYPES..... CONTINENTAL GRANODIORITE; APLITE DIKES

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... GARNET- MAGNETITE GANGUE, MANGANESES (?) IRON OXIDES, SERICITE

IMPORTANT ORE CONTROL/LOCUS.. THRUST FAULT ZONE WITH APLITE INTRUDED ALONG FAULT IN PLACES; ORE IS IN GARNET AND MAGNETITE GANGUE ALONG THE CONTACT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
WNW STRIKING THRUST FAULT ZONE.

SIGNIFICANT ALTERATION:
EPIIDOTIZED AND ALTERED LIMESTONE

COMMENTS (GEOLOGY AND MINERALOGY):
JOHNSON (1941) SAYS MANGANESE OXIDES ARE NOT PRESENT, THEY ARE ACTUALLY CRUSHED MAGNETITE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 127
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 115-117
- 3) DREWES, HARALD 1970 GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:46,000 (1970)
- 4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P., P. 77.
- 5) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F, P. 320.

RECORD 00780

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030532
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... ORACLE DISTRICT
SYNONYM NAME..... OLD HAT, CONTROL, SANTA CATALINA DISTRICT

MINING DISTRICT/AREA/SUBDIST. ORACLE DIST./N SLOPE SANTA CATALINA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. LEMMON, BELLOTA RANCH

LATITUDE LONGITUDE
32-28-00N 110-45-00N

TWP..... 11S
RANGE.... 15E 16E
MERIDIAN. GILA AND SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN AU W MO

MAIN ORE MINERALS:

COPPER SULFIDES, LEAD AND ZINC SULFIDES

MINOR ORE MINERALS:

SCHEELITE, LEAD ZINC COPPER OXIDATION PRODUCTS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC REPLACEMENTS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
NUMEROUS RELATIVELY SHALLOW ADITS, TUNNELS, AND SHAFTS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 130

PRODUCTION COMMENTS.... WORKED SPORADICALLY SINCE THE EARLY 1900'S. TOTAL PRODUCTION UP THROUGH 1972 HAS BEEN SOME 136,000 TONS OF ORE CONTAINING ABOUT 3000 TONS OF CU, 94 TONS PB, 25 TONS ZN, 118,000 OZ AG AND 387 OZ AU.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB. DEV., MISS. PALEOZOIC
HOST ROCK TYPES..... LIMESTONE; ABRIGO FM, MARTIN FM, ESCABROSA LS.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TERT
IGNEOUS ROCK TYPES..... LEATHERWOOD QUARTZ DIORITE INTRUSIVE TO QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET. TERT. (75-64 M.Y.)

IMPORTANT ORE CONTROL/LOCUS.. FAULTED PALEOZOIC LIMESTONE INTRUDED BY LARAMIDE INTRUSIVE (LEATHERWOOD QUARTZ DIORITE)

GENERAL COMMENTS
SEE RECORDS M800111 & M800128 FOR FURTHER REFERENCES

GENERAL REFERENCES

- 4) CATALINA MTS. REFERENCES:
ABU AJAMIER, M.M. THE STRUCTURE OF THE PANTANO BEDS IN THE NORTHERN TUCSON BASIN: UNIV. ARIZ., MS THESIS, 71 P. (1966)
ACKER, C.J., 1958, GEOLOGIC INTERPRETATIONS OF A SILICEOUS BRECCIA IN THE COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY
8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
9) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
10) BANERJEE, ANIL K., 1957, STRUCTURE AND PETROLOGY OF THE ORACLE GRANITE, PINAL CO., ARIZONA: UNIV. ARIZONA, PHD. THESIS, 112 P.
11) BANKS, N.G. (1976), RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMON QUAD, ARIZONA, U.S.G.S. MAP MF - 747.
12) BANKS, N.G., 1977, A TERTIARY IGNEOUS-METAMORPHIC COMPLEX IN SOUTHEASTERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 9, NO. 4, P. 385
13) BANKS, N.G., 1977, GEOLOGIC SETTING AND INTERPRETATION OF A ZONE OF MIDDLE TERTIARY IGNEOUS-METAMORPHIC COMPLEXES IN SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, NO. 77-376, 29 P.
14) BANKS, N.G., IN PRESS, GEOLOGY OF A ZONE OF METAMORPHIC CORE COMPLEXES IN SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
15) BANKS, N.G., CORNWALL, H.R., SILBERMAN, M.L., CREASEY, S.C., AND MARVIN, R.R., 1972, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA: PART 1, K-Ar AGES: ECONOMIC GEOLOGY, V. 67, P. 864-878.

- 16)BANKS, N.G., DOCKTOR, R.D., BRISKEY, J.A., DAVIS, G.H., KEITH, S.B., BUDDEN, R.T., KIVEN, C.W., AND ANDERSON, P., 1977, RECONNAISSANCE GEOLOGIC MAP OF THE TORTOLITA MOUNTAINS QUADRANGLE: U.S. GEOL. SURVEY MISC. FIELD STUDIES
- 17)BANKS, N.G., MCKEE, E.H., KEITH, S.B., SHAFIQUALLAH, M., AND DAMON, P.E. BANKS, N.G., MCKEE, E.H., KEITH, S.B., SHAFIQUALLAH, M., AND DAMON, P.E., 1978, RADIO-METRIC AND CHEMICAL DATA FOR ROCKS OF THE TORTOLITA MOUNTAINS 15' QUADRANGLE, PINAL COUNTY, ARIZONA: ISOCHRON/WEST, NO. 22, P. 17-21.
- 18)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 19)BRYANT, D.L., 1968, DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. GUIDEBOOK III, P. 33-49.
- 20)BUDDEN, R.T., 1975, THE TORTOLITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ., M.S. THESIS, 133 P.
- 21)BUTLER, B.S., 18. (AND GROUT, F.F., AND BROMFIELD, C.S.) SANTA CATALINA MOUNTAINS METAMORPHIC AREA: ARIZ. GEOL. SOC. GEOL. SOC. AM., GUIDEBOOK SOUTHERN ARIZ. P. 43-49, ILLUS. (1952)
- 22)BELAN, RICKY ALLEN, 1972 HYDROGEOLOGY OF A PORTION OF THE SANTA CATALINA MOUNTAINS (TUCSON, ARIZONA): MASTER THESIS UNIV. ARIZONA.
- 23)BELAN, R.A., MATLOCK, W.G., 1973, GROUNDWATER RECHARGE FROM A PORTION OF THE SANTA CATALINA MOUNTAINS
- 24)HYDROL. WATER RESOUR. ARIZ. SOUTHWEST. VOL. 3, P. 33-40, 1973. ILLUS., TABLES, SKETCH MAP 5 (SERIAL); ANL (ANLYTIC) 2-21 (HYDROGEOLOGY AND HYDROLOGY) ARIZONA; HYDROGEOLOGY; GROUND WATER; SANTA CATALINA MOUNTAINS; TUCSON; AQUIFERS; UNITED STATES; RECHARGE; ARTESIAN WATERS; PRECIPITATION; RUNOFF; TEMPERATURE; MOVEMENT; FLOW; LEVELS; WATER QUALITY.
- 25)BLAKE, W.P., 1908A, GEOLOGICAL SKETCH OF THE REGION OF TUCSON, ARIZONA, IN MACDOUGAL, D.T., BOTANICAL FEATURES OF NORTH AMERICAN DESERTS, CARNEGIE INST. WASHINGTON PUB. 99, P. 45-68.
- 26)BLAKE, W.P., 1908B, NOTE UPON THE SANTA CATALINA GNEISS, ARIZONA: SCIENCE, N.S., V. 28, P. 379-380.
- 27)BRAUN, E.R. (1969) GEOLOGY AND ORE DEPOSITS OF THE MARBLE PEAK AREA, SANTA CATALINA MOUNTAINS, PINA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 75 P.
- 28)BRODERICK, J.P., 1967, STRUCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PINA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 29)BROMFIELD, C.S., 1950, GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 63 P.
- 30)BROMFIELD, C.S., 1952, SOME GEOLOGIC FEATURES OF THE SANTA CATALINA MOUNTAINS, IN ARIZONA GEOL. SOC. GUIDEBOOK FOR FIELD TRIP EXCURSIONS IN SOUTHERN ARIZONA, ARIZ. GEOL. SOC. DIGEST, V. 5, P. 51-55.
- 31)BROWN, RONALD GLYN GEOCHEMICAL SURVEY OF THE VICINITY OF ORACLE, ARIZONA: ARIZ. STATE UNIV., TEMPE, MS THESIS, 56 P. (1970); (ABS.); ARIZ. ACAD. SCI. JOUR., V. 6, 1970 PROC. SUPP., P. 62 (1970)
- 32)(MONTANA), BEARTOOTH (MONTANA), AND SANTA CATALINA (ARIZONA) MOUNTAINS: GEODCHIM. COSMOCHIM. ACTA, V. 28, P. 87-124.
- 33)CHEW, R.T., 2. MID-TERTIARY ROCK UNIT FROM SOUTHERN ARIZONA (ABST.): GEOL. SOC. AM. BULL, V. 63, P. 1324 (1952)
- 34)CHEW, R.T., 3RD 1. THE GEOLOGY OF THE MINETA RIDGE AREA, PINA AND COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P., MAPS (1952)
- 35)CLAY, DONALD WAYNE STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PINA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., PHD. THESIS, 183 P. (1970); (ABS.): DISSERT. ABS. INTERNATL., SEC. B., SCI. AND ENGR., V. 31, NO. 6, P. 3478-3479 (1970)
- 36)CLAY, D.W. ALGAL INTERCLASTS FROM CARBONATE ROCKS OF THE MINETA FORMATION, SOUTHEASTERN ARIZONA. GSA ABSTR, VOL. 6, NO. 5, P. 435, 1974.
- 37)CONEY, P.J., 1979, TERTIARY EVOLUTION OF CORDILLERAN METAMORPHIC CORE COMPLEXES: SOC. ECON. MINERALOGISTS AND PALEONTOLOGISTS CENOZOIC PALEOGEOGRAPHY VOLUME, P. 15-29.
- 38)CONEY, P.J., THIS VOLUME, CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOL. SOC. AMER. MEMOIR.
- 39)CREASEY, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS AND ASSOCIATED COPPER DEPOSITS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, ANNUAL MEETING, KANSAS CITY, MISSOURI, P. 38.
- 40)CREASEY, S.C., 1967, GENERAL GEOLOGY OF THE MAMMOTH QUADRANGLE, PINA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1218, 94 P.
- 41)CREASEY, S.C., BANKS, N.G., ASHLEY, R.P., AND THEODORE, T.G.,
TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY J. OF RESEARCH, V. 5, P. 705-717.
- 42)CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH, 1962: U.S. GEOL. SURVEY PROFESSIONAL PAPER 450-D, P. 01-05.

- 43)CREASEY, S.C., AND THEODORE, I.G., 1975, PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE BELLOTA RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 75-295.
- 44)CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1961; RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-238.
- 45)DALE, V.B. (1959) TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5516.
- 46)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
- 47)DAMON, P.E., 1959, GEOCHEMICAL DATING OF IGNEOUS AND METAMORPHIC ROCKS IN ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 19.
- 48)DAMON, P.E., 1968, APPLICATION OF THE POTASSIUM-ARGON METHOD TO THE DATING OF IGNEOUS AND METAMORPHIC ROCKS WITHIN THE BASIN-RANGES OF THE SOUTHWEST: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 7-20.
- 49)DAMON, P.E., AND ASSOCIATES 1969, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANNUAL PROGRESS REPORT NO. 1969 CDD-689 TO U.S. ATOMIC ENERGY COMMISSION: TUCSON, GEOCHRONOLOGY LABS., UNIVERSITY OF ARIZONA, 90 P.
- 50)DAMON, PAUL E. 4. (AND ERICKSON, ROLFE C., AND LIVINGSTON, DONALD E.) K-AR DATING OF BASIN AND RANGE UPLIFT, CATALINA MOUNTAINS, ARIZONA: GEOPHYS. ABS., NO. 204, ITEM 12 (1964)
- 51)DAMON, P.E., ERICKSON, R.C., AND LIVINGSTON, D.E., 1963, K-AR DATING OF BASIN AND RANGE UPLIFT CATALINA MOUNTAINS, ARIZONA: NATL. ACAD. SCI. - NATL. RESEARCH COUNCIL PUB. 1075, P. 113-121.
- 52)DAMON, P.E., AND GILETTI, R.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS, P. 443-453: IN KULP, J.L., EDITOR, GEOCHRONOLOGY OF ROCK SYSTEMS IN ANNALS: NEW YORK ACADEMY OF SCIENCE, V. 91, P. 443-453.
- 53)DAMON, P.E., D.E. LIVINGSTON, AND R.C. ERICKSON, 1962, NEW K-AR DATES FOR THE PRECAMBRIAN OF PINAL, GILA, YAVAPAI AND COCONINO COUNTIES, ARIZONA: MCGILLAN RIM REGION GUIDEBOOK 13TH FIELD CONF., NEW MEXICO GEOL. SOC., P. 56-57.
- 54)DAMON, P.E., AND MAUGER, R.M., 1966, EPETROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METALLOGENETIC ENGINEERS TRANS., V. 235, P. 99-112.
- 55)DAMON, P.E., SHAFIQUILLAH, M., KEITH, S.B., REYNOLDS, S.J., LIVINGSTON, D.E., AND PUSHKAR, P.D., IN PRESS, NEW RB-SR AND K-AR DATA FOR THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: ISOCHRON/WEST.

RECORD 00281

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030549
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... OXIDE MINE
SYNONYM NAME..... YOUNG AMERICA

MINING DISTRICT/AREA/SUBDIST. SILVER BELL

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-23-51N 111-30-38W

UTM NORTHING UTM EASTING UTM ZONE NO
3585425.0 452000.0 +12

TWP..... 12S
RANGE.... 08E
SECTION.. 10 NE 11 NW
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 2,790 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.2 KM S VABM 4195

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU

MAIN COMMOD..... CU AG
MINOR COMMOD..... AU

MAIN ORE MINERALS:
COPPER CARBONATES

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 VEINS AND DISSEMINATED PYROMETASOMATIC

DESCRIPTION OF WORKINGS
 SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
 PROSPECTED AND WORKED BY SHAFT, TUNNEL, AND SOME OPEN PITS SINCE 1880'S (KEITH, 1974)

PRODUCTION
 YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	5	TONS	1880'S-1918	11% CU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 143

PRODUCTION COMMENTS.... UP THROUGH 1918, PRODUCED SOME 5,000 TONS OF ORE AVERAGING ABOUT 11% CU AND 1 OZ. AG/T.
 FROM 1954 PRODUCTION INCLUDED UNDER SILVERBELL MINE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC
 HOST ROCK TYPES..... GARNETIZED LIMESTONE
 AGE OF ASSOC. IGNEOUS ROCKS.. TERT CRET.
 IGNEOUS ROCK TYPES..... DACITE PORPHYRY AND MONZONITE

AGE OF MINERALIZATION..... TERT CRET.

IMPORTANT ORE CONTROL/LOCUS.. PYROMETASOMATIC DEPOSITS IN GARNETIZED PALEOZOIC LIMESTONE BLOCKS ENGULFED IN
 LARAMIDE DACITE PORPHYRY AND MONZONITE ALONG FAULTS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 ALONG A MAJOR FAULT ZONE

SIGNIFICANT ALTERATION:
 GARNETIZED LIMESTONE

GENERAL REFERENCES

- 1) KEITH, STANTON, B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 109, 156 P., P. 143.
- 2) GALEY, J.L., 1979, GENERAL GEOLOGY AND HYDROTHERMAL ALTERATION OF THE SILVER BELL PORPHYRY COPPER DEPOSIT: SOC. ECON. GEOL., PORPHYRY COPPER FIELD CONFERENCE, 18 P.
- 3) RICHARD, K. AND COURTRIGHT J.H. (1966) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY, AND C.L. HICKS, (EDS.), UNIV. ARIZONA PRESS, TUCSON: 157-163.
- 4) STEWART, C.A., 2. THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL DISTRICT, ARIZONA: AIME BULL. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-290, MAP (1913); (ABST.); MIN. WORLD, V. 36, P. 1104-1107, 1147-1150 (1912)
- 5) STEWART, C.A. (1912) THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA. TRANS. AIME 43: 240-290.
- 6) RICHARD, K.E. 1. AND COURTRIGHT, J.H. STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MIN. ENGR. V. 6, NO. 11, P. 1095-1099, ILLUS., MAP (1954); AIME TRANS. 1954, V. 199 (1955); (DISCUSSION BY T.W. MITCHAM AND REPLY BY AUTHORS): MIN. ENGR., V. 7, NO. 3, P. 300 (1955); AIME TRANS. 1955, V. 202 (1956)
- 7) SHUEMAKER, A.H., AND G. SOMMERS (1924) THE GEOLOGY OF THE EL TIRO MINE, SILVER BELL, ARIZONA. UNIV. ARIZONA M.S. THESIS, 40 P.
- 8) STEWART, C.A., 1912, THE GEOLOGY AND ORE DEPOSITS OF THE SILVER BELL MINING DISTRICT, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS BULL., V. 65, P. 455-506.
- 9) WATSON, B.N. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ. PH.D. THESIS, 168, P. (1964)
- 10) WATSON, HARRY NORTON J. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): DISSERT. ABS., V. 25, NO. 3, P. 1953 (1954)
- 11) WATSON, B.N. 1968, INTRUSIVE VOLCANIC PHENOMENA IN SOUTHERN AND CENTRAL ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK 111 - GEOL. SOC. AMERICA CORDILLERAN SEC., 64TH ANN. MTG., TUCSON, 1968; ARIZONA GEOL. SOC., P. 147-153.
- 12) WATSON, B.N., 1968, UPDATING THE GEOLOGY AND ORE CONTROLS AT SILVER BELL, ARIZONA: TALK TO MINING GEOLOGY DIV., ARIZ. SECTION A.I.M.E.
- 13) BANKS, N.G., AND DOCKTER, R.D., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE VACA HILLS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF-793.
- 14) AGENBROAD, L.D., 1962, THE GEOLOGY OF THE ATLAS MINE AREA, PIMA COUNTY, ARIZONA: ARIZONA UNIV., TUCSON M.S. THESIS, 39 P.
- 15) BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L. AND NAESER, C.W., 1978, RADIO-METRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANICS AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 5, P. 439-445.
- 16) BARNEY, W.G. (1904) THE SILVERBELL MOUNTAINS, ARIZONA. ENG. MIN. JOUR. 78: 755.
- 17) BLANCHARD, RULAND, 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.
- 18) BUSECK, PETER R., 1962, CONTACT METASOMATIC DEPOSITS AT CONCEPCION DEL ORD, MEXICO; TEM PIUTE, NEVADA; AND SILVER BELL, ARIZONA: UNPUBLISHED PH.D. DISSERTATION, COLUMBIA UNIVERSITY, NEW YORK.
- 19) CLARKE, CRAIG W. THE GEOLOGY OF THE EL TIRO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P. (1965)
- 20) DAMON, ET AL., 1963, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: UNIV. ARIZONA, ANN. PROGRESS REPORT NO. 5.
- 21) DAVIS, S.R., 1974, RECONNAISSANCE GEOLOGIC MAP AND GEOLOGIC COMPILATION OF THE SILVER BELL, AND WEST SILVER BELL MOUNTAINS, SCALE 1:62,500 (UNPUB. ASARCO INC. MAP).
- 22) DAVIS, S.R., 1974, RECONNAISSANCE GEOLOGIC MAP OF PART OF THE WEST SILVER BELL MOUNTAINS, SCALE 1:24,000 (UNPUB. ASARCO INC. MAP).
- 23) DOCKTER, R.D., 1977, MOUNT LORD VOLCANICS, PIMA COUNTY, ARIZONA, IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE U.S. GEOLOGICAL SURVEY: U.S. GEOL. SURVEY BULL. 1435-A, A117-120.
- 24) EDMISTON, R.C., 1973, THERMAL ANOMALIES AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT (ABSTR.): MIN. ENGR., V. 25, NO. 12, P. 45.
- 25) EDMISTON, R., 1971, THERMAL GRADIENTS AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT, PIMA COUNTY,

- ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 26)ENGINEERING AND MINING JOURNAL, 1957, HOW AS&R RAISED MOLYBDENITE RECOVERY ON COPPER CONCENTRATE: ENG. MIN. JOUR., V. 158, NO. 8, P. 104-106.
- 27)EMMONS, W.H., 1917, THE ENRICHMENT OF ORE DEPOSITS: U.S. GEOL. SURVEY BULL. 625.
- 28)HAYES, P.T., 1970, CRETACEOUS PALEOGEOGRAPHY OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: U.S. GEOL. SURVEY PROF. PAPER 658-B, 42 P.
- 29)KERR, P.F. (1951) ALTERATION FEATURES AT SILVERBELL, ARIZONA. GEOL. SOC. AMER. BULL. 62: 451-480.
- MAUGER, R.L., 1966, A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIV. OF ARIZ., 212 P.
- 31)MAUGER, R.L., DAMON, P.E., GILLETTI, B.J., 1963, AGE OF ORE DEPOSITION WITHIN THE SOUTHWESTERN COPPER METALLOGENETIC PROVINCE IN ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, DALLAS, TEXAS, FEBRUARY.
- 32)MAUGER, R.L., DAMON, P.E., AND GILETTI, B.J., 1965, ISOTOPIC DATING OF ARIZONA ORE DEPOSITS: AM. INST. MINING METALL. AND PETROLEUM ENGINEERS TRANS., V. 232, P. 81-87.
- 33)MERZ, J.J. (1967) THE GEOLOGY OF THE UNION HILL AREA, SILVER BELL DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 58 P.
- 34)MITCHAM, T.W., 1955, DISCUSSION OF PAPER, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
- 36)MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
- 36)RICHARD, KENYON, AND COURTRIGHT, J.H., 1954, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MINING ENG., NOVEMBER, AND AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 1095-1099.
- 37)RICHARD, K., AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.
- 38)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 39)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 93-87.
- 40)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 171, 156, 205.
- 41)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 42)TOLMAN, C.F., JR., 1909, COPPER DEPOSITS OF SILVERBELL, ARIZONA: MIN. SCI. PRESS, V. 99, P. 646-658

RECORD 00282

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04100
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... PALO VERDE MINE
SYNONYM NAME..... EISENHOWER GROUP (PIMA, MISSION,)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES ARIZONA

LATITUDE LONGITUDE
31-59- 111-04-

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 16S
RANGE..... 12E
SECTION.. 36
MERIDIAN. G & SR

ALTITUDE.. 3345 FT

POSITION FROM NEAREST PROMINENT LOCALITY: JUST WEST OF MISSION

LOCATION COMMENTS: NC

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG ZN BP AU MO

MAIN COMMOD..... CU AG MO
MINOR COMMOD..... PB AU

MAIN ORE MINERALS:

COPPER, ZINC AND LEAD SULFIDES

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FRACTURE VEINLETS, DISSEM.
FORM/SHAPE OF DEPOSIT: LENSES

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1974)

18 ORE	ACC	482.540 TONS	1960 - 1963
19 ORE	ACC	19126.90 LBS	1960-1963
20 ZN	ACC	277.900 LBS	1960-1963
21 AG	ACC	5144.291 OZS	1960-1963
22 AU	ACC	.311 OZS	1960-1963

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 136

PRODUCTION COMMENTS.... SOME 480,000 TONS OF ORE AVERAGING ABOUT 5% CU, 1 OZ AF/T, AND 1% ZN PRODUCED 1960-1963

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC

HOST ROCK TYPES..... GARNETIFEROUS TACTITE FROM LIMESTONE AND MARBLE

AGE OF ASSOC. IGNEOUS ROCKS.. LARAMIDE

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE INTRUSIVE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR AND SPOTTY HIGH GRADE LENSES, FRACTURES VEINLETS, AND DISSEMINATED IN STEP FAULTED AND BRECCIATED, GARNETIFEROUS TACTITE IN PALEOZOIC LIMESTONE AND MARBLE CLOSE TO LARAMIDE QUARTZ MONZONITE INTRUSIVE AND ABOVE THE THRUST FAULT CONTACT WITH THE PRECAMBRIAN GRANITE. SOME MINERALIZATION, OXIDE AND SULFIDE DISSEMINATED IN OVERLYING CRETACEOUS SEDIMENTS. (KEITH, 1974, P. 136)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

ST CANNOT READ IT ?????

COMMENTS (GEOLOGY AND MINERALOGY):

PLATFORM COVER ROCKS W FELSIC ROCKS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 136
- 2) VENABLE, B.W., 1963, MINING AT THE PALO VERDE MINE: MINING CONGRESS JOURNAL, V. 40, NO. 1, P. 14-18
- 3) BOWMAN, A.B., 1963, HISTORY GROWTH, AND DEVELOPMENT OF A SMALL MINING COMPANY: MIN. ENGR., V. 15, NO. 6, P. 42-49
- 4) GALE, R., 1965, GEOLOGY OF THE MISSION DISTRICT, PIMA COUNTY, ARIZONA: STANFORD UNIV., PHD THESIS
- 5) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ. P. 51.
- 6) LANGLOIS, J.D., 1978, GEOLOGY OF THE CYPRUS PIMA MINE. PIMA COUNTY, ARIZONA, IN JENNEY, J.P. AND HAUCK, H.R. ED., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIG. VOL. 11, P. 103-1139

RECORD 00283

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030531
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... PAPAGO DISTRICT
 SYNONYM NAME..... SIERRITA DISTRICT

MINING DISTRICT/AREA/SUBDIST. PAPAGO (SIERRITA)/W. SIERRITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: PALO ALTO

TWP..... 17S 18S
 RANGE.... 10E 11 E

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB CU ZN MN MO F U

MAIN COMMOD..... AG PB CU ZN
 MINOR COMMOD..... MN MO F U

MAIN ORE MINERALS:

(BASE AND PRECIOUS METAL) GALENA

MINOR ORE MINERALS:

CHALCOHITE, CERUSSITE, ANGLESITE, CERARGYRITE, OXIDIZED COPPER; PYRITE, SPHALERITE, CHALCOPYRITE WOLFENITE,
 AZURITE, MALACHITE, PYRITE, MANGANESE OXIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT; FISSURE VEINS
FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
MAINLY SMALL MINES AND PROSPECTS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 131

PRODUCTION COMMENTS.... WORKED SPORADICALLY SINCE 1870'S. TOTAL ESTIMATED AND REPORTED MINE PRODUCTION WOULD BE SOME 5000 TONS OF ORE CONTAINING ABOUT 30,000 OZ AG, 400 TONS PB, 26 TONS CU, 1 TON ZN, AND 100 OZ AU. ABOUT 1000 OZ AU MAY HAVE BEEN RECOVERED FROM PLACERS AND A SMALL AMOUNT OF FLUORSPAR HAS BEEN SHIPPED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC AND MESOZOIC
HOST ROCK TYPES..... SEDIMENTARY AND VOLCANIC FORMATIONS

AGE OF ASSOC. IGNEOUS ROCKS.. MESOZOIC AND LARAMIDE
IGNEOUS ROCK TYPES..... GRANITIC INTRUSIVES

PERTINENT MINERALOGY..... QUARTZ

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULTS AND FRACTURES N20W DIP 45-50E

SIGNIFICANT ALTERATION:
LARGELY OXIDIZED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156, P. 131.
- 2) DREWES, H. AND COOPER, J.R., 1973B RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
- 3) KEITH, W.J., AND THEODORE, T.G., 1975, RECONNAISSANCE GEOLOGIC MAP OF THE ARIVACA QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY MF-678.
- 4) RANSOME, F.L., 1922, ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 725
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
- 6) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990
- 7) COOPER, J.R. 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP I-745.
- 8) COOPER, J.R. 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D, P. 42.

RECORD 00284

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030513
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... PAPAGO QUEEN
SYNONYM NAME..... SAGINAW HILL, GOLD HILL AMOLE GROUP

MINING DISTRICT/AREA/SUBDIST. AMOLE DIST/S. TUCSON MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 CAT MOUNTAIN, ARIZONA

LATITUDE LONGITUDE
32-08-25N 111-04-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3355800.0 492790.0 +12

TWP..... 15S
RANGE.... 12E
SECTION.. 12 WC
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 2780 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.1 BM SE BM 2554

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU AG

MAIN COMMOD..... CU AG AU
MINOR COMMOD..... MO

MAIN ORE MINERALS:
CUPRITE, MALACHITE

MINOR ORE MINERALS:
MINOR MOLYBDENUM OXIDES

EXPLORATION AND DEVELOPMENT
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEMINATED; FISSURE VEIN

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
TUNNEL AND OPEN CUT (KEITH 1974 P. 102)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 102

PRODUCTION COMMENTS.... SPORADIC PRODUCTION OF COPPER ORE FROM 1917 TO 1934 AND OF SMELTER FLUX IN 1956 THROUGH 1959. TOTAL OUTPUT WAS SOME 3,700 TONS AVERAGING ABOUT 1% CU AND 0.5 OZ AG/TON

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. TERT
HOST ROCK TYPES..... QUARTZ PORPHYRY STOCK

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. - TERT
IGNEOUS ROCK TYPES..... SAGINAW HILL PORPHYRY (LATITE PORPHYRY)

PERTINENT MINERALOGY..... BANDED QUARTZ CARRIES UP TO 3% CU (ALLEN, 1920);

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS ARE SILICEOUS REPLACEMENTS ALONG FRACTURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FRACTURES, BRECCIATED

SIGNIFICANT ALTERATION:
WEAKLY ALTERED; IRREGULARLY METAMORPHASED GARNET AND EPIDOITE

COMMENTS (GEOLOGY AND MINERALOGY):
CHALCOPYRITE AND PYRITE ON W SIDE OF SAGINAW PROPERTY; GOLD MOUNTAIN (PAPAGO QUEEN) HAS COPPER OXIDES ON E SIDE OF SAGINAW PROPERTY; AT SOUTH END OF PROPERTY ALONG RHYOLITE-LIMESTONE HAS CERUSSITE AND GALENA (ALLEN, 1920)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156P, P. 102.
- 2) KINNISON J.E. (1958) GEOLOGY AND ORE DEPOSITS OF THE SOUTHERN SECTION OF THE AMOLE-MINING DISTRICT, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 123 P., P 109-110.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALUGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
 - 5) ALLEN, M.A., 1920, THE SOUTHERN SECTION OF THE AMOLE MINING DISTRICT: ARIZ. BUR. MINES BULL. 106, P. 19-25
 - 6) BICKERMAN, MICHAEL, 1962, A GEOLOGIC-GEOCHEMICAL STUDY OF THE CAT MOUNTAIN RHYOLITE: UNIV. AIRZ., MS THESIS, 43 P.
 - 7) BICKERMAN, M., 1963, ORIGIN OF THE CAT MOUNTAIN RHYOLITE: ARIZ. GEOL. SOC., DIGEST, V. 6, P. 83-89.
 - 8) BICKERMAN, MICHAEL 2. (AND DAMON, PAUL E.) K/AR CHRONOLOGY OF THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: GEOL. SOC. AM. BULL., V. 77, NO. 11, P. 1225-1234, ILLUS., TABLE (1966); (ABS.): GEOPHYS. ABS., NO. 245, ITEM 10 (1967)
 - 9) BROWN, W.H. (1939) TUCSON MOUNTAINS, AN ARIZONA BASIN AND RANGE TYPE. GEOL. SOC. AMER. BULL. 50: 697-760.
 - 10) JENKINS, O.P. AND E.D. WILSON (1920) A GEOLOGICAL RECONNAISSANCE OF THE TUCSON AND AMOLE MOUNTAINS. ARIZ. BUR. MINES BULL. 106, GEOL. SERIES 2: 17.
 - 11) KHIN, BASAW, 1971, CORNETITE FROM SAGINAW HILL, ARIZONA: ERRATA: MINERAL. RECORD, V. 2, NO. 1, P. 47.
 - 12) KHIN, B.S., 1970, CORNETITE FROM SAGINAW HILL, ARIZONA: MINERAL. RECORD, V. 1, P. 117-118.
 - 12) KINNISON, J.E., 1959, STRUCTURES OF THE SAGINAW HILL AREA, TUCSON MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 146-151
 - 13) KINNISON, J.E. 2. CHAOTIC BRECCIAS IN THE TUCSON MOUNTAINS, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 49-57 (1959); (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1727-1728 (1959)
 - 14) KINNISON J.E. (SEE ALSO BRYANT, D.L., 4) 1. GEOLOGY AND ORE DEPOSITS OF THE SOUTHERN SECTION OF THE AMOLE MINING DISTRICT, TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 123 P. (1958); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)
 - 15) MAYO, E.B., 1968, A HISTORY OF GEOLOGIC INVESTIGATION IN THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK III, P. 155-170.

RECORD 00285

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030529
 RECORD TYPE..... K1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT JAN C.
 DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... PAULINE MINE
 SYNONYM NAME..... HAYWARD'S SULPHIDE MINE; ANDRADE, HAYWARD'S SULFIDE MINE

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST/SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
 1: 0062500 EMPIRE MTNS, ARIZONA

LATITUDE LONGITUDE
 31-55-29N 110-41-49W

UTM NORTHING UTM EASTING UTM ZONE NO
 3531960.0 528675.0 +12

TWP..... 17S
 RANGE.... 16E
 SECTION.. 27
 MERIDIAN. GILA AND SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: 4.33 KM NE VABM 6186; 1 MI. SE OF CUPRITE MINE

LOCATION COMMENTS: CENTER OF SEC 27

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU ZN AU MO SB

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB CU
 MINOR PRODUCTS.. AG AU

MAIN COMMOD..... PB AG CU ZN

MINOR COMMOD.... AU MD SB

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE, GOLD, SILVER, CHALCOCITE, GALENA, SPECULARITE, SPHALERITE, ANTIMONY, SOME CERUSSITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
YEAR OF DISCOVERY..... PROPERTY IS INACTIVE
LOCATED IN 1902

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC REPLACEMENT
FORM/SHAPE OF DEPOSIT: IRREGULAR; CRUDELY BANDED

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 7 FT
DIP OF OREBODY..... 45 N

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 150 FT

COMMENTS(DESCRIP. OF WORKINGS):
150 FT DEEP SHAFT AND SURFACE WORKINGS (KEITH, 1974)

PRODUCTION

YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST	0.15	TONS		1882-1952	2% PB 2% CU, 1 OZ/T AG AND 0.3 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 128

PRODUCTION COMMENTS.... FROM 1882 TO 1952 SOME 150 TONS OF ORE AVERAGING ABOUT 2% PB, 2% CU, 1 OZ AG/T AND 0.3 OZ AU/T PRODUCED SPORADICALLY

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS
HOST ROCK TYPES..... GARNETIZED LIMESTONE (APACHE CANYON FM.)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY INTRUSIVE; APLITE DIKES AND STOCKS

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... MASSIVE GARNET, INTERSTITIAL QUARTZ; EPIDOTE AND MUSCOVITE INFRACTURES IN GANGUE

IMPORTANT ORE CONTROL/LOCUS.. LEAD ORE NEAR SURFACE, COPPER ORE IN DEPTH; LIMESTONE IS FAVORABLE ESPECIALLY NEAR FAULTS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ALONG FAULTING

SIGNIFICANT ALTERATION:
PARTLY OXIDIZED; GARNETIZED CRETACEOUS LIMESTONE

COMMENTS (GEOLOGY AND MINERALOGY):
COPPER SULFIDE ORE ENCOUNTERED AT 60 FT; NO COPPER CARBONATES IN MINE

GENERAL REFERENCES

- 1) KEITH, STANTON R., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 128
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 138
- 3) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 4) BRUNNE, J.F. (1958) THE GEOLOGY OF THE CUPRITE MINE AREA, PIMA COUNTY, UNIV. ARIZONA M.S. THESIS, 39 P.
- 5) LEE, C.A., AND BORLAND, G.C., 1935, THE GEOLOGY AND ORE DEPOSITS OF THE CUPRITE MINING DISTRICT: UNIV. ARIZ., MS THESIS
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) FRONDEL, W. AND F.F. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

RECORD 00286

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030535
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... PIMA DISTRICT
SYNONYM NAME..... OLIVE, MINERAL HILL, TWIN BUTTES DIST.

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES

LATITUDE LONGITUDE
31-53-10N 111-04-39W

UTM NORTHING UTM EASTING UTM1ZONE NO

TWP..... 16S 18S
RANGE.... 11E 13E
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 3,600 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO W

MAIN ORE MINERALS:

CHALCOPYRITE, CHALCOCITE, MOLYBDENITE, PYRITE

MINOR ORE MINERALS:

SPHALERITE, GALENA, GOLD AND SILVER VALUES PYRRHOTITE, SCHEELITE, TETRAHEDRITE, TENANTITE, POWELLITE;
CHRYSOCOLLA, TENORITE, MALACHITE, AZURITE, CUPRITE, NATIVE COPPER, BORNITE, COVELLITE, WULFENITE,
BROCHANTITE, MEMMONTITE, TURQUOISE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS, PYROMETASOMATIC AND DISSEMINATED
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL VEINS; LARGE PORPHYRY

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL TO LARGE UNDERGROUND MINES AND PROSPECTS, AND LARGE OPEN PIT OPERATIONS (KEITH, 1974)

PRODUCTION

YES

LARGE PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 133

PRODUCTION COMMENTS.... TOTAL ESTIMATED AND REPORTED PRODUCTION UP THROUGH 1972 WOULD BE SOME 369, 707, 400 TONS OF
ORE CONTAINING 2.1 MILLION TONS OF CU, 42,000 TONS PB, 116,000 TONS ZN, 33,000 TONS MO, 31,000,000 OZ AG, 53,700 OZ
AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI, PALEOZ, CRET, TERT.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. 58.7 M.Y.

AGE OF MINERALIZATION..... TERT. (53.5 M.Y.) 56.7 M.Y.)

IMPORTANT ORE CONTROL/LOCUS.. FRACTURING, FAULTING AND JOINTING WERE MAJOR ORE CONTROLS WITH FAVORABLE LITHOLOGIES
CONCENTRATING ORE FURTHER IN MORE SILICEOUS ROCKS (HORNFELS, CLASTICS, QUARTZ MONZONITE PORPHYRY, ANDESITE
PORPHYRY, ALTERED CARBONATES SKARNS).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SAN XAVIER FAULT IS A MAJOR, LOW-ANGLE FAULT, WHICH CONTAINS IN ITS 100 KM UPPER PLATE THREE LARGE OPEN PIT
MINES - PIMA, MISSION, AND SAN XAVIER NORTH. TWIN BUTTES AND SIERRITA-ESPERANZA REPRESENT THE LOWER PLATE. 26
TO 27 M.Y. OLD DIKES ARE OUT BY THE FAULT, WHICH IS POST-MINERALIZATION. (SHAFIGULLAH AND LANGLOIS, 1978)

SIGNIFICANT ALTERATION:

ALTERATION INCLUDES PROPYLITIC, QUARTZ-SERICITE, POTASSIC; SKARNS; BIOTIZATION, ARGILLIC AND PHYLIC ALTERATION.

GENERAL COMMENTS

SEE RECORDS M800124 & M800125 FOR FURTHER REFERENCES

GENERAL REFERENCES

4) PIMA DISTRICT

- AIKEN, D.M., AND WEST, R.J., 1978, SOME GEOLOGIC ASPECTS OF THE SIERRITA-ESPERANZA COPPER-MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 117-129.
- 5) ANDERSON, C.A. AND KUPFER, D.H., 1943, REPORT ON THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP.
- 6) ANDERSON, C.A., AND KUPFER, D.H., 1944, REPORT OF THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INVENTORY.
- 7) ANDREASEN, G.E. (AND PITKIN, J.A.) AEROMAGNETIC MAP OF THE TWIN BUTTES AREA, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: USGS MAP GP-426 (1963).
- 8) ANDREASEN, G.E. 1. (AND PITKIN, J.A.) AEROMAGNETIC MAP OF THE TWIN BUTTES AREA, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: GEOPHYS. ABS., NO. 209, ITEM 315 (1964).
- 9) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 10) ARNOLD, L.C. (1964) SUPERGENE MINERALOGY AND PROCESSES IN THE SAN XAVIER MINE AREA, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63 P.
- 11) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
- 12) BANKS, N.G. 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 195-211.
- 13) BARTER, C.F., 1976, STRATIGRAPHY, ALTERATION AND ORE CONTROLS IN THE MAIN ORE ZONE, TWIN BUTTES MINE, PIMA COUNTY, ARIZONA (ABS.): ARIZ. GEOL. SOC. UNIV. OF ARIZ. PORPHYRY COPPER SYMPOSIUM.
- 14) BARTER, C.F., 1978, STRATIGRAPHY, ALTERATION, AND ORE CONTROLS IN THE MAIN ORE ZONE, TWIN BUTTES MINE, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROC. OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 115-116.
- 15) BEEBE, G.G. 1974, ENGINEERING PROPERTIES OF MINE TAILINGS (ABST.), IN ENGINEERING GEOLOGY AND THE NATURAL RESOURCES ENERGY SPECTRUM: ASSOC. ENG. GEOL., ANN. MEET., PROGRAM ABST., NO. 17, P. 20-21.
- 16) BEEDER, J.R., "GEOLOGY OF THE PIMA MINE." PIMA MINING CO. REPORT 1968, 5 PP.
- 17) BUSHMAN, A.B., 1963, HISTORY GROWTH, AND DEVELOPMENT OF A SMALL MINING COMPANY: MIN. ENGR., V. 15, NO. 6, P. 42-49.
- 18) BROWN, R.L. (1926) GEOLOGY AND ORE DEPOSITS OF THE TWIN BUTTES DISTRICT. UNIV. ARIZONA M.S. THESIS, 40 P.
- 19) BRYANT, D.L., "DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA" SOUTHERN ARIZONA GUIDEBOOK III, ARIZONA GEOLOGICAL SOCIETY, 1968, PP. 33-47.
- 20) BRYANT, D.L., 1955, STRATIGRAPHY OF THE PERMIAN SYSTEM IN SOUTHERN ARIZONA: UNIVERSITY OF ARIZONA THESIS, 209 P.
- 21) BURKHOUGH, R.L., 1959, THE STRUCTURAL GEOLOGY OF THE FOY RIDGE AREA, TWIN BUTTES, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 76 P.
- 22) CANNEY, F.C., 1963, SOIL SAMPLING EXPERIMENTS IN THE MISSION MINE AREA, PIMA COUNTY, ARIZONA (ABS.): MIN. ENGR., V. 15, NO. 1, P. 61.
- 23) COOPER, J.R., 1960, SOME GEOLOGIC FEATURES OF THE PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURV. BULL. 1112-C, P. 63-103.
- 24) COOPER, JOHN R., 1967, EKTACHROME AND EKTACHROME INFRARED PHOTOGRAPHY OF THE TWIN BUTTES AREA, ARIZONA (INTERAGENCY REPORT NASA-89): USGS OPEN-FILE REP.
- 25) COOPER, JOHN R., 1970, PRELIMINARY GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, PIMA COUNTY, ARIZONA: USGS OPEN-FILE REP., SCALE 1:48,000.
- 26) COOPER, J.R. 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D, 42 P.
- 27) COOPER, J.R., 1972, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, PROF. PAPER 658-C, 42 P.
- 28) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-745.
- 29) COURTRIGHT, H.J., 1958, PROGRESS REPORT ON INVESTIGATION OF SOME CRETACEOUS-TERTIARY FORMATIONS IN SOUTHEASTERN ARIZONA: ARIZ. GEOL. SOC. DIGEST, VOL. 1, P. 8.
- 30) CREASEY, S.C., AND KISTLER, R.W., 1962, AGES OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN

SOUTHEASTERN ARIZONA, IN SHORT PAPERS IN GEOLOGY, HYDROLOGY, AND TOPOGRAPHY: U.S. GEOL. SURVEY PROF. PAPER 450-D, D1-D5.

- 31)CREASEY, S.C., "HYDROTHERMAL ALTERATION," GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TILLEY AND C.L. HICKS, EDS. THE UNIVERSITY OF ARIZONA PRESS, TUCSON, 1966, PP. 51-74.
- 32)CUMMINGS, J.B. AND T.M. ROMSLO, 1950, INVESTIGATION OF TWIN BUTTES COPPER MINES, PIMA COUNTY, ARIZONA: U.S. DEPT. OF INTERIOR, BUREAU OF MINES, RPT. OF INVESTIATIONS 4732, 12 P.
- 33)CURTIS, C.H., 1961, THE ESPERANZA CONCENTRATOR: MINING ENG., V. 13, P. 1234.
- 34)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES RI-5650
- 35)DAMES AND MOORE, 1976, SLOPE STABILITY STUDIES, PIMA OPEN PIT MINE, ARIZONA: INTERNAL COMPANY REPORT SUBMITTED TO CYPRUS PIMA MINING CO., MARCH.
- 36)DAMON, P.E., 1964, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANNUAL PROGRESS RPT. COO-689-42 TO RESEARCH DIV., UNITED ATOMIC ENERGY COMM.
- 37)DAMON, P.E., AND ASSOCIATES, 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-50: TUCSON, UNIVERSITY OF ARIZONA.
- 38)DAMON, P.E., AND ASSOC. 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-60: TUCSON, UNIVERSITY OF ARIZONA.
- 39)DAMON, P.E. AND BIKERMAN, M., 1964, POTASSIUM-ARGON DATING OF POST-LARAMIDE PLUTONIC AND VOLCANIC ROCKS WITHIN THE BASIN AND RANGE PROVINCE OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: ARIZ. GEOL. SOC. DIGEST, V. 7, P. 63-78.
- 40)DAMON, P.E., ERICKSON, R.C., LIVINGSTON, D.E., 1963, K-AR DATING OF BASIN AND RANGE UPLIFT, CATALINA MOUNTAINS, ARIZONA: IN NUCLEAR GEOPHYSICS, NAS-NRC, PUBL. 1075, WOODS HOLE CONF., P. 113-121.
- 41)DAMON, P.E., AND MAUGER, R.L., 1966, EPIROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. MINING ENGINEERS TRANS., V. 235, NO. 1, P. 99-112.
- 42)D'ANDREA, D.V., DICK, R.A., STECKLEY, R.C., AND LARSON, W.C., 1974, A FRAGMENTATION EXPERIMENT FOR IN SITU EXTRACTION, IN SOLUTION MINING SYMPOSIUM, APLAN, F.F., MCKINNEY, W.A., AND PERMICHELE, A.D., EDS.: AM. INST. MIN. METALL., PET. ENG., N.Y., P. 148-161.
- 43)D'ANDREA, D.V., LARSON, W.C., CHAMBERLAIN, P.C., AND OLSON, J.J., 1976, SOME CONSIDERATIONS IN THE DESIGN OF BLASTS FOR IN SITU COPPER LEACHING: SYMP. ROCK MECH., PRGC., NO. 17, P. 5E1.1-5E1.4.
- 44)DENIS, M., 1977, THE SIERRITA (ARIZONA) PORPHYRY COPPER; HYDROTHERMAL ALTERATION AND FLUID INCLUSION STUDIES (ABST.): GEOL. SOC. LONDON, JOUR., V. 134, P. 390.
- 45)DREWES, H. AND J.R. COOPER (1973) RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUAD, PIMA COUNTY, ARIZONA. U.S.G.S. MAP MF-538 (1:24,000)
- 46)DREWES, H. 1975, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTR.): MIN. ENG., V. 27, NO. 12, P. 70.
- 47)DREWES, H., 1976, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 699.
- 48)EHEL, E.B., 1930, GEOLOGY AND ORE DEPOSITS OF THE MINERAL HILL AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 51 P.
- 49)EASTLICK, J.T., AND IRVIN, G.W., 1975, GEOLOGY AND HISTORY OF THE SAN XAVIER MINE, ARIZONA (ABST.): IN GUIDEBOOK OF THE LAS CRUCES COUNTRY: NEW MEXICO GEOL. SOC., GUIDEBOOK 26, P. 338.
- 50)FRISCHNECHT, F.C. (SEE ALSO BLACK, R.A., 2) 1. (AND EKREN, E.B.) ELECTROMAGNETIC STUDIES IN THE TWIN BUTTES QUADRANGLE, ARIZONA: USGS PROF. PAPER 424-D, P. 259-251 (1961)
- 51)GALE, R., 1965, GEOLOGY OF THE MISSION DISTRICT, PIMA COUNTY, ARIZONA: STAMFORD UNIV., PHD THESIS
- 52)GREELEY, M.N., 1978, PROVEN COOPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 53)HAYES, P.T., AND DREWES, H., "MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA," SOUTHERN ARIZONA GUIDEBOOK III. ARIZONA GEOLOGICAL SOCIETY, 1968, PP. 49-58.
- 54)HEINKRICH, W.E., JR., 1975, PIMA DISTRICT, ARIZONA; AN HISTORICAL AND ECONOMIC PERSPECTIVE (ABSTR.): MIN. ENG., V. 27, NO. 12, P. 70.

RECORD 00287

CRTR MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030520
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... PONTOTOC MINE
MINING DISTRICT/AREA/SUBDIST. CATALINA/S. CATALINA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MOUNT LEMON, ARIZONA

LATITUDE LONGITUDE
32-19-56N 110-54-02W

UTM NORTHING UTM EASTING UTM ZONE NO
3577130. 509650. +12

TWP..... 13S
RANGE.... 14E
SECTION.. 03
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 2920 FT

POSITION FROM NEAREST PROMINENT LOCALITY: PONTATOC RD IS ABOUT 2 MI. E OF CAMPBELL AVE - AND 4 MILES N OF RIVER RD
IN NORTH TUCSON.

LOCATION COMMENTS: NE 1/4 OF SEC 3

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG AU

MAIN COMMOD..... CU AG
MINOR COMMOD..... AU

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
SOME GOLD AND SILVER; BORNITE, CHALCOCITE, MOLYBDENITE COVELLITE, MALACHITE, AZURITE, CHRYSOCOLLA

ANALYTICAL DATA(GENERAL)
10.3% CU, AVE. 5% CU

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... LOCATED IN 1906
PRESENT/LAST OWNER..... OWNER IN 1964 WAS GEORGE WILSON

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FAULT ZONE
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY..... N60E
DIP OF OREBODY..... 27 SE

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 125 FT
LENGTH OF WORKINGS..... LESS THAN 250

COMMENTS(DESCRIP. OF WORKINGS):
20 FT WINZE, 105 FT SHAFT SUNK BETWEEN 1907-1910; 125 FT NEW SHAFT SUNK AROUND 1918 (MEDHI, 1964)

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE EST	1		TON	1907	

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15	5		TONS	1907-1918	4% CU, 0.5 OZ/AG/T

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 113

PRODUCTION COMMENTS.... LOCATED IN 1906 AND WORKED IN 1907 AND 1916-1917 PRODUCING A TOTAL OF SOME 5,000 TONS OF HAND PICKED ORE AVERAGING ABOUT 4% CU, 0.5 OZ AG/T, AND A TRACE OF AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT (LATE TO EARLY MIOCENE
HOST ROCK TYPES..... BETWEEN CATALINA GNEISS AND PANTANO CONGL.

AGE OF MINERALIZATION..... 60-15 M.Y. (SEVERAL EPISODES OF MOVEMENT ON FAULT WITH LATEST MOVEMENT ABOUT 15 M.Y.A.)

PERTINENT MINERALOGY..... GANGUE IS QUARTZ, SERICITE, EPIDOTE, ANKERITE, NEMATITE, LIMONITE

IMPORTANT ORE CONTROL/LOCUS.. METALLIZATION OCCURS ALONG FAULT ZONE WHERE VER ROCK ALTERATION IS INTENSE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SANTA CATALINA FAULT AND SUBSIDIARY FAULTS AND TENSIONAL BREAKS INTERSECTING IT

SIGNIFICANT ALTERATION:

STRONG SILICIFICATION, PROPYLITIZATION, AND SPORADIC DOLOMITIZATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

HYDROTHERMAL IMPLACEMENT OF SHALLOW MESOTHERMAL INTENSITY

COMMENTS (GEOLOGY AND MINERALOGY):

SULFIDES PRECIPITATED WITH QUARTZ

GENERAL REFERENCES

- 1) MEDHI, P.K., 1964, A GEOLOGIC STUDY OF THE PONTOTOC MINE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS,
- 2) KEITH, STANTON R., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 113
- 3) BANKS, N.G., (1976), RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMMON QUAD, ARIZONA: U.S.G.S. MAP MF - 747.
- 4) CREASEY, S.C., BANKS, N.G., ASHLEY, R.P., AND THEODORE, T.G., 1978, MIDDLE TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY J. OF RESEARCH, V. 5, P. 705-717.
- 5) KEITH, S.B., REYNOLDS, S.J., DAMON, P.E., SHAFIQUILLAH, M., LIVINGSTON, D.E., AND PUSHKAR, P.O., 1980, EVIDENCE FOR MULTIPLE INTRUSION AND DEFORMATION WITHIN THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: GEOL. SOC. AMERICA MEM., SYMPOSIUM VOLUME, PENROSE CONF. ON METAMORPHIC CORE COMPLEXES, IN PRESS.
- 6) PASHLEY, E.F., 1966, STRUCTURE AND STRATIGRAPHY OF THE CENTRAL, NORTHERN, AND EASTERN PARTS OF THE TUCSON BASIN, ARIZONA (PH.D DISSERTATION): TUCSON, UNIVERSITY OF ARIZONA, 273 P.
- 7) PASHLEY, E.F., 1969, 4. ORIGIN OF THE FRONTAL FAULT OF THE SANTA CATALINA AND RINCON MOUNTAINS, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 620
- 8) BUDDEN, R.T., 1975, THE TORTOLITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ., M.S. THESIS, 133 P.
- 9) VOELGER, KLAUS CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1953)
- 10) DAMON, PAUL E. (AND ERICKSON, ROLFE C., AND LIVINGSTON, DONALD E., 1964 K-AR DATING OF BASIN AND RANGE UPLIFT, CATALINA MOUNTAINS, ARIZONA: GEOPHYS. ABS., NO. 204, ITEM 12 (1964)
- 11) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 12) FAIR, CHARLES L. (AND JINKS, J.E.) 1961 SANTA CATALINA FOOTHILLS FAULT IN THE PONTOTOC AREA: ARIZ. GEOL. SOC. DIG., V. 4, P. 131-133 (1961)

RECORD 00288

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030524
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION
DEPOSIT NAME..... PRINCE MINE
SYNONYM NAME..... HILTANO GROUP; HILTON OR LEAD MOUNTAIN

MINING DISTRICT/AREA/SUBDIST. EMPIRE/EMPIRE MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAIN, ARIZONA

LATITUDE LONGITUDE
31-52-09N 110-38-39W

UTM NORTHING UTM EASTING UTM ZONE NO
3526000.0 533650.0 412

TWP..... 18S
RANGE..... 17E
SECTION.. 18 C
MERIDIAN. GILA & SALT RIVER

ALTITUDE.. 8,400 FT

LOCATION COMMENTS: INCLUDES THE CHIEF, PRINCE, GOPHER, AND 49 MINES

COMMODITY INFORMATION
COMMODITIES PRESENT..... PB AG ZN CU AU MO

MAIN COMMOD..... PB AG AU MO
MINOR COMMOD.... ZN CU

MAIN ORE MINERALS:
CERUSSITE, ANGLESITE, SMITHSONITE WULFENITE

MINOR ORE MINERALS:

MALACHITE AZURITE GALENA, CHALCOPYRITE, SPHALERITE, AURICHALCITE, COVELLITE PLUMBOJAROSITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT, FISSURE VEIN

FORM/SHAPE OF DEPOSIT: PIPE-LIKE BODIES AND IRREGULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL POCKETS

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 450-750 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1974)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 119

PRODUCTION COMMENTS.... WORKED SINCE EARLY 1900'S TO 1930'S PRODUCING SOME 150 TONS OF ORE AVERAGING ABOUT 50% Pb, 10 OZ AG/T, SOME ZN, AND MINOR CU AND AU MORE INFO ON CARD

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN

HOST ROCK TYPES..... CONCHA LIMESTONE RAIN VALLEY FM.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (71 M.Y.)

IGNEOUS ROCK TYPES..... DIORITIC INTRUSIVE SILL OR DIKE; SYCAMORE CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET. (71 M.Y.)

PERTINENT MINERALOGY..... LIMONITE HEMATITE, CALCITE, AND QUARTZ ARE ASSOCIATED WITH ORE.

IMPORTANT ORE CONTROL/LOCUS.. SMALL POCKETS IN LIMESTONE AND AS CHIMNEY - LIKE BODIES ALONG JOINTING, FISSURES, AND SOLUTION CAVITIES ADJOINING GABBRO SILL. JEROME CLAIM IS IN LIMESTONE ABOVE QUARTZITE IN FOOTWALLS ORE OCCURS BELOW THE DIORITE IN THE PRINCE, CHIEF AND 49 MINES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FISSURES, NW TEARBREKES, NE DIKES

SIGNIFICANT ALTERATION:

STRONG OXIDATION ON THE 750 OR DEEPEST LEVEL (PRESUMABLY 250 FT BELOW PRESENT WATER TABLE)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

FISSURE FILLING IN LIMESTONE

COMMENTS (GEOLOGY AND MINERALOGY):

UA # 136

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156P., P. 119.
- 2) WILSON, E.D., 1951, EMPIRE DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS PART II, P. 49-56: ARIZ. BUR. MINES BULL. 158, P. 54-55.
- 3) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 149
- 4) ALBERDING, H., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
- 5) ALEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 7) BRENNAN, D.J., 2. GEOLOGICAL RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 41 (1958)
- 8) BRENNAN, D.J., 3. TERTIARY SEDIMENTARY ROCKS AND STRUCTURES OF THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 5, P. 45-58 (1962)
- 9) BUIER, W.E., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 10) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1950, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I., 5650.
- 11) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 12) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140
- 13) FEISS, J.W., 1929, GEOLOGY AND ORE DEPOSITS OF HILTANO CAMP, ARIZONA: UNIV. ARIZ., MS THESIS
- 14) FINNELL, T.L., 1970, PANTANO FORMATION: IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE USGS, 1968: USGS BULL. 1294-A, P. 35-36
- 15) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT
- 16) GALBRAITH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM., BULL., V. 51, P. 1927
- 17) GALBRAITH, F.W., 4. EMPIRE MOUNTAINS OVERTHRUST: PAM-AM. GEOL., V. 73, P. 377-378 (1940)
- 18) GALBRAITH, F.W., 1949, THRUST FAULTING IN THE EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 60, P. 1889-90
- 19) GALBRAITH, F.W., 11. THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 127-133 (1959)
- 20) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 21) MAYUGA, M.N., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 74 P.
- 22) METZ, R. THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS 66 P. (1963)
- 23) MOORE, ROBERT A., 2. CRETACEOUS (?) STRATIGRAPHY OF THE SOUTHEAST FLANK OF THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 55 P. (1960)
- 24) SCHAFFROTH, D.W., 1965, STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS
- 25) SCHAFFROTH, DON W., 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA

AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS, 135 P. (1965); (ABST.): DISSERT. ABS., V. 26, NO. 8, P. 4578-4579 (1966)

27)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

28)SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

29)SCHRADER, F.C. AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163

30)SCHRADER, F.C. 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 (1910); (ABST.): MIN. WORLD, V. 33, P. 185-187 (1910)

31)SEARS, DAVID, 2ND GEOLOGY OF THE PANTANO HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 48 P., MAPS (1939)

32)SOPP, G.P. (1940) GEOLOGY OF THE MONTANA MINE AREA, EMPIRE MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63 P.

33)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168

34)WILSON, R.A., 1934, THRUST FAULTING IN THE EMPIRE MOUNTAINS OF SOUTHEASTERN ARIZONA: JOUR. GEOL., V. 42, P. 422-429

RECORD 00289

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030544
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... REDINGTON DIST.

MINING DISTRICT/AREA/SUBDIST. REDINGTON DISTRICT/EAST FLANK OF SANTA CATALINA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAINS, ARIZONA

UTM NORTHING UTM EASTING UTMZONE NO

TWP..... 11S 13S
RANGE.... 17E 18E
MERIDIAN. GILA SALT RIVER

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG W U

MAIN COMMOD..... CU AG
MINOR COMMOD.... W U

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... WEAK AND SPOTTY

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS PITS, SHAFTS, AND TUNNELS (KEITH, 1974)

PRODUCTION

YES

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 141)

PRODUCTION COMMENTS.... SOME 90 TONS OF ORE CONTAINING ABOUT 5 TONS OF COPPER AND 140 OUNCES OF SILVER PRODUCED UP THROUGH 1972

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. CRET. TERT.

HST ROCK TYPES..... QUARTZITE, SEDIMENTS

IMPORTANT ORE CONTROL/LOCUS.. IN FRACTURE ZONES ALONG FAULTS IN PRECAMBRIAN QUARTZITE & CRETACEOUS SEDIMENTS. SOME MINOR TUNGSTEN OCCURRENCES IN CONTACT METAMORPHOSED SEDIMENTS. TRACES OF URANIUM MINERALS, USUALLY WITH IRON OXIDES ON FRACTURES. PYROMETASOMATIC COPPER MINERALIZATION AT KORN KOB PROSPECT.

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

MOSTLY OXIDIZED

GENERAL COMMENTS

SEE RECORDS M800109 & M800126 FOR FURTHER REFERENCES

GENERAL REFERENCES

3) REDINGTON DISTRICT:

WILSON, J.R., 1977, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE KORN KOB MINE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 103 P.

4)CREASEY, S.C., AND THEODORE, T.G., 1975, PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE BELLOTA RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 75-295.

5)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.

6)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

7)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

8)RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUEHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS

9)SCHLUDERER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REDINGTON PASS AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA M.S. THESIS

10)MCKENNA, JOHN J. BUEHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)

12)BRORDERICK, J.P., 1967, STRUCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

4) GEOLOGY OF SANTA CATALINA MTS:

ABU AJAMIEH, M.M. THE STRUCTURE OF THE PANTANO BEDS IN THE NORTHERN TUCSON BASIN: UNIV. ARIZ., MS THESIS, 71 P. (1966)

5)ACKER, C.J., 1958, GEOLOGIC INTERPRETATIONS OF A SILICEOUS BRECCIA IN THE COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY

- 6)ANTHONY, J.H., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 7)ARIZ. DEPT. MINERAL RESOURCES, 1967, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 8)BENERJEE, AMIL K., 1957, STRUCTURE AND PETROLOGY OF THE ORACLE GRANITE, PINAL CO., ARIZONA: UNIV. ARIZONA, PHD. THESIS, 112 P.
- 9)BANKS, N.G. (1976), RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMMON QUAD, ARIZONA, U.S.G.S. MAP MF - 747.
- 10)BANKS, N.G., 1977, A TERTIARY IGNEOUS-METAMORPHIC COMPLEX IN SOUTHEASTERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 9, NO. 4, P. 385
- 11)BANKS, N.G., 1977, GEOLOGIC SETTING AND INTERPRETATION OF A ZONE OF MIDDLE TERTIARY IGNEOUS-METAMORPHIC COMPLEXES IN SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, NO. 77-376, 29 P.
- 12)BANKS, N.G., THIS VOLUME, GEOLOGY OF A ZONE OF METAMORPHIC CORE COMPLEXES IN SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.
- 13)BANKS, N.G., CORNWALL, H.R., SILBERMAN, M.L., CREASEY, S.C., AND MARVIN, R.R., 1972, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA: PART 1, K-AR AGES: ECONOMIC GEOLOGY, V. 67, P. 864-878.
- 14)BANKS, N.G., DOCKTOR, R.D., BRISKEY, J.A., DAVIS, G.H., KEITH, S.B., BUDDEN, R.T., KIVEN, C.W., AND ANDERSON, P., 1977, RECONNAISSANCE GEOLOGIC MAP OF THE TORTOLITA MOUNTAINS QUADRANGLE: U.S. GEOL. SURVEY MISC. FIELD STUDIES
- 15)BANKS, N.G., MCKEE, E.H., KEITH, S.B., SHAFIQUILLAH, M., AND DAMON, P.E., 1978, RADIOMETRIC AND CHEMICAL DATA FOR ROCKS OF THE TORTOLITA MOUNTAINS 15' QUADRANGLE, PINAL COUNTY, ARIZONA: ISOCHRON/WEST, NO. 22, P. 17-21.
- 16)BAM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 17)BRYANT, D.L., 1968, DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA: ARIZONA GEOL. SOC. GUIDEBOOK 111, P. 33-49.
- 18)BUDDEN, R.T., 1975, THE TORTOLITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ., M.S. THESIS, 133 P.
- 19)BUTLER, B.S. JR. (AND GROUT, F.F., AND BROMFIELD, C.S.) SANTA CATALINA MOUNTAINS METAMORPHIC AREA: ARIZ. GEOL. SOC.-GEOL. SOC. AM., GUIDEBOOK SOUTHERN ARIZ., P. 43-49, ILLUS. (1952)
- 20)BELAN, RICKY ALLEN, HYDROGEOLOGY OF A PORTION OF THE SANTA CATALINA MOUNTAINS (TUCSON, ARIZONA)
- 21)BELAN, R.A., MATLOCK, W.G., 1973, GROUNDWATER RECHARGE FROM A PORTION OF THE SANTA CATALINA MOUNTAINS
- 22)HYDROL. WATER RESOUR. ARIZ. SOUTHWEST, VOL. 3, P. 33-40, 1973, ILLUS., TABLES, SKETCH MAP S (SERIAL); ANL (ANALYTIC) 2-21 (HYDROGEOLOGY & HYDROLOGY)
- 23)ARIZONA: HYDROGEOLOGY; GROUND WATER; SANTA CATALINA MOUNTAINS; TUCSON; AQUIFERS; UNITED STATES; RECHARGE; ARTESIAN WATERS; PRECIPITATION; RUNOFF; TEMPERATURE; MOVEMENT; FLOW; LEVELS; WATER QUALITY
- 24)BLAKE, W.P., 1908A, GEOLOGICAL SKETCH OF THE REGION OF TUCSON, ARIZONA, IN MACDOUGAL, D.T., BOTANICAL FEATURES OF NORTH AMERICAN DESERTS, CARNEGIE INST. WASHINGTON PUB. 99, P. 45-68.
- 25)BLAKE, W.P., 1908B, NOTE UPON THE SANTA CATALINA GNEISS, ARIZONA: SCIENCE, N.S., V. 28, P. 379-380.
- 26)BRAUN, E.R. (1969) GEOLOGY AND ORE DEPOSITS OF THE MARBLE PEAK AREA, SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 75 P.
- 27)BRUDERICK, J.P., 1967, STRUCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 28)BROMFIELD, C.S., 1950, GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 63 P.
- 29)BROMFIELD, C.S., 1952, SOME GEOLOGIC FEATURES OF THE SANTA CATALINA MOUNTAINS, IN ARIZONA GEOL. SOC. GUIDEBOOK FOR FIELD TRIP EXCURSIONS IN SOUTHERN ARIZONA, ARIZ. GEOL. SOC. DIGEST, V. 5, P. 51-55.
- 30)BROWN, RONALD GLYN, GEOCHEMICAL SURVEY OF THE VICINITY OF ORACLE, ARIZONA: ARIZ. STATE UNIV., TEMPE, MS THESIS, 56 P. (1970); (ABS.): ARIZ. ACAD. SCI. JOUR., V. 6, 1970 PROC. SUPP., P. 62 (1970)
- 31)CATANZARO, E.J., AND KULP, J.L., 1964, DISCORDANT ZIRCONS FROM THE LITTLE BELT (MONTANA), BEARTOOTH (MONTANA), AND SANTA CATALINA (ARIZONA) MOUNTAINS: GEOCHIM. COSMOCHEM. ACTA, V. 28, P. 87-124.
- 32)CHEN, R.T. 2. MID-TERTIARY ROCK UNIT FROM SOUTHERN ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 63, P. 1324 (1952)
- 33)CHEN, R.T., 3RD 1. THE GEOLOGY OF THE MINETA RIDGE AREA, PIMA AND COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P., MAPS (1952)
- 34)CLAY, DONALD WAYNE, STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PIMA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., PHD. THESIS, 183 P. (1970); (ABS.): DISSERT. ABS. INTERNATL., SEC. B, SCI. AND ENGR., V. 31, NO. 6, P. 3478-3479 (1970)
- 35)CLAY, D.W., ALGAL INTERCALSTS FROM CARBONATE ROCKS OF THE MINETA FORMATION, SOUTHEASTERN ARIZONA. GSA ABSTR, VOL. 8, NO. 5, P. 435, 1974.

- 36)CONEY, P.J., 1979, TERTIARY EVOLUTION OF CORDILLERAN METAMORPHIC CORE COMPLEXES: SOC. ECON. MINERALOGISTS AND PALEONTOLOGISTS CENOZOIC PALEOGEOGRAPHY VOLUME, P. 15-28.
- 37)CONEY, P.J., THIS VOLUME, CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOL. SOC. AMER. MEMOIR.
- 38)CREASEY, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS AND ASSOCIATED COPPER DEPOSITS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, ANNUAL MEETING, KANSAS CITY, MISSOURI, P. 38.
- 39)CREASEY, S.C., 1967, GENERAL GEOLOGY OF THE MAMMOTH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1218, 94 P.
- 40)CREASEY, S.C., BANKS, M.G., ASHLEY, R.P., AND THEODORE, T.G., 1977, MIDDLE TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY D. OF RESEARCH, V. 5, P. 705-717.
- 41)CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH, 1962: U.S. GEOL. SURVEY PROFESSIONAL PAPER 450-D, P. D1-D5.
- 42)CREASEY, S.C., AND THEODORE, T.G., 1975, PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE BELLOTA RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT 75-295.
- 43)CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1951, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-236
- 44)DALE, V.B. (1959) TUNGSTEN DEPOSIT OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5516.
- 45)DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I.-5650.
- 46)DAMON, P.E., 1959, GEOCHEMICAL DATING OF IGNEOUS AND METAMORPHIC ROCKS IN ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 18.
- 47)DAMON, P.E., 1968, APPLICATION OF THE POTASSIUM-ARGON METHOD TO THE DATING OF IGNEOUS AND METAMORPHIC ROCKS WITHIN THE BASIN-RANGES OF THE SOUTHWEST: ARIZ. GEOL. SOC. GUIDEBOOK III, P. 7-20.
- 48)DAMON, P.E., AND ASSOCIATES 1969, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANNUAL PROGRESS REPORT NO. 1969 COO-689 TO U.S. ATOMIC ENERGY COMMISSION: TUCSON, GEOCHRONOLOGY LABS., UNIVERSITY OF ARIZONA, 90 P.
- 49)DAMON, P.E. 4. (AND ERICKSON, ROLFE C., AND LIVINGSTON, DONALD E.) K-AR DATING OF BASIN AND RANGE UPLIFT, CATALINA MOUNTAINS, ARIZONA: GEOPHYS. ABS., NO. 204, ITEM 12 (1964)
- 50)DAMON, P.E., ERICKSON, R.C., AND LIVINGSTON, D.E., 1963, K-AR DATING OF BASIN AND RANGE UPLIFT CATALINA MOUNTAINS, ARIZONA: NATL. ACAD. SCI. - NATL. RESEARCH COUNCIL PUB. 1075, P. 113-121.
- 51)DAMON, P.E., AND GILETTI, B.J., 1961, THE AGE OF BASEMENT ROCKS OF THE COLORADO PLATEAU AND ADJACENT AREAS, P. 443-453: IN KULP, J.L., EDITOR GEOCHRONOLOGY OF ROCK SYSTEMS IN ANNALS: NEW YORK ACADEMY OF SCIENCE, V. 91, P. 443-453.
- 52)DAMON, P.E., D.E. LIVINGSTON, AND R.C. ERICKSON, 1962, NEW K-AR DATES FOR THE PRECAMBRIAN OF PINAL, GILA, YAVAPAI AND COCONINO COUNTIES, ARIZONA: MOGOLLON RIM REGION GUIDEBOOK, 13TH FIELD CONF., NEW MEXICO GEOL. SOC., P. 56-57.
- 53)DAMON, P.E., AND MAUGER, R.M., 1966, EPEIROGENY-OROGENY VIEWED FROM THE BASIN AND RANGE PROVINCE: SOC. METALLOGENETIC ENGINEERS TRANS., V. 235, P. 99-112.
- 54)DAMON, P.E., SHAFIQUILLAH, M., KEITH, S.B., REYNOLDS, S.J., LIVINGSTON, D.E., AND PUSHKAR, P.D., IN PRESS, NEW RB-SR AND K-AR DATA FOR THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: ISOCHRON/WEST.
- 55)DAVIS, GEORGE H., 1973, MID-TERTIARY GRAVITY-GLIDE FOLDING NEAR TUCSON, ARIZONA ABSTR. GEOL. SOC. AM., ABSTR., (GAAPBC), VOL. 5, NO. 7, P. 592, 1973 S (SERIAL)

RECORD 00290

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000630
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... RRIDLEY MINE
SYNONYM NAME..... GRAVEYARD MINE

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST.SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITE ARIZONA

LATITUDE LONGITUDE
31-51-08N 110-48-34W

UTM NORTHING UTM EASTING UTM ZONE NO
3523875.0 518100. 12

TWP..... 18S
RANGE..... 15E
SECTION.. 21 SE
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4080 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 22 KM SE VABM 4001 (HUERFANO BUTTE) 1 MI SW OF HELVETIA

LOCATION COMMENTS: SE 1/4 OF SEC 21

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO

MAIN COMMOD..... CU PB ZN AG
MINOR COMMOD..... AU MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, ARGENTIFEROUS GALENA SPHALERITE

MINOR ORE MINERALS:
MOLYBDENITE STAINED WITH COPPER CARBONATES

ANALYTICAL DATA(GENERAL)
6.5% CU, 3.5% PB, 3% ZN, 30 OZ/T AG, 1.50/T AU (1915)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: TABULAR BANDED

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 4 FT
STRIKE OF OREBODY.... N
DIP OF OREBODY..... 50 E

DESCRIPTION OF WORKINGS UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT WORKINGS (KEITH, 1974) 150 FT INCLINED SHAFT AND SHORT TUNNEL (ABM CARD) WITH SHORT DRIFTS ON 50 FT AND 105 FT LEVELS

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 128

PRODUCTION COMMENTS.... SPORADIC PRODUCTION OF SOME 50 OR MORE TONS OF ORE AVERAGING ABOUT 5% PB, 2% CU, AND 40 OZ AG/T FROM EARLY 1900'S TO 1929

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. (1450 MY DREWES)
HOST ROCK TYPES..... CONTINENTAL GRANODIORITE PORPHYRY
AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... INTRUSIVE DIKES & STOCKS OF APLITE; TERT. (?) QUARTZ VEIN
AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... QUARTZ STAINED WITH LIMONITE AND COPPER CARBONATES

IMPORTANT ORE CONTROL/LOCUS.. FISSURE QUARTZ VEIN IN PRECAMBRIAN GRANODIORITE PORPHYRY; INTRUSIVE DIKES OF APLITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

GANGE IN BOTH HANGING WALLS FOOTWALL; BOTH HAVE SLICKENSIDES

SIGNIFICANT ALTERATION:

PARTLY OXIDIZED; GRANITE IS CRUSHED, ALTERED AND SHEARED

COMMENTS (GEOLOGY AND MINERALOGY):

BETTER ORE IS LOWER IN MINE; MOLYBDENITE IS IN LOWER PART OF MINE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189 156 P., P. 128.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 126-127.
- 3) DREWES, HARALD 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
- 4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P., P. 96.
- 5) SCHRADER, F.C. 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS. ARIZONA: USGS BULL. 430, P. 154-163 (1910); (ABST.): MIN. WORLD, V. 33, P. 185-187 (1910)
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 7) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1975.
- 8) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 9) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

RECORD 00291

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030538
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... SAN XAVIER
SYNONYM NAME..... SAN XAVIER NORTH

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAN XAVIER MISSION, ARIZONA

TWP..... 16S
RANGE.... 12E
SECTION.. 23 24
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 15 MILES S OF TUCSON

LOCATION COMMENTS: NE 1/4 OF 23, NW 1/4 OF 24

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG

MAIN COMMOD..... CU
MINOR COMMOD.... AG MO

MAIN ORE MINERALS:

CHALCOITE, CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:

MOLYBDENITE, SILVER MINERALIZATION; COPPER OXIDE ZONES CONSIST OF A MIXTURE OF CHRYSOCOLLA, MALACHITE,
NEOTOCITE, MELACONITE, AND MINOR AZURITE.

ANALYTICAL DATA(GENERAL)

ORE ZONE MINERALIZATION IS CHARACTERIZED BY 1-3 PERCENT BY VOLUME SULFIDES WITH A PYRITE-CHALCOPYRITE RATIO THAT RANGES FROM 1:1 TO 1:3. SURROUNDING THE ORE ZONE IS AN AREA OF PYRITE MINERALIZATION THAT IS CHARACTERIZED BY A SULFIDE CONTENT OF 2-4 PERCENT AND PYRITE--CHALCOPYRITE RATIO THAT RANGES FROM 10:1 TO 3:1. THE AREA OF CHANGE FROM THE ORE ZONE TO THE PYRITE ZONE IS TRANSITIONAL OVER A DISTANCE OF NEARLY 100 FEET.

COPPER GRADES IN THE CHALCOCITE BLANKET AVERAGE BETWEEN 0.6 AND 1.0% CU. THE OXIDE COPPER GRADE IS APPROXIMATELY 3.8% CU. (KING, 1978)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... DISCOVERED IN 1955

BY WHOM..... DISCOVERED BY 2 ASARCO GEOLOGISTS NOTED 2 SMALL ALTERED AND MINERALIZED OUTCROPS

PRESENT/LAST OWNER..... ASARCO

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 2000 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

DRILLING BEGAN IN 1957 AFTER COMPETITIVE BIDDING TO THE PAPAGO INDIANS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 LEACHING ORE	EST.	TONS		1967-1972	0.76% CU AND 0.02 OZ/T AG
18 ORE ACC	8462.131	TONS		1967-1978	
19 CU ACC	1115.805	LBS		1967-1978	
20 AG ACC	72.390	OZS		1967-1978	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 138

PRODUCTION COMMENTS.... PRODUCTION BEGAN IN 1968 WITH MINING OF COPPER-BEARING FLUX. COPPER OXIDE ORE PRODUCTION BEGAN IN 1973 (KING, 1978)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SULFIDE ORE	EST 6902.	TONS		1978	0.52% CU
2 OXIDE ORE	EST 1050.	TONS		1978	1.48% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREFLEY, 1978, P. 83

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. TERT.
 HOST ROCK TYPES..... CLASTIC ROCKS OF BISBEE GROUP AND QUARTZ MONZONITE PORPHYRY INTRUSIONS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
 IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. HYPOGENE ORE-GRADE (APPROXIMATELY 0.5% CU) MINERALIZATION IS CONFINED TO THE CLASTIC WALL ROCKS IN SUCH A MANNER AS TO FORM A ARCUATE ZONE ADJACENT TO THE MAIN PORPHYRY MASS. STRATIGRAPHY EXERTS AN IMPORTANT CONTROL ON THE DISTRIBUTION OF CHALCOPYRITE IN THAT THE FINER GRAINED THE SEDIMENTARY HOST IS THE GREATER THE CHALCOPYRITE CONTENT. MOLYBDENUM AND SILVER MINERALIZATION IS CONCENTRATED WITHIN THIS ORE ZONE AND IN THE CENTRAL PORPHYRY MASS. (KING, 1978)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

CLASTIC ROCKS WERE FOLDED PRIOR TO INTRUSION; SAN XAVIER FAULT IS LOWER BOUNDARY OF MINERALIZED ROCKS

SIGNIFICANT ALTERATION:

HYDROTHERMAL MINERALIZATION AND ALTERATION AT SAN XAVIER NORTH ARE SPATIALLY INTERRELATED AND FORMED AS PART OF A CONTINUING CHEMICAL PROCESS THAT RESULTED IN A ZONAL DISTRIBUTION OF BOTH SULFIDE AND ALTERATION MINERALS.

ASSOCIATED WITH THE MINERAL ZONES IS A PHYLIC ALTERATION WHICH IN ITSELF IS INTERANLLY ZONED IN A MANNER SYMPATHETIC TO THE DESCRIBED MINERAL ZONES. THE STRNNGTH OF PHYLIC ALTERATION IS GREATEST IN THE PYRITE SHELL AT OR NEAR ITS INTERFACE WITH THE CHALCOPYRITE ZONE. QUARTZ VEINING IS MOST ABUNDANT IN THE ORE ZONE. (KING, 1978)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

CURRENT INTERPRETATIONS ARE THAT THE FORMATION OF THE SUPERGENE DEPOSIT OCCURRED PRIOR TO OR DURING THE FORMATION OF THE MID-TERTIARY HELMET FANGLOMERATE. EROSION AND PARTIAL OXIDATION OCCURRED AFTER INITIAL MOVEMENT ON THE SAN XAVIER FAULT AND PRIOR TO DEPOSITION OF THE ALLUVIAL GRAVELS THAT TO A GREAT EXTENT PRESERVED THE DEPOSIT. (KING, 1978)

COMMENTS (GEOLOGY AND MINERALOGY):

SUPERGENE MINERALIZATION AT SAN XAVIER NORTH CONSISTS OF LEACHED CAPPING, TWO DIFFERENT OXIDE COPPER ZONES, AND AN ORE-GRADE CHALCOCTITE BLANKET. AN UPPER ZONE OF OXIDE COPPER IS CONTAINED WITHIN THE CAPPING AND REPRESENTS OXIDATION OF A CHALCOCTITE ZONE THAT HUNG UP DURING LEACHING OF OTHER SULFIDES. A LOWER ZONE OF OXIDE COPPER EXISTS AT THE BASE OF THE CAPPING AND IS A PRODUCT OF PARTIAL OXIDATION OF THE MAIN CHALCOCTITE BLANKET. THE CHALCOCTITE BLANKET DOES NOT CONFORM TO BEDROCK TOPOGRAPHY AND THE EASTERN PART OF THE ENRICHED ZONE IS PARTIALLY OXIDIZED AND ERODED. THE CHALCOCTITE BLANKET RANGES FROM 30 TO 100 FEET IN THICKNESS AND IS THE RESULT OF APPROXIMATE TWOFOLD ENRICHMENT.

GENERAL REFERENCES

- 1) KING, J.R., 1978, THE GEOLOGY OF THE SAN XAVIER PORPHYRY COPPER DEPOSIT, PIMA MINING DISTRICT, ARIZONA (ABST.), IN JENNEY, J.P., AND HAUCK H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 101-102.
- 2) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 3) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 83
- 4) KEITH, STANTON B., 1976, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 138
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00292

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030539
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... SENATOR MORGAN MINE

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-53-11N 111-04-45W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S
RANGE.... 12E
SECTION.. 01 SW 02 SE
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 3500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 KM NW BM 3319

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG ZN PB W AU MO

MAIN COMMOD..... CU AG
MINOR COMMOD..... ZN PB W AU MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:

POWELLITE WITH SCHEELITE

ANALYTICAL DATA(GENERAL)

2 OZ AG/T REPORTED; ORE 0.805% WO₃ PRODUCED FLOTATION CONCENTRATES ASSAYING 62.08% WO₃ WITH A RECOVERY OF 92.5%
(DALE, 1960)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... CLAIMS FIRST LOCATED IN 1875 OR 1876
PRESENT/LAST OWNER..... BAXTER, TWIN BUTTES

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: SHORT LENSES

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 1200 FT

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT OPERATIONS (KEITH, 1974)

PRODUCTION
YES

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	100.000	TONS			

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 138

PRODUCTION COMMENTS.... WORKED FROM 1890'S TO 1918 FOR COPPER WITH ESTIMATED AND REPORTED PRODUCTION OF SOME 100,000 TONS OF 4% CU, 90Z AG/T AND MINOR ZN AND AU. ABOUT 120 TONS OF 1.25% WO₃ SHIPPED IN 1942-1943

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC AND CRETACEOUS
HOST ROCK TYPES..... LIMESTONE AND SEDIMENTS (QUARTZITE)

AGE OF ASSOC. IGNEOUS ROCKS.. LARAMIDE
IGNEOUS ROCK TYPES..... GRANODIORITE PORPHYRY DIKE

PERTINENT MINERALOGY..... EPIDOTIZATION OF QUARTZITE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS LOCALIZED BY FAULTING AND FRACTURING AND FAVORABLE BEDS IN PALEOZOIC LIMESTONE ALONG A FAULT CONTACT WITH CRETACEOUS SEDIMENTS. CLOSELY ASSOCIATED WITH LARAMIDE GRANODIORITE

PORPHYRY DIKE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEARING PARALLEL TO AND IN VEINS

SIGNIFICANT ALTERATION:
GARNETIZED, VERY LITTLE OXIDIZED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 136
- 2) RANSOME, F.L. 1922, ORE DEPOSITS OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 725, P. 407-428, P. 425-427
- 3) MANUGA, M.N., 1942, THE GEOLOGY AND ORE DEPOSITS OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
- 4) WHITCOMB, H.A., 1948, GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) STORMS, W.R. AND BOWMAN, A.B., 1957, MINING METHODS AND PRACTICES AT THE MINERAL HILL COPPER MINE, BANNER MINING CO., PIMA COUNTY, ARIZONA: U.S. BUR. MINES IC-7786
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156.
- 7) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 8) MINES HANDBOOK 1818, 1920, 1925, 1926, 1931 MINERAL HILL MINE.
- 9) MACKENZIE, F.D., 1959, PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 193-194
- 10) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES RI-5650, P. 85-92
- 11) BOWMAN, A.B., 1963, HISTORY, GROWTH, AND DEVELOPMENT OF A SMALL MINING COMPANY: MIN. ENGR., V. 15, NO. 6, P. 42-49
- 12) BROWN, R.L., 1926, GEOLOGY AND ORE DEPOSITS OF THE TWIN BUTTES DISTRICT: UNIV. ARIZ., MS THESIS
- 13) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 44-46

RECORD 00293

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030541
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... SIERRITA OPEN PIT MINE
SYNONYM NAME..... DUVAL SIERRITA CORP

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-52-12N 111-08-50W

UTM NORTHING UTM EASTING UTM ZONE NO

TWP..... 18S

RANGE.... 12E

SECTION.. 07 SE 08 SW 17 NW/ 18 NE

MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4,050 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IS PART OF ESPERANZA-SIERRITA DEPOSIT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG ZN PB AU

MAIN COMMOD..... CU MO AG

MINOR COMMOD..... ZN PB AU

MAIN ORE MINERALS:

CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:

SILVER, ALTHOUGH RECOVERED IN MINOR AMOUNTS, IS NOT RECOGNIZED IN MINERAL FORM. MINOR MINERALS INCLUDE GALENA, SPHALERITE, TENNANTITE-TETRAHEDRITE, MAGNETITE, MARCASITE, FLUORITE, AND RARE BORNITE. SECONDARY MINERALS INCLUDE CHALCOCITE, CUPRITE, TENORITE, MALACHITE, AZURITE, CHRYSOCOLLA, NATIVE COPPER, AND MINOR TURQUOISE.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

PRESENT/LAST OWNER..... PENNZOIL CO. (DUVAL CORP.)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED

FORM/SHAPE OF DEPOSIT: V-SHAPED

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

OPEN PIT PRODUCTION (KEITH, 1974)

18 ORE	ACC	25674.4	TONS	1970-1978
19 CU	ACC	1186167.	LBS	1970-1978
20 PB	ACC	644.971	LBS	1970-1978
21 ZN	ACC	243.833	LBS	1970-1978
22 AG	ACC	8077.220	OZS	1970-1978
23 AU	ACC	3.708	OZS	1970-1978
24 MO	ACC	88220.97	LBS	1970-1978

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 138

PRODUCTION COMMENTS.... STARTING IN 1970, PRODUCTION THROUGH 1972 HAS BEEN-SOME 68 MILLION TONS OF CU-MO ORE.

AVERAGE GRADE WAS ABOUT 0.24% CU, 0.03 OZ AG/T, 0.016 MO/S2 AND TRACE AMOUNTS OF AU. PB ZN. (AIKEN AND WEST, 1978, P. 119)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SULFIDE ORE		659842	TONS		0.32% CU 0.033% MO

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1978, P. 86

COMMENTS (RESERVES/POT RESOURCES).. EXPLORATION AND DEVELOPMENT DRILLING HAS ESTABLISHED TOTAL ORE RESERVES OF 554 MILLION TONS WITH A GRADE OF 0.32% CU AND 0.033% MOLYBDENUM (PENNZOIL COMPANY, 1974). (AIKEN AND WEST, 1978)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRIASSIC-LATE LARAMIDE
 HOST ROCK TYPES..... QUARTZ DIORITE AND QUARTZ MONZONITE PORPHYRY (RUBY STAR QUARTZ MONZONITE PORPHYRY)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58.7, 53.5 M.Y.)

AGE OF MINERALIZATION..... TERT. 53.5 M.Y.)

IMPORTANT ORE CONTROL/LOCUS.. COPPER AND MOLYBDENUM SULFIDES IN SEAMS AND FRACTURES IN A LARGE V-SHAPED OREBODY CONTAINING TRIASSIC TO LATE LARAMIDE ANDESITE PORPHYRY, QUARTZ MONZONITE, QUARTZ LATITE, QUARTZ DIORITE AND QUARTZ MONZONITE PORPHYRY AS WELL AS A BRECCIA PIPE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

A DOMINANT SYSTEM OF N. 50 - 85 E. AND N. 50 - 25 W.-TRENDING, STEEPLY DIPPING, MINERALIZED FRACTURES OCCURS AT SIERRITA. THE EAST-NORTHEAST FRACTURE SET IS MOST STRONGLY MINERALIZED AND PARALLELS A MAJOR STRUCTURAL TREND IN THE MINE AREA. ALSO, THE EAST-NORTHEAST MINERALIZED SET APPEARS TO BE SUPERIMPOSED ON THE NORTHWEST-TRENDING ORE ZONES, COINCIDENT WITH CONTACTS BETWEEN THE LARAMIDE RUBY STAR QUARTZ MONZONITE PORPHYRY, BIOTITE QUARTZ DIORITE, AND HARRIS RANCH QUARTZ MONZONITE. MINERALIZATION AND ALTERATION ARE CONTROLLED BY THIS COMPOSITE STRUCTURAL FRAMEWORK. (AIKEN AND WEST, 1978)

SIGNIFICANT ALTERATION:

ALTERATION IN THE ORE ZONE IS PREDOMINANTLY POTASSIC, WITH PHYLIC AND MINOR ARGILLIC ASSEMBLAGES. PROPYLITIC MINERALS COMMONLY OCCUR OUTSIDE THE PIT AREAS. ALL ROCK TYPES ARE MINERALIZED AND ALTERED.

POTASSIC METASOMATISM IS THE MOST SIGNIFICANT AND WIDESPREAD ALTERATION IN THE DEPOSIT. THE POTASSIC ZONE ENCOMPASSES MUCH OF THE CENTRAL PORTION OF THE SIERRITA PIT WITH LOCALIZED OCCURRENCES NORTHEAST OF SIERRITA. AT SIERRITA, QUARTZ VEINING WITH SERICITE ALTERATION ENVELOPES OCCURS WITHIN AND PERIPHERAL TO THE POTASSIC ZONE AND DIMINISHES WITH DEPTH.

ARGILLIC ALTERATION IS MAINLY RESTRICTED TO FAULTS AND FRACTURES AND NO MAJOR PATTERN HAS BEEN DELINEATED. MUCH OF THE CLAY ALTERATION IN THE UPPER LEVELS OF THE MINES MAY BE ATTRIBUTED TO SUPERGENE EFFECTS.

PROPYLITIC ALTERATION IS PROMINENT AT SIERRITA AND FORMS A GRADATIONAL HALO AROUND THE POTASSIC AND PHYLIC ZONES. ORE LIMITS ROUGHLY COINCIDE WITH THE BOUNDARY BETWEEN THE PROPYLITIC AND HIGHER GRADE ALTERATION ASSEMBLAGES. (AIKEN AND WEST, 1973)

GENERAL REFERENCES

- 1) AIKEN, D.M., AND WEST, R.J., 1978, SOME GEOLOGIC ASPECTS OF THE SIERRITA-ESPERANZA COPPER-MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 117-128
- 2) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 138.
- 3) LYNCH, D.W. (1966) THE ECONOMIC GEOLOGY OF THE ESPERANZA MINE AND VICINITY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 267-279.
- 4) SCHMIDT, H.A., D.M. CLIPPINGER, W.J. ROPER, AND H. TOOMBS (1959) DISSEMINATED DEPOSITS AT THE ESPERANZA COPPER MINE, IN SOUTHERN ARIZONA GUIDEBOOK 11, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 205.
- 5) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 6) ANDERSON, C.A., AND DUPFER, D.H., 1944, REPORT OF THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INVENTORY.
- 7) ANDERSON, C.A. AND DUPFER, D.H., 1943, REPORT ON THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP.
- 8) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURV., V. 2, NO. 2, P. 195-211.
- 9) COOPER, J.R., 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D.

- 10)CREASEY, S.C., AND DISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 11)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 12)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 13)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 86.
- 14)CURTIS, C.H., 1961, THE ESPERANZA CONCENTRATOR: MINING ENG., V. 13, P. 1234.
- 15)DAMON, P.E., AND ASSOCIATES, 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-50: TUCSON, UNIVERSITY OF ARIZONA.
- 16)----- 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-60: TUCSON, UNIVERSITY OF ARIZONA.
- 17)D'ANDREA, D.V., LARSON, W.C., CHAMBERLAIN, P.C., AND OLSON, J.J., 1976, SOME CONSIDERATIONS IN THE DESIGN OF BLASTS FOR IN SITU COPPER LEACHING: SYMP. ROCK MECH., PROC., NO. 17, P. 5E1.1-5E1.4.
- 18)DENIS, M., 1977, THE SIERRITA (ARIZONA) PORPHYRY COPPER: HYDROTHERMAL ALTERATION AND FLUID INCLUSION STUDIES (ABST.): GEOL. SOC. LONDON, JOUR., V. 134, P. 390.
- 19)DREWES, H., 1976, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 699.
- 20)HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI
- 21)HILLMAN, B.A.; KILINO, I.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER DEPOSIT (ABST.): EOS, V. 53, NO. 4, P. 531.
- 22)ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1975, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): MIN. ENG., V. 27, NO. 12, P. 70-71.
- 23)ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1976, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): ECON. GEOL., V. 71, NO. 3, P. 700-701.
- 24)ILES, C.D., 1973, MINERALIZATION CONTROL AT THE DUVAL-SIERRITA PROPERTY, PIMA COUNTY, ARIZONA: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 25)JANCIC, T., 1971, DEVELOPMENT OF DUVAL CORPORATION'S SIERRITA MINE, PIMA COUNTY, ARIZONA (ABST.): AIME PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14 15.
- 26)LYNCH, D.W. (1967) THE GEOLOGY OF THE ESPERANZA MINE AND VICINITY, PIMA COUNTY, ARIZONA, UNIV. ARIZONA M.S. THESIS, 70 P.
- 27)OAKLEY, C.A., 1973, A SYNOPSIS OF ALTERATION AND MINERALIZATION AT THE SIERRITA AND ESPERANZA MINES: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
- 28)REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.
- 29)SAVELY, J.P., 1972, ORIENTATION AND ENGINEERING PROPERTIES OF JOINTING IN THE SIERRITA PIT, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 30)SMITH, V.L., 1975, HYPOGENE ALTERATION AT THE ESPERANZA MINE, PIMA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.
- 31)STECKLEY, R.C., LARSON, W.C., AND D'ANDREA, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUR. MINES REP. INVEST., RI 8070, 47 P.
- 32)TAINTER, S.L., 1947, REPORT OF INVESTIGATIONS, AMARGOSA (ESPERANZA) MOLYBDENUM-COPPER PROPERTY: U.S. BUR. MINES REPT. INV. 4016.
- 33)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 34)WORLD MINING, JUNE 1972, SIERRITA.

RECORD 00294

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W002685
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SILVER BELL PROPERTY
SYNONYM NAME..... EL TIRO AND OXIDE OPEN PITS

MINING DISTRICT/AREA/SUBDIST. SILVER BELL DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

LATITUDE LONGITUDE
32-25- N 111-32- W

TWP..... 12S
RANGE.... 08E
SECTION.. 04 NW 11 C

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO AU PB ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. MO AG

MAIN COMMOD..... CU AG MO AU

MAIN ORE MINERALS:

PYRITE AND CHALCOPYRITE; 85% ORE IS CHALCOCITE

MINOR ORE MINERALS:

MOLYBDENITE WULFENITE COPPER CARBONATES AND SILICATES; CUPRITE; BORNITE, MAGNETITE, SPHALERITE AND GALENA

ANALYTICAL DATA(GENERAL)

PROTORE=0.25% CU. TYPICAL ORE IS COMPOSED OF ALTERED ROCK AND SULFIDES IN A RATIO OF ABOUT 10:1 BY WEIGHT
(RICHARD AND COURTRIGHT, 1966)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS ACTIVE
 NATURE OF DISCOVERY..... A
 YEAR OF FIRST PRODUCTION. 1954
 PRESENT/LAST OWNER..... ASARCO

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SUPERGENE ENRICHED, DISSEM. (PORPHYRY)
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

COMMENTS(DESCRIPTION OF DEPOSIT):

THE TWO ORE DEPOSITS CONSIST OF RUDELY TABULAR ACCUMULATIONS OF CHALCOCITE FROM 100 TO 200 FEET THICK. LYING BENEATH ABOUT 100 FEET OF LEACHED CAPPING, THEY WERE FORMED BY TWOFOLD TO THREE FOLD ENRICHMENT OF THE COPPER CONTAINED IN THE PRIMARY MINERALIZATION.

PRODUCTION

YES

18 ORE	ACC	49877.40 TONS		
19 CU	ACC	78655.00 TONS	1951-1978	0.80% CU, 0.013% MO, 0.07 OZ/1 AG (GALEY, 1978)
20 PB	ACC	1564.465 LBS		
21 AG	ACC	3706.850 OZS		
22 AU	ACC	.391 OZS		
23 MO	ACC	5604.744 LBS		

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ, MES, CRET, TERT.
 HOST ROCK TYPES..... DACITE PORPHYRY AND MONZONITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. CRET, TERT. (63 M.Y., (65.5 M.Y.)
 IGNEOUS ROCK TYPES..... DACITE (QUARTZ LATITE) PORPHYRY AND MONZONITE PORPHYRY

AGE OF MINERALIZATION..... TERT-CRET. (63-67 M.Y.)

PERTINENT MINERALOGY..... WULFENITE WITH FLUORITE; LIMONITE QUARTZ SEAMS AND VEINLETS, BARITE, CALCITE

IMPORTANT ORE CONTROL/LOCUS.. CHALCOPYRITE AND MINOR MOLYBDENITE IN HYDROTHERMALLY ALTERED LARAMIDE DACITE PORPHYRY AND MONZONITE. LOCALIZATION OF MINERALIZATION AT SILVER BELL HAS BEEN PARTIALLY CONTROLLED BY REGIONAL STRUCTURE-ALSO, ROCK CHEMISTRY HAS APPARENTLY CONTROLLED THE DEPOSITION OF CHALCOPYRITE.
 IT IS SUGGESTED THAT THE STRUCTURAL INTERSECTION OF THE ENE FAULT SYSTEM AND THE SILVER BELL FAULT ZONE PROVIDED AN AVENUE FOR INTRUSION OF THE MONZONITES AND POSSIBLE CHANNELING OF THE HYDROTHERMAL FLUIDS.
 THE MORE INTENSE ALTERATION AND METALLIC MINERALIZATION OCCUR IN THE OXIDE AND EL TIRO AREAS. ANALYSIS OF THE GEOLOGIC MAP SHOWS THAT TO THE EAST AND NORTHEAST OF EACH PIT, THE DENSITY OF THE ENE TRENDING DIKES INCREASES. GENERALLY, THE HIGHER THE MAFIC CONTENT OF THE INTRUSIVES, THE HIGHER THE CHALCOPYRITE CONTENT. (GALEY, 1979)

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

THE GENERAL PATTERN OF HYDROTHERMAL ALTERATION AND MINERALIZATION IS A WIDE PROPYLITIC ZONE WITH THE MORE INTENSE POTASSIC AND PHYLIC ALTERATION OCCURRING IN THE OXIDE AND EL TIRO PIT AREAS. THE ALTERATION ZONE IS LINEAR AND ITS POSITION IS GENERALLY CENTERED ALONG THE SILVER BELL FAULT ZONE.

POTASSIC ALTERATION AT SILVER BELL IS DEFINED AS THE INTRODUCTION OF SECONDARY K-FELDSPAR QUARTZ, BIOTITE, CHALCOPYRITE, PYRITE AND MOLYBDENITE. SECONDARY K-FELDSPAR OCCURS AS FLOODING OF THE GROUNDMASS, REPLACEMENT OF PLAGIOCLASE AND IN VEIN ASSEMBLAGES.

THE PROPYLITIC ASSEMBLAGE IS DEFINED BY THE PRESENCE OF SECONDARY CHLORITE, EPIDOTE AND CALCITE. ALL THREE MINERALS OCCUR AS REPLACEMENT OF THE GROUNDMASS AND IN VEIN ASSEMBLAGES.

PHYLIC ALTERATION IS DEFINED AS THE VEIN OCCURRENCE OF QUARTZ-SERICITE-PYRITE. THE QUARTZ AND SERICITE OCCUR AS VEIN SELVAGES AROUND A PYRITE CORE. THE POTASSIC AND PROPYLITIC ASSEMBLAGES ARE COEVAL AND THE BULK OF THE PHYLIC ASSEMBLAGE IS LATER THAN THE POTASSIC-PROPYLITIC PHASE (FIGURE 3). EXAMINATION OF THE POTASSIC PARAGENESIS SHOWED THAT MOST OF THE BIOTITE AND CHALCOPYRITE ARE PARAGENETICALLY EARLIER THAN THE MOLYBDENITE. (GALEY, 1979)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

IN SUMMARY, AN ENVIRONMENT CONSISTING OF PRECAMBRIAN, PALEOZOIC AND MESOZOIC ROCKS WAS INTRUDED BY THREE LARAMIDE INTRUSIVE PHASES: ALASKITE, DACITE AND MONZONITES. THE EMPLACEMENT OF THE INTRUSIVES WAS STRUCTURALLY CONTROLLED BY THE SILVER BELL FAULT ZONE. THE HYDROTHERMAL ALTERATION FOLLOWED THE INTRUSION OF MONZONITE PORPHYRITES WHICH HAS BEEN DATED AT 65.5 MILLION YEARS. THE MORE INTENSE ALTERATION OCCURRED IN TWO AREAS AS EXEMPLIFIED BY THE LOCATION OF POTASSIC AND PHYLIC ALTERATION. THESE TWO INTENSE CENTERS ARE SURROUNDED BY A BROAD LINEAR ZONE OF PROPYLITIC ALTERATION. THE PHYLIC ALTERATION IS PARAGENETICALLY LATER THAN THE COEVAL POTASSIC-PROPYLITIC ASSEMBLAGE. REGIONAL TILTING ASSOCIATED WITH BASIN AND RANGE TECTONICS TILTED THE DEPOSIT 30 DEGREES TOWARD THE NORTHEAST. EXPOSURE OF THE DEPOSIT TO SURFICIAL WEATHERING CONDITIONS RESULTED IN THE FORMATION OF THE CHALCOCITE BLANKET. (GALEY, 1979)

COMMENTS (GEOLOGY AND MINERALOGY):

THE PATTERN OF RELATIVELY STRONG CHALCOCITE AT DEPTH IS REFLECTED IN THE OUTCROPS BY THE DISTRIBUTION AND ABUNDANCE OF DIAGNOSTIC LIMONITES. (RICHARD AND COURTRIGHT, 1966). WULFENITE OCCURS SPARSELY, AS BROWNISH PLATES WITH FLUORITE AND AS CRYSTALS SHOWING OBVIOUS TETARTOHEDRISM. (ANTHONY, ET AL., 1977, P. 205)

GENERAL REFERENCES

- 1) RICHARD, K., AND COURTRIGHT, J.H. (1966) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, (EDS.), UNIV. ARIZONA PRESS, TUCSON: 157-163.
- 2) GALEY, J.L., 1979. GENERAL GEOLOGY AND HYDROTHERMAL ALTERATION OF THE SILVER BELL PORPHYRY COPPER DEPOSIT: SOC. ECON. GEOL., PORPHYRY COPPER FIELD CONFERENCE, 18 P.
- 3) BANKS, N.G., AND DOCKTER, R.D., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE VACA HILLS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF-793.
- 4) AGENBROAD, L.D., 1962, THE GEOLOGY OF THE ATLAS MINE AREA, PIMA COUNTY, ARIZONA: ARIZONA UNIV., TUCSON M.S. THESIS, 39 P.
- 5) BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L., AND NAESER, C.W., 1978, RADIOMETRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANICS AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 6, P. 439-445.
- 6) BARNEY, W.G. (1904) THE SILVERBELL MOUNTAINS, ARIZONA, ENG. MIN. JOUR. 78: 755.
- 7) BLANCHARD, ROLAND, 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.
- 8) BUSECK, PETER R., 1962, CONTACT METASOMATIC DEPOSITS AT CONCEPCION DEL ORO, MEXICO; TEM PIUTE, NEVADA; AND SILVER BELL, ARIZONA: UNPUBLISHED PH.D. DISSERTATION, COLUMBIA UNIVERSITY, NEW YORK.
- 9) CLARKE, CRAIG W. THE GEOLOGY OF THE EL TIRO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P. (1965)
- 10) DAMON, ET AL., 1963, CORRELATION AND CHRONOLOGY OF ONE DEPOSITS AND VOLCANIC ROCKS: UNIV. ARIZONA, ANN. PROGRESS REPORT NO. 5.
- 11) DAVIS, S.R., 1974, RECONNAISSANCE GEOLOGIC MAP AND GEOLOGIC COMPILATION OF THE SILVER BELL, AND WEST SILVER

BELL MOUNTAINS, SCALE 1:62,500 (UNPUB. ASARCO INC. MAP).

12) DAVIS, S.R. 1974. RECONNAISSANCE GEOLOGIC MAP OF PART OF THE WEST SILVER BELL MOUNTAINS, SCALE 1:24,000 (UNPUB. ASARCO INC. MAP).

13) DOCKTER, R.D., 1977. MOUNT LORD VOLCANICS, PIMA COUNTY, ARIZONA, IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE U.S. GEOLOGICAL SURVEY: U.S. GEOL. SURVEY BULL. 1435-A, A117-120.

14) EDMISTON, R.C., 1973. THERMAL ANOMALIES AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT (ABSTR.): MIN. ENG., V. 25, NO. 12, P. 45.

15) EDMISTON, R., 1971. THERMAL GRADIENTS AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.

16) ENGINEERING AND MINING JOURNAL, 1957, HOW ASAR RAISED MOLYBDENITE RECOVERY ON COPPER CONCENTRATE: ENG. MIN. JOUR., V. 158, NO. 8, P. 104-106.

17) EMMONS, W.H., 1917. THE ENRICHMENT OF ORE DEPOSITS: U.S. GEOL. SURVEY BULL. 625.

18) HAYES, P.T., 1970. CRETACEOUS PALEOGEOGRAPHY OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: U.S. GEOL. SURVEY PROF. PAPER 58-B, 42 P.

19) KERR, P.F. (1951) ALTERATION FEATURES AT SILVERBELL, ARIZONA. GEOL. SOC. AMER. BULL. 62: 451-480.

20) MAUGER, R.L., 1966, A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIV. OF ARIZ., 212 P.

21) MAUGER, R.L., DAMON, P.E., GILLETTI, B.J., 1963, AGE OF ORE DEPOSITION WITHIN THE SOUTHWESTERN COPPER METALLOGENETIC PROVINCE IN ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, DALLAS, TEXAS, FEBRUARY.

22) MAUGER, R.L., DAMON, P.E., AND GILLETTI, B.J., 1965, ISOTOPIC DATING OF ARIZONA ORE DEPOSITS: AM. INST. MINING METALL. AND PETROLEUM ENGINEERS TRANS., V. 232, P. 81-87.

23) MERZ, J.J. (1967) THE GEOLOGY OF THE UNION HILL AREA. SILVER BELL DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 58 P.

24) MITCHAM, T.W., 1955, DISCUSSION OF PAPER, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, V. 207, P. 300.

25) MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK 11.

26) RICHARD, KENYON, AND COURTRIGHT, J.H., 1954, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MINING ENG., NOVEMBER, AND AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 1095-1099.

27) RICHARD, K., AND COURTRIGHT, J.H., 1950, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.

28) RICHARD, K.E. 1. (AND COURTRIGHT, J.H.) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MIN. ENGR. V. 6, NO. 11, P. 1095-1099, ILLUS., MAP (1954); AIME TRANS. 1954, V. 199 (1955); (DISCUSSION BY T.W. MITCHAM AND REPLY BY AUTHORS): MIN. ENGR., V. 7, NO. 3, P. 300 (1955); AIME TRANS. 1955, V. 202 (1956)

29) SHOEMAKER, A.H., AND G. SOMMERS (1924) THE GEOLOGY OF THE EL TIRO MINE, SILVER BELL, ARIZONA. UNIV. ARIZONA M.S. THESIS, 40 P.

30) STEWART, C.A., 1912, THE GEOLOGY AND ORE DEPOSITS OF THE SILVER BELL MINING DISTRICT, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS BULL., V. 65, P. 455-506.

31) STEWART, C.A. 2. THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA: AIME BULL. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-290, MAP (1913); (ABST.): MIN. WORLD, V. 36, P. 1104-1107, 1147-1150 (1912)

32) STEWART, C.A. (1912) THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA. TRANS. AIME 43: 240-290.

33) WATSON, B.N. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 168 P. (1964)

34) WATSON, BARRY NORTON 1. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): DISSERT. ABS., V. 25, NO. 3, P. 1853 (1964)

35) WATSON, B.N., 1968, INTRUSIVE VOLCANIC PHENOMENA IN SOUTHERN AND CENTRAL ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK 111- GEOL. SOC. AMERICA CORDILLERAN SEC., 64TH ANN. MTG., TUCSON, 1968: ARIZONA GEOL. SOC., P. 147-153.

36) WATSON, B.N., 1968, UPDATING THE GEOLOGY AND ORE CONTROLS AT SILVER BELL, ARIZONA: TALK TO MINING GEOLOGY DIV., ARIZ. SECTION A.I.M.E.

37) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 143.

38) KING, R.B., 1969. MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #28

- 39) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 40) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 205.
- 41) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 42) TOLMAN, C.F., JR., 1909, COPPER DEPOSITS OF SILVERBELL, ARIZONA: MIN. SCI. PRESS, V. 99, P. 646-658

RECORD 00295

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000109
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
DATE..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SILVER BELL DISTRICT
MINING DISTRICT/AREA/SUBDIST. SILVER BELL DIST/SILVER BELL AND WEST SILVER BELL MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA
LATITUDE LONGITUDE
32-25- N 111-32- W
TWP..... 11S 12S
RANGE.... 07E 08E
SECTION.. 09

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN MO AU MN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
MINOR PRODUCTS.. ZN PB AU AG

MAIN COMMOD..... CU AG PB ZN MO AU
MINOR COMMOD..... MN

MAIN ORE MINERALS:

CHALCOHITE, PYRITE, MOLYBDENITE; CHALCOHITE

MINOR ORE MINERALS:

GALENA AND SPHALERITE WULFENITE, COPPER CARBONATE AND SILICATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM. ENRICHED, PYROMETASOMATIC

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT, ADIT, AND OPEN PIT OPERATIONS (KEITH, 1974)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 142

PRODUCTION COMMENTS.... WORKED SINCE 1973 BUT MAJOR PRODUCTION FROM OPEN PITS AFTER 1953. TOTAL ESTIMATED AND REPORTED OUTPUT THROUGH 1972 WOULD BE SOME 61.2 MILLION TONS OF ORE CONTAINING 504,400 TONS CU, 24,000 TONS ZN, 900 TONS PB, 5.3 MILLION OZ AG, AND 1,490 OZ AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZOIC

HOST ROCK TYPES..... LIMESTONE AND QUARTZITE

AGE OF ASSOC. IGNEOUS ROCKS.. LARAMIDE

IGNEOUS ROCK TYPES..... ALASKITE MONZONITE, DACITE PORPHYRY, ANDESITE PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. SUPERGENE ENRICHED DEPOSITS OF CHALCOCITE WITH MINOR COPPER CARBONATES AND SILICATES IN SHEETED, CLOSELY SPACED BEINLETS AND SEAMS OF QUARTZ, WITH PYRITE AND CHALCOPYRITE, IN HYDROTHERMALLY ALTERED LARAMIDE ALASKITE, MONZONITE, AND SOME DACITE PORPHYRY. 2. DISSEMINATED, PARTLY OXIDIZED, CHALCOPYRITE, AND MINOR GALENA AND SPHALERITE, IN PYROMETASOMATIZED PALEOZOIC LIMESTONE AND QUARTZITE PENDANTS IN LARAMIDE INTRUSIVES. 3. PYROMETASOMATIC MANTOS, PODS AND LENSES OF ZN, CU, AND PB CARBONATES AND SULFIDES IN A GARNETIZED PALEOZOIC LIMESTONE BLOCK. ORE CONTROLLED BY FAULTS, BEDDING AND ANDESITE DIKES. 4. SPOTTY COPPER OXIDES MINOR WULFENITE AND MANGANESE AND IRON OXIDES IN CRETACEOUS AND INTERBEDDED PERMIAN LIMESTONE AND QUARTZITES ALONG A FAULT ZONE. OFTEN ASSOCIATED WITH ANDESITE PORPHYRY INTRUSIVES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

SUPERGENE ENRICHED; HYDROTHERMALLY ALTERED

GENERAL REFERENCES

- 4) RICHARD K., AND COURTRIGHT, J.H. (1966) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS, (EDS.). UNIV. ARIZONA PRESS, TUCSON: 157-163.
- 5)GALEY, J.L., 1979, GENERAL GEOLOGY AND HYDROTHERMAL ALTERATION OF THE SILVER BELL PORPHYRY COPPER DEPOSIT: SOC. ECON. GEOL., PORPHYRY COPPER FIELD CONFERENCE, 18 P.
- 6)BANKS, N.G., AND DOCKTER, R.D., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE VACA HILLS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP, MF-793.
- 7)AGENBROAD, L.D., 1962, THE GEOLOGY OF THE ACTAS MINE AREA, PIMA COUNTY, ARIZONA: ARIZONA UNIV., TUCSON M.S. THESIS, 39 P.
- 8)BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L., AND NAESER, C.W., 1978, RADIO-METRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANICS AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 6, P. 439-445.
- 9)BARNEY, W.G. (1904) THE SILVERBELL MOUNTAINS, ARIZONA. ENG. MIN. JOUR. 78: 755.

- 10)BLANCHARD, ROLAND, 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.
- 11)BUSECK, PETER R., 1962, CONTACT METASOMATIC DEPOSITS AT CONCEPCION DEL ORD, MEXICO; TEM PIUTE, NEVADA; AND SILVER BELL, ARIZONA: UNPUBLISHED PH.D. DISSERTATION, COLUMBIA UNIVERSITY, NEW YORK.
- 12)CLARKE, CRAIG W. THE GEOLOGY OF THE EL TIRO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P. (1965)
- 13)DAMON, ET AL., 1963, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: UNIV. ARIZONA, ANN. PROGRESS REPORT NO. 5.
- 14)DAVIS, S.R., 1974, RECONNAISSANCE GEOLOGIC MAP AND GEOLOGIC COMPILATION OF THE SILVER BELL, AND WEST SILVER BELL MOUNTAINS, SCALE 1:62,500 (UNPUB. ASARCO INC. MAP).
- 15)DAVIS, S.R. 1974, RECONNAISSANCE GEOLOGIC MAP OF PART OF THE WEST SILVER BELL MOUNTAINS, SCALE 1:24,000 (UNPUB. ASARCO INC. MAP).
- 16)DOCKIER, R.D., 1977, MOUNT LORD VOLCANICS, PIMA COUNTY, ARIZONA, IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE U.S. GEOLOGICAL SURVEY: U.S. GEOL. SURVEY BULL. 1435-A, A117-120.
- 17)EDMISTON, R.C., 1973, THERMAL ANOMALIES AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT (ABSTR.): MIN. ENGR., V. 25, NO. 12, P. 45.
- 18)EDMISTON, R., 1971, THERMAL GRADIENTS AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
- 19)ENGINEERING AND MINING JOURNAL, 1957, HOW ASAR RAISED MOLYBDENITE RECOVERY ON COPPER CONCENTRATE: ENG. MIN. JOUR., V. 158, NO. 8, P. 104-106.
- 20)EMMONS, W.H., 1917, THE ENRICHMENT OF ORE DEPOSITS: U.S. GEOL. SURVEY BULL. 625.
- 21)HAYES, P.T., 1970, CRETACEOUS PALEOGEOGRAPHY OF SOUTHEASTERN ARIZONA AND ADJACENT AREAS: U.S. GEOL. SURVEY PROF. PAPER 658-B, 42 P.
- 22)KERR, P.F. (1951) ALTERATION FEATURES AT SILVERBELL, ARIZONA. GEOL. SOC. AMER. BULL. 62: 451-480.
- 23)MAUGER, R.L., 1966, A PETROGRAPHIC AND GEOCHEMICAL STUDY OF SILVER BELL AND PIMA MINING DISTRICTS, PIMA COUNTY, ARIZONA (PH.D. DISSERTATION): TUCSON, UNIV. OF ARIZ., 212 P.
- 24)MAUGER, R.L., DAMON, P.E., GILLETTI, B.J., 1963, AGE OF ORE DEPOSITION WITHIN THE SOUTHWESTERN COPPER METALLOGENETIC PROVINCE IN ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, DALLAS, TEXAS, FEBRUARY.
- 25)MAUGER, R.L., DAMON, P.E., AND GILETTI, B.J., 1965, ISOTOPE DATING OF ARIZONA ORE DEPOSITS: AM. INST. MINING METALL. AND PETROLEUM ENGINEERS TRANS., V. 232, P. 81-87.
- 26)MERZ, J.J. (1967) THE GEOLOGY OF THE UNION HILL AREA, SILVER BELL DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 58 P.
- 27)MITCHAM, T.W., 1955, DISCUSSION OF PAPER, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS, V. 202, P. 300.
- 28)MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
- 29)RICHARD, KENYON, AND COURTRIGHT, J.H., 1954, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MINING ENGR., NOVEMBER, AND AM. INST. MINING METALL. PETROLEUM ENGINEERS TRANS., V. 199, P. 1095-1099.
- 30)RICHARD, K., AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.
- 31)RICHARD, K.E. 1. (AND COURTRIGHT, J.H.) STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: MIN. ENGR. V. 6, NO. 11, P. 1095-1099, ILLUS., MAP (1954); AIME TRANS. 1954, V. 199 (1955); (DISCUSSION BY T.W. MITCHAM AND REPLY BY AUTHORS): MIN. ENGR., V. 7, NO. 3, P. 300 (1955); AIME TRANS. 1955, V. 202 (1956)
- 32)SHOEMAKER, A.H., AND G. SOMMERS (1924) THE GEOLOGY OF THE EL TIRO MINE, SILVER BELL, ARIZONA. UNIV. ARIZONA M.S. THESIS, 40 P.
- 33)STEWART, C.A., 1912, THE GEOLOGY AND ORE DEPOSITS OF THE SILVER BELL MINING DISTRICT, ARIZONA: AM. INST. MINING METALL. PETROLEUM ENGINEERS BULL., V. 65, P. 455-505.
- 34)STEWART, C.A. 2. THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA: AIME BULL. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-290, MAP (1913) (ABST.): MIN. WORLD, V. 36, P. 1104-1107, 1147-1150 (1912)
- 35)STEWART, C.A. (1912) THE GEOLOGY AND ORE DEPOSITS OF THE SILVERBELL MINING DISTRICT, ARIZONA. TRANS. AIME 43: 240-290.
- 36)WATSON, B.N. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 168 P. (1964)
- 37)WATSON, BARRY NORTON 1. STRUCTURE AND PETROLOGY OF THE EASTERN PORTION OF THE SILVER BELL MOUNTAINS, PIMA COUNTY, ARIZONA (ABS.): DISSERT. ABS., V. 25, NO. 3, P. 1953 (1964)

- 38)WATSON, B.N., 1968, INTRUSIVE VOLCANIC PHENOMENA IN SOUTHERN AND CENTRAL ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK III-GEOL. SOC. AMERICA CORDILLERAN SEC., 64TH ANN. MTG., TUCSON, 1968; ARIZONA GEOL. SOC., P. 147-153.
- 39)WATSON, B.N., 1968, UPDATING THE GEOLOGY AND ORE CONTROLS AT SILVER BELL, ARIZONA: TALK TO MINING GEOLOGY DIV., ARIZ. SECTION A.I.M.E.
- 40)KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 142-3
- 41)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 42)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 43)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
- 44)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 45)TOLMAN, C.F., JR., 1909, COPPER DEPOSITS OF SILVERBELL, ARIZONA: MIN. SCI. PRESS, V. 99, P. 646-658

RECORD 00296

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030530
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... STRATTON MINE
SYNONYM NAME..... OLD HAT; STRATTON
MINING DISTRICT/AREA/SUBDIST. ORACLE/N. SANTA CATALINAS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 BELLOTA RANCH, ARIZ.

LATITUDE LONGITUDE
32-28-00N 110-44-36W

TWP..... 17S
RANGE..... 16E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6680 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NE OF STRATTON CAMP SPRING; WEST OF
MARBLE PEAK

MT LEMMON ROAD; SOUTH OF

LOCATION COMMENTS: 1/4 OF SEC 20

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU MO

MAIN COMMOD..... CU AU
MINOR COMMOD..... AU MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
BORNITE AND MOLYBDENITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETAMORPHOSED
FORM/SHAPE OF DEPOSIT: VEINLETS AND FRACTURE FILLINGS

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 2 1/2 FT
STRIKE OF OREBODY.... NW
DIP OF OREBODY..... 27 NE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
80FT LONG INCLINE SHAFT AND PROSPECT ADITS (KEITH, 1974) LOWER 30 FT OF INCLINED SHAFT IS FLOODED. 2 ADITS ABOUT 50 FT LONG ARE LOCATED ABOUT 800 FT N. OF STRATTON SPRING

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 131

PRODUCTION COMMENTS.... A FEW BRAND SORTED TONS OF HIGH GRADE ORE SHIPPED IN THE PAST.

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. PETERSON AND CREASEY, 1943, P. 8

COMMENTS (RESERVES/POT RESOURCES).. THE RESERVES IN THE SOUTHERN MINERALIZED ZONE ON THE STRATTON PROPERTY ARE ESTIMATED AT 2,000 TONS OF INDICATED ORE AND 8,000 TONS OF INFERRED ORE. THE COPPER CONTENT OF THE ORE EXPOSED FOR 100 FT IN THE INCLINED SHAFT IS JUDGED FROM INSPECTION TO BE BETWEEN 2 AND 3%. THE MOST NORTHERLY ZONE ON THE STRATTON PROPERTY IS ESTIMATED TO CONTAIN ABOUT 15,000 TONS OF MINERALIZED TACTITE WHICH MAY BE TOO POOR IN COPPER TO BE ORE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CAMB. DEV. MES. PALEOZOIC
HOST ROCK TYPES..... LIMESTONE; ABRIG FM, MARTIN FM, ESCABROSA LS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET. (75-64 M.Y.)
IGNEOUS ROCK TYPES..... LEATHERWOOD QUARTZ DIORITE

AGE OF MINERALIZATION..... CRET- TERT. (75-64 M.Y.)

PERTINENT MINERALOGY..... GARNET-EPIDOTE; SKARN

IMPORTANT ORE CONTROL/LOCUS.. THIN FRACTURE FILLINGS AND DISSEMINATIONS IN GARNET EPIDOTE SKARN IN METALIMESTONE
LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BEDDING PLANE FAULTS STRIKES NW AND DIPS 27 NE; N55 W, DIPS 73 SW

SIGNIFICANT ALTERATION:

SKARN

COMMENTS (GEOLOGY AND MINERALOGY):

BORNITE AND MOLYBDENITE ASSOCIATED WITH QUARTZ IN DEPTH

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN THE PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156, P. 131.
- 2) BRAUN, E.R. (1969) GEOLOGY AND ORE DEPOSITS OF THE MARBLE PEAK AREA SANTA CATALINA MOUNTAINS, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 75 P., P. 42-43.
- 3) PETERSON, N.P., AND CREASEY, S.C., 1943, SOME COPPER DEPOSITS IN THE OLD HAT MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT, 12 P., MAPS., P. 10
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.

RECORD 00297

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030515
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... SUNSET MINE

MINING DISTRICT/AREA/SUBDIST. CABABI DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 COMOBABI, ARIZONA

LATITUDE LONGITUDE
32-01-30N 111-55-30W

UTM NORTHING UTM EASTING UTM12ZONE NO

TWP..... 16S
RANGE.... 04E
SECTION.. 22 NW
MERIDIAN. GILA SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR MILDREN AND STEPPE MINES

LOCATION COMMENTS: LOCATION PROBABLY NOT RIGHT AS IT PLOTS IN GRAVEL; PROBABLY SHOULD BE SEC 23

MAIN COMMOD..... PB CU AG
MINOR COMMOD..... MO AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR

HOST ROCK TYPES..... ANDESITE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEIN IN ANDESITE

GENERAL REFERENCES

1) KEITH. ABH FILE DATA-PAGES

RECORD 00298

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 0000107
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TOTAL WRECK MINE
SYNONYM NAME..... CO., VAIL, SCHLEY, ADAMS AND SAXBY, GARDNER AND YOUNG, TORRES

MINING DISTRICT/AREA/SUBDIST. EMPIRE DIST/EMPIRE MTS

CONTINENT OR GLOBAL AREA..... VANADINITE MALACHITE AZURITE, CHRYSOCOLLA CHALCOPYRITE, LEAD OXIDES COPPER AND LEAD SULFIDES

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAINS, ARIZONA

LATITUDE LONGITUDE
31-53-45N 110-35-31W

UTM NORTHING UTM EASTING UTM ZONE NO
3528750.0 537675.0 +12

TWP..... 18S
RANGE.... 17E
SECTION.. 3 EC
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4,610 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 KM SW BM 4319; 7 MILES S OF PANTANO ON R.R.; MINE IS ON CIENEGI CREEK
AT EAST BASE OF EMPIRE MTS

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU MO AU MN V ZN

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB AG

MINOR PRODUCTS.. CU AU MO

MAIN COMMOD..... PB CU AG MO
MINOR COMMOD.... AU MN V

MAIN ORE MINERALS:
CERUSSITE, WULFENITE, CERARGYRITE

COMMODITY COMMENTS:
MO PROD. 1918=8 TONS MOLYBDENUM (WULFENITE) CONCENTRATES

ANALYTICAL DATA(GENERAL)
4% CU, 12% PB, 12 OZ AG/T

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... DISCOVERED IN 1879; RELOCATED LATER; SOME PATENTED CLAIMS
BY WHOM..... DISCOVERED BY JOHN DILDEN, A COWBOY

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT VEINS
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA
DEPTH TO TOP 0 FT
DEPTH TO BOTTOM..... OVER 500 FT
MAX WIDTH..... 8 FT
STRIKE OF OREBODY.... E-W
DIP OF OREBODY..... 85 DEGREE N

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 500 FT
LENGTH OF WORKINGS..... 5000 FT

COMMENTS(DESCRIP. OF WORKINGS):
SHAFTS AND TUNNELS (KEITH, 1974, P. 119): DEVELOPED TO DEPTH OF 500 FT BY SHAFTS, TUNNELS, DRIFTS, INCLINES AND
WINZES AND STOPS AGGREGATING 5000 FT OF WORK (SEE MAP IN SCHRADER)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 119

PRODUCTION COMMENTS.... WORKED FROM 1890'S TO 1940, PRODUCING SOME 14,000 TONS OF ORE AVERAGING ABOUT 8% PB, 7 OZ
AG/T AND MINOR CU AND AU. SOME 8 TONS OF MOLYBDENUM CONCENTRATES SHIPPED IN 1918.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
 HOST ROCK TYPES..... CONCHA LIMESTONE, RAIN VALLEY FORMATION

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (71 M.Y.)
 IGNEOUS ROCK TYPES..... DIORITE STRINGERS AND DIKES; SYCAMORE CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET (71 M.Y.)

PERTINENT MINERALOGY..... CALCITE HEMATITE, LIMONITE, JAROSITE, SIDERITE, MANGANESE OXIDES, QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. IN FRACTURED LIMESTONE ASSOCIATED WITH FISSURES IN LIMESTONES ABOVE QUARTZITES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 E-W OR NE FAULTS AND FISSURES; ANDRADE FAULT STRIKES NW AND DIPS 85 DEGREE NE

SIGNIFICANT ALTERATION:
 ALTERED AND CRUSHED LIMESTONE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, P. 119
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 142-147
- 3) ALBERDING, H., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
- 4) ALEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZONA PRESS, 255 P., P. 205.
- 6) BRENNAN, D.J. 2. GEOLOGICAL RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 41 (1958)
- 7) BRENNAN, D.J. 3. TERTIARY SEDIMENTARY ROCKS AND STRUCTURES OF THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 5, P. 45-58 (1962)
- 8) BUTLER, W.E., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 9) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. -5650.
- 10) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 11) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 12) FEISS, J.W., 1929, GEOLOGY AND ORE DEPOSITS OF HILTANO CAMP, ARIZONA: UNIV. ARIZ., MS THESIS
- 13) FINNELL, T.L., 1970, PANTANO FORMATION: IN CHANGES IN STRATIGRAPHIC NOMENCLATURE BY THE USGS, 1968: USGS BULL. 1294-A, P. 35-36
- 14) FINNELL, T.L., 1971, PRELIMINARY GEOLOGIC MAP OF THE EMPIRE MOUNTAINS QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT
- 15) GALBRAITH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 51, P. 1927
- 16) GALBRAITH, F.W. 4. EMPIRE MOUNTAINS OVERTHRUST: PAM-AM. GEOL., V. 73, P. 377-378 (1940)
- 17) GALBRAITH, F.W., 1949, THRUST FAULTING IN THE EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOL. SOC. AM. BULL., V. 60, P. 1889-90
- 18) GALBRAITH, F.W. 11. THE EMPIRE MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., GUIDEBOOK II SOUTHERN ARIZ., P. 127-133 (1959)
- 19) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.

180, P. 230238, P. 236, #34.

20)MARVIN, T.C., 1942, THE GEOLOGY OF THE HILTON RANCH AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

21)MAYUGA, M.N., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 74 P.

22)METZ, R. THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 66 P. (1963)

23)MOORE, ROBERT A. 2. CRETACEOUS (?) STRATIGRAPHY OF THE SOUTHEAST FLANK OF THE EMPIRE MOUNTAINS. PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 55 P. (1960)

24)SCHAFROTH, D.W., 1965, STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS

25)SCHAFROTH, DON W. 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA AND SANTA CRUZ COUNTIES, ARIZONA: UNIV. ARIZ., PHD THESIS, 135 P. (1965); (ABS.): DISSERT. ABS., V. 26, NO. 8, P. 4578-4579 (1966)

26)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

27)SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

28)SCHRADER, F.C. AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163

29)SCHRADER, F.C. 4. (AND HILL, J.M.) SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS MIN. WORLD, V. 33, P. 185-187 (1910)

30)SEARS, DAVID, 2ND GEOLOGY OF THE PANTANO HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 48 P., MAPS (1939)

31)SOPP, G.P. (1940) GEOLOGY OF THE MONTANA MINE AREA, EMPIRE MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63 P.

32)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168

33)WILSON, E.D., 1951, EMPIRE DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS, PART II, P. 49-56: ARIZ. BUR. MINES BULL. 158, P. 52-53.

34)WILSON, R.A., 1934, THRUST FAULTING IN THE EMPIRE MOUNTAINS OF SOUTHEASTERN ARIZONA: JOUR. GEOL., V. 42, P. 422-429

RECORD 00299

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4002686
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TWIN BUTTE MINF

MINING DISTRICT/AREA/SUBDIST. PIMA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

LATITUDE LONGITUDE
31-55- N 111-02- W

TWP..... 18S
RANGE.... 13E
SECTION.. 05 SW 06 NE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO ZN PB AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. MO

MAIN COMMOD..... CU AG MO
MINOR COMMOD..... ZN BP AU

MAIN ORE MINERALS:

CHALCOPYRITE, PYRITE, CHALCOCITE, COVELLITE

MINOR ORE MINERALS:

MOLYBDENITE, POWELLITE, BORNITE, WULFENITE, SPHALERITE, GALENA, TETRAHEDRITE, AZURITE, MALACHITE,
BROCHANTITE, CHRYSOCOLLA, MEDMONTITE, NATIVE COPPER

ANALYTICAL DATA(GENERAL)

OTHER PARTS OF THE QUARTZ MONZONITE PORPHYRY BEAR LESS THAN 0.4% COPPER AND THERE ARE LARGE VOLUMES WHICH BEAR
LESS THAN 0.2% COPPER. SIGNIFICANT AMOUNTS OF THE DIORITE PORPHYRY BEAR FROM 0.4% TO ABOUT 0.6% COPPER.

TOTAL SULFIDE CONTENT GENERALLY CORRESPONDS WITH TOTAL COPPER CONTENT. IN THE SKARN ZONES OF BETTER COPPER TENOR THE TOTAL CONTAINED SULFIDE MAY BE 4% TO 6% AND LOCALLY AS HIGH AS 15% TO 20% BY VOLUME. IT DROPS RATHER ABRUPTLY TO LESS THAN 1% OUTSIDE OF THESE ZONES. THE QUARTZ MONZONITES RARELY CONTAIN MORE THAN 1% TOTAL SULFIDES. (KELLY, 1977)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

PRESENT/LAST OWNER..... OWNER ANAMAX MIN. CO. (ARCO)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM., FRACTURE FILLING AND REPLACEMENTS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

DEPTH TO TOP 300-600 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

OPEN PIT OPERATIONS (KEITH, 1974)

PRODUCTION

YES

18 ORE	ACC			1965-1978
19 CU	ACC	1297896.	TONS	1965-1978
20 PB	ACC	543.166	LBS	1968-1978
21 ZN	ACC	51.600	LBS	1965-1978
22 AG	ACC	8461.387	OZS	1965-1978
23 AU	ACC	5.996	OZS	1965-1978
			MO	ACC

15292166

LBS

1965-1978

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 138

PRODUCTION COMMENTS.... PRODUCTION FROM 1965 THROUGH 1972 AMOUNTED TO SOME 29 MILLION TONS OF ORE AVERAGING ABOUT 0.3% CU, 0.1 OZ AG/T, AND MINOR MO, PB, AU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1978, P. 83

COMMENTS (RESERVES/POT RESOURCES).. RESERVES OF 329 MILLION TONS OF SULFIDE ORE AT 0.67% CU AND 0.03% MO AND CUTOFF GRADE AT 0.2% CU. ONLY 300 MILLION TONS OF SULFIDE ORE AT 0.80% CU AND CUTOFF GRADE AT 0.47% CU (PUB.

1973 AS "OUTSIDE CURRENT MINE PLANS).

RESERVES OF 57 MILLION TONS OF OXIDE COPPER ORE AT 1.10% CU AND CUTOFF AT 0.6% CU. ONLY 28 MILLION TONS OF OXIDE ORE AT 0.49% CU AND CUTOFF AT 0.4% CU (PUB. 1973). (GREELEY, 1978, P. 83)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PAL, MES., TERT.

HOST ROCK TYPES..... THE MESOZOIC SEQUENCE IN THE MAIN ORE ZONE IS FOLDED INTO AN OPEN SYNCLINE. AT THE TOP OF THIS SEQUENCE IS THE TWO-MEMBER ANGELICA ARKOSE. THE ANGELICA IS UNDERLAIN BY VOLCANICS AND CLASTICS OF TRIASSIC AND POSSIBLE JURASSIC AGE. AN ANGULAR UNCONFORMITY SEPARATES TRIASSIC FROM YOUNGER MESOZOIC ROCKS. AT THE BASE OF THE MESOZOIC IS A CARBONATE-RICH CONGLOMERATE WHICH OVERLIES THE PALEOZOICS ALONG A 50 DEGREES SW.-DIPPING ANGULAR UNCONFORMITY.

THE PALEOZOICS GENERALLY HAVE STEEP NORTHEAST DIPS AND ARE STRONGLY FOLDED. THE YOUNGEST, NORTHERNMOST, PALEOZOIC IN THE MAIN ORE ZONE IS THE PERMIAN CONCHA LIMESTONE AND THE OLDEST IS THE EARP FORMATION. BETWEEN THESE FORMATIONS ARE A THREE-MEMBER SCHERRER FORMATION, A FOUR-MEMBER EPITAPH FORMATION, AND THE COLINA LIMESTONE. (BARTER, 1978)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 M.Y., 57 M.Y., 53.5 M.Y.)

IGNEOUS ROCK TYPES..... INTRUSIVE QUARTZ MONZONITE PORPHYRY (MAPPED AS GRANODIORITE)

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... ANHYDRITE, QUARTZ, FLUORITE. ALTERATION PRODUCTS ARE PRINCIPALLY ACTINOLITE, TREMOLITE, PALCOPITE, BIOTITE, ANTIGORITE, MAGNETITE, EPIDOTE, POTASH FELDSPAR, QUARTZ & ANHYDRITE. OTHER ALTERATION MINERALS OF LESSER ABUNDANCE ARE FORSTERITE, IDCRASE, ZOISITE, TALC, CALCITE, SERICITE, AND CLAY MINERALS OTHER THAN MONTMORILLONITE. GARNET AND MOLLASTONITE APPEAR TO BE DIRECT PRODUCTS OF HYDROTHERMAL ALTERATION IN SOME INSTANCES. (KELLY, 1977)

IMPORTANT ORE CONTROL/LOCUS.. THE MAIN ORE ZONE IS LOCATED ON THE SOUTHWEST SIDE OF A QUARTZ MONZONITE PORPHYRY MASS DATED AT 58 M.Y.

THE SINGLE MOST IMPORTANT ORE CONTROL AT TWIN BUTTES IS THE ALTERED CARBONATE ROCKS. SUPERIMPOSED ON THIS DOMINANT FEATURE ARE FACTORS SUCH AS DISTANCE FROM THE MINERALIZATION CENTER, PROXIMITY TO PERMEABLE ROCKS, INTENSITY OF FRACTURING, AND PARTIAL REWORKING OF EARLY SULFIDES BY LATER HYDROTHERMAL EVENTS. (BARTER, 1978)

THE BEST GRADE ORE BODIES ARE DEVELOPED IN THE PALEOZOIC SKARNS. THEIR SHAPES AND ATTITUDES ARE LARGELY CONTROLLED BY MINERAL-RECEPTIVE BEDS, IGNEOUS ROCK CONTACTS AND FAULTS. THEY TEND TO BE TABULAR, WITH GREATEST DIMENSIONS IN A STEEP PLANE AND A NORTHWESTERLY DIRECTION IN PLAN.

THE "ARKOSE" ORE BODY IS IN THE MESOZOIC CLASTIC ROCKS SOUTH OF THE PORPHYRY AND WEST OF THE EAST END FAULT. THE AVERAGE COPPER TENOR IS LOWER THAN THE SKARN ORE BODIES. ITS LOWER LIMIT IS ROUGHLY TROUGH-SHAPED, APPARENTLY DUE TO MINERAL SELECTIVITY OF FAVORABLE BEDS FOLDED INTO A GENTLE SYNCLINE. (KELLY, 1977)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE TWIN BUTTES DEPOSIT IS SEGMENTED BY POSTMINERALIZATION, NORTHEAST-TRENDING NORMAL FAULTS AND LOW-GRADE INTRUSIONS. (BARTER, 1978).

THE TWIN BUTTES FAULT, A STEEP, NORTHWESTERLY-TRENDING STRUCTURAL BREAK, CUTS AND DISPLACES THE INTRUSIVE ROCKS AND THE PALEOZOIC BEDS BRINGING THE PERMIAN SCHERRER FORMATION IN NEAR-JUXTAPOSITION WITH THE CAMBRIAN HOLSA QUARTZITE IN THE WEST PART OF THE MINE.

THE EAST END FAULT TERMINATES THE PRESENTLY KNOWN ORE BODIES AT THE SOUTHEAST END OF THE MINE. IT IS A BROAD, MAJOR AND COMPLEX STRUCTURE WHICH HAS CREATED PIT SLOPE STABILITY PROBLEMS.

THE PIT FAULT IS A STEEP, NORTHEASTERLY-TRENDING STRUCTURE BETWEEN THE TWIN BUTTES AND EAST END FAULTS. IT HAS ABOUT 500 FT (152 M) OF DIAPYCNAL DISPLACEMENT DOWN ON THE SOUTHEAST SIDE. SEVERAL FAULTS OF LESSER MAGNITUDE TREND NORTHEASTERLY ACROSS THE MINERAL ZONE BETWEEN THE TWIN BUTTES AND EAST END FAULTS.

ALL ROCKS ARE INTRICATELY FRACTURED. THE PALEOZOIC QUARTZITES, MESOZOIC CLASTIC ROCKS AND LARAMIDE PORPHYRIES DISPLAY THE MOST INTENSE JOINTING AND SHATTERING. (KELLY, 1977)

SIGNIFICANT ALTERATION:

PALEOZOICS. THE EARLY, CONTACT METAMORPHIC ALTERATION APPARENTLY CONVERTED THE CARBONATE AND LIMY ARGILLACEOUS BEDS TO SKARN COMPOSED PRINCIPALLY OF ANDRADITE AND GROSSULARITE GARNET, DIOPSIDE, WOLLASTONITE AND QUARTZ. THERE SEEMS TO BE LITTLE OR NO SULFIDE MINERALIZATION ASSOCIATED WITH THE EARLY METAMORPHISM.

SUPERIMPOSED ON THE EARLY CONTACT METAMORPHISM IS THE DEVELOPMENT OF HYDROTHERMAL ALTERATION MINERALS ASSOCIATED WITH THE MAIN PHASE OF SULFIDE MINERALIZATION. (KELLY 1977)

ALTERATION IN THE MESOZOIC CLASTICS AND VOLCANICS CONSISTS OF PARTIAL RECRYSTALLIZATION, BIODITIZATION, AND LATER SERICITIZATION DEVELOPED MOST STRONGLY ALONG QUARTZ-SULFIDE VEINLETS. IN THESE ROCKS, THERE IS A GENERAL DECREASE IN BIODITE AND AN INCREASE IN EPIDOTE AND PYRITE AWAY FROM THE INTRUSION. ONLY THE ANGELICA ARKOSE CONTAINS PERSISTENT UNENRICHED GRADES ABOVE 0.4 PERCENT COPPER. (BARTER, 1972)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SECONDARY ENRICHMENT HAS SUFFICIENTLY UPGRADED THE QUARTZ MONZONITE PORPHYRY TO FORM A SMALL, MANTO-LIKE ORE BODY OF + 0.4% COPPER IN THE SOUTHEAST PART OF THE MINE, NEAR THE SOUTH EDGE OF THIS INTRUSIVE, AT ABOUT THE 2600-FT (792 M) ELEVATION.

OXIDATION OF THE MINERAL ZONE RANGES FROM A FEW FEET TO SEVERAL HUNDRED FEET BELOW TOP OF BEDROCK LEAVING A VERY RAGGED OFTEN VAGUE BOUNDARY BETWEEN THE OXIDE AND SULFIDE ZONES. OXIDATION PENETRATES DEEPEST IN THE CLOSELY FRACTURED QUARTZITES AND ALONG STRONGER FAULTS. THE TOP OF SULFIDE MINERALIZATION, AT ITS HIGHEST POINT IN THE MINE, WAS AT THE 2750-FT (838-M) ELEVATION. THIS WAS ABOUT 20 FT (6 M) UNDER THE ALLUVIUM AT THE POINT.

LEACHING AND SECONDARY COPPER ENRICHMENT ARE ERRATIC. LEACHING OF COPPER HAS NOT BEEN COMPLETE, LEAVING LARGE TONNAGES OF OXIDIZED ROCK OF GOOD GRADE COPPER IN PARTS OF THE OXIDE ZONE. IN PLACES, SECONDARY COPPER SULFIDES HAVE SUBSTANTIALLY ENHANCED THE GRADE OF SULFIDE ORE. SECONDARY CHALCOCITE AND COVELLITE COATINGS ON PRIMARY SULFIDES PERSIST TO CONSIDERABLE DEPTH BELOW THE BASE OF OXIDATION. (KELLY 1977)

COMMENTS (GEOLOGY AND MINERALOGY):**MINERALOGY:**

THE PRIMARY SULFIDE MINERALS CHALCOPYRITE, MOLYBDENITE, SPHALERITE, PYRITE AND OCCASIONAL GALENA OCCUR IN QUARTZ OR QUARTZ-ANHYDRITE VEINS, AS DISSEMINATIONS AND SCATTERED BLEBS AND SOMETIMES AS MASSIVE BUNCHES OF CONSIDERABLE SIZE. SULFIDE-BEARING VEINS COMMONLY HAVE ALTERATION HALOS OF ACTINOLITE-TREMOLITE, ANTIGORITE-MAGNETITE OR NONTRONITE. ELSEWHERE HYDROTHERMAL ALTERATION MIGHT BE MARKED BY BLOTCHY OR PERVASIVE PATTERNS USUALLY ASSOCIATED WITH DISSEMINATED OR BUNCHY SULFIDE MINERAL. LARGE VOLUMES OF NEARLY MASSIVE MAGNETITE, GENERALLY WITH SEVERAL PERCENT SULFIDE, ARE OFTEN FOUND IN THE SKARN ORE BODIES. THERE IS ABUNDANT FINE, BROWN BIODITE, PHLOGOPITE AND SOME SERICITE DEVELOPED IN THE SILTSTONES PARTICULARLY.

COPPER SULFIDE MINERAL HAS SHOWN A MARKED PREFERENCE FOR INDIVIDUAL BEDS. GARNETIZED AND SILICATED BEDS OF APPARENT ORIGINAL HIGH CARBONATE CONTENT ARE FAVORED HORIZONS. THE QUARTZITES AND SILTSTONES ARE USUALLY WEAKLY MINERALIZED.

CHALCOPYRITE IS THE MOST ABUNDANT AND WIDESPREAD PRIMARY COPPER SULFIDE MINERAL. BORNITE AND PRIMARY CHALCOCITE ARE NOT PLENTIFUL AND THEIR OCCURRENCES ARE RESTRICTED TO CONFINED ZONES AT DEPTH.

MOLYBDENITE IS WIDESPREAD BUT IN VERY ERRATIC CONCENTRATIONS. SPHALERITE, IN PLACES, OCCURS IN CONSIDERABLE QUANTITY. THERE IS MINOR SILVER AND ONLY TRACES OF GOLD. TUNGSTEN IN THE FORM OF SCHEELITE AND POWELLITE IS RATHER UNIFORMLY SCATTERED THROUGHOUT THE SKARNS IN SMALL AMOUNTS.

THE COPPER OXIDE MINERALS ARE PRINCIPALLY CHYROSOCOLLA AND COPRITE WITH LESSER AMOUNTS OF AZURITE, MALACHITE, AND BROCHANTITE. THERE ALSO IS A SUBSTANTIAL AND WIDESPREAD OCCURRENCE OF A BLACK, AMORPHOUS "WAD," HIGH IN COPPER CONTENT. MEDMONTITE, THE COPPER-BEARING CLAY MINERAL, IS NOT UNCOMMON. NATIVE COPPER, IN CONSIDERABLE QUANTITY, OCCURS AS FINE STRINGERS AND THIN FLAKES ON FRACTURES NEAR THE BASE OF THE OXIDE ZONE. (KELLY 1977)

GENERAL COMMENTS

SEE RECORD NUMBER M899996 FOR REFERENCES

RECORD 00300

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030526
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... VERDE QUEEN MINE
SYNONYM NAME..... VERDE QUEEN MNG. CO., HILTON

MINING DISTRICT/AREA/SUBDIST. EMPIRE/EMPIRE MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EMPIRE MOUNTAINS, ARIZ.

LATITUDE LONGITUDE
31-52-20N 110-37-58W

UTM NORTHING UTM EASTING UTM ZONE NO
3526100.0 534750.0 12

TWP..... 18S
RANGE..... 17E
SECTION.. 17 WC
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 4,800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5.9 KM SW BM 4319

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG ZN CU AU MO

MAIN COMMOD..... PB AG ZN
MINOR COMMOD..... CU AU MO

MAIN ORE MINERALS:
LEAD AND COPPER CARBONATES

MINOR ORE MINERALS:
SILVER CHLORIDES, WULFENITE,

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... EAST VEIN DISCOVERED ABOUT 1881. LOCATED IN 1896 AND 1897.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT, FISSURE VEINS

FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 25 FT

DIP OF OREBODY..... 80 SE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 280 FT

LENGTH OF WORKINGS..... 250 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND TUNNEL WORKINGS. THE 280 FT SHAFT HAS 3 LEVELS (50, 150, AND 280 FT BELOW SURFACE) WITH 75, 125, AND 50 FT OF DRIFTS ON EACH RESPECTIVE LEVEL.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	3		1897-1928	TONS

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 119

PRODUCTION COMMENTS.... PRODUCED SPORADICALLY FROM LATE 1800'S TO 1928, SOME 3000 TONS OF ORE AVERAGING ABOUT 23% PB, 5 % AG/T, AND MINOR CU AND AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM

HOST ROCK TYPES..... CONCHA LIMESTONE AND SCHERRER FM.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (71 M.Y.)

IGNEOUS ROCK TYPES..... SYCAMORE CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION..... CRET (9) M.Y.)

PERTINENT MINERALOGY..... IRON OXIDES (UTAHITE-HYDROUS IRON SULFATE) AND A LITTLE QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. IN LIMESTONE WITH QUARTZITE BED FORMING FOOTWALL

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NNW FAULTS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 119
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 148-149.
- 3) ALBERDING, H., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
- 4) ALEXIS, C.D., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

RECORD 00301

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030546
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... WATERMAN DIST.
MINING DISTRICT/AREA/SUBDIST. WATERMAN DIST (SILVER HILL DIST/
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 VACA HILLS, ARIZONA

LATITUDE LONGITUDE
32-25-48N 111-31-47W

UTM NORTHING UTM EASTING UTM ZONE NO
3587750.N 450250.E +12

TWP..... 12S
RANGE.... 08E 09E
MERIDIAN. GILA SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: SILVER BELL SITE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO FE

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU PB AG
MINOR PRODUCTS.. ZN AU

MAIN COMMOD..... PB AG
MINOR COMMOD..... CU ZN AU MO FE

MAIN ORE MINERALS:

GALENA, CERUSSITE, CHALCOPYRITE

MINOR ORE MINERALS:

CHALCOHITE, PYRITE, SPHALERITE, ANGLESITE WULFENITE, MINETITE, ROSASITE, SMITHSONITE, MALACHITE, AZURITE,
SOME SILVER AND GOLD VALUES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NE

DIP OF OREBODY..... STEEP NW

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND ADIT OPERATIONS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	25	TONS	1880-1972	0.33% CU	
16 CU EST	0.75	TONS	1880-1972		
17 PB EST	0.78	TONS	1880-1972		
18 ZN EST	0.49	TONS	1880-1972		
19 AU EST	0.11	OZ	1880-1972		
20 AG EST	130	OZ	1880-1972		

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P., 144

PRODUCTION COMMENTS.... WORKED INTERMITTENTLY SINCE LATE 1880'S WITH A TOTAL PRODUCTION THROUGH 1972 OF SOME 25,000 TONS OF ORE CONTAINING ABOUT 750 TONS CU, 780 TONS PB, 490 TONS ZN, 110 OZ OF AU, AND 130,000 OZ AG.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET AND PALEOZOIC

HOST ROCK TYPES..... ABRIGO FM, BOLSA QUARTZITE, MARTIN FM, ESCABROSA LS., NACO FM, CRET. SED

AGE OF ASSOC. IGNEOUS ROCKS.. ?)

IGNEOUS ROCK TYPES..... WATERMAN ALASKITE

PERTINENT MINERALOGY..... QUARTZ AND CALCITE VEINS WITH FLUORITE, BARITE, LIMONITE AND HEMATITE

IMPORTANT ORE CONTROL/LOCUS.. IN SILICEOUS BRECCIA ZONES ALONG NE FAULTS IN SILICEOUS SEDIMENTARY ROCKS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT AND FRACTURE ZONES; STEEPLY FOLDED PALEOZOICS

SIGNIFICANT ALTERATION:

SOME OXIDIZED COPPER; SILICIFIED

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P. 144.
- 2) RUFF, A.W., 1952 THE GEOLOGY AND ORE DEPOSITS OF THE INDIANA MINE AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 64 P., MAPS
- 3) MCCLYMONDS, NEAL E. STRATIGRAPHY AND STRUCTURE OF THE SOUTHERN PORTION OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 157 P.
- 4)MCCLYMONDS, N.E., 1959, PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 67-76.
- 5)MCCLYMONDS, NEAL E., 1958, THE STRATIGRAPHY AND STRUCTURE OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 43-44
- 6)MCCLYMONDS, NEAL E, 1959 5. STRATIGRAPHY AND STRUCTURE OF THE CENTRAL WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1735-1736
- 7)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 8)KEITH, STANLEY B., 1979, PERSONAL COMM.
- 9)MINES HANDBOOK, 1926

RECORD 00302

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... W016121
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 03
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... WEST HELVETIA DEPOSIT
SYNONYM NAME..... PEACH-ELGIN DEPOSIT; COLUMBIA MINE, PEACH SHAFT, TIP TOP MINE

MINING DISTRICT/AREA/SUBDIST. HELVETIA-ROSEMONT DIST/SANTA RITA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 SAHUARITA, ARIZ.

LATITUDE LONGITUDE
31-51-38N 110-47-17W

UTM NORTHING UTM EASTING UTM ZONE NO
3524750.0 520515.0 12

TWP..... 18S 18S
RANGE.... 15E 15E
SECTION.. 23 15
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4,330 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.2 KM NW VABH 6175

LOCATION COMMENTS: NW 1/4 OF SEC 23; SE 1/4 OF SEC 15 PEACH

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU ZN PB MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. ZN AG PB AU

MAIN COMMOD..... CU
 MINOR COMMOD..... ZN AG AU PB MD

MAIN ORE MINERALS:
 CHALCOPYRITE, PYRITE, BORNITE

MINOR ORE MINERALS:
 AZURITE, MALACHITE, CHRYSOCOLLA, CUPRITE, NATIVE COPPER CHALCOITE, MOLYBDENITE

ANALYTICAL DATA(GENERAL)
 CORES 0.01-0.014% MO

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 3
 PROPERTY IS ACTIVE
 PROPERTY IS INACTIVE
 PRESENT/LAST OWNER..... ANAMAX MINING CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 PYROMETASOMATIC; DISSEMINATED
 FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA
 SIZE OF DEPOSIT..... MEDIUM

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
 SHAFTS AND TUNNEL WORKINGS

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE	REMARKS
15 ORE (ELGIN)	EST	TONS		1899-1960	2% CU, 0.3 OZ/T	
16 ORE (PEACH)	EST	TONS		1882-1952	5% CU 2% ZN, AG	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 125 AND 128

COMMENTS (RESERVES/POT RESOURCES).. ANAMAX MINING CO. PLANS TO MINE PART OF THIS AREA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN. PERM.
 HOST ROCK TYPES..... LIMESTONES AND QUARTZITES (ESPECIALLY HORQUILLA LS AND CONCHO LS)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (56 M.Y. DREWES)
 IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY (QUARTZ MONZONITE PORPHYRY OF HEYMAN)

AGE OF MINERALIZATION..... TERT. (56 M.Y. DREWES)

PERTINENT MINERALOGY..... MAGNETITE; GARNET AND DIOPSIDE, QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. FAULTS FRACTURES AND FAVORABLE SILICATED PALEOZOIC LIMESTONES, ESPECIALLY IN
DIOPSIDE BEARING BEDS IN BRECCIATED AREAS NEAR TIP TOP FAULT AND OTHERS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THRUST FAULTS AND KLIPPE OF PALEOZOIC LIMESTONE OVERLIE PRECAMBRIAN GRANITE

SIGNIFICANT ALTERATION:

CAPPING INDICATES ORE IN ELGIN AREA BUT NOT PEACH AREA (HEYMAN 1958)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

EXTRUSIVE OXIDATION AND SECONDARY ENRICHMENT IN AREAS OF MORE COMPLETE SILICATION

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 199, 156P., P. 125 AND 128.
- 2) HEYMAN, A.M., 1958, GEOLOGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS
- 3) DREWFES, HARALD, 1970 GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
- 4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P.
- 5) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

RECORD 00303

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4000407
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SUN LODGE CLAIM
MINING DISTRICT/AREA/SUBDIST. OLD BALDY/MADERA CANYON
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PIMA AND SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. WRIGHTSON, ARIZ.

LATITUDE LONGITUDE
31-43-30N 110-52-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3509950. 511400. 12

TWP..... 19S 20S
RANGE.... 14E 14E
SECTION.. 35 36 01 02
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 45005000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 16 MILES (AIRLINE) NNW OF PATAGONIA IN MADERA CANYON AREA.
EXTENDS INTO PIMA CO.

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... DIORITE

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ ALONG FAULT AND IN QUARTZ VEINS IN DIORITE

GENERAL COMMENTS

MC CLEARY MINE IS IN SEC. 35; TUCSON MINE IN SEC. 2, DANIELS MINE IN SEC. 2. PERHAPS THIS IS A GROUP NAME OR A COMPANY NAME.

GENERAL REFERENCES

1) U.S.G.S. FILE DATA

3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236, P. 236, #33 ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

RECORD 00304

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000098
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 04

NAME AND LOCATION

DEPOSIT NAME..... GOLD BULLION MINE
SYNONYM NAME..... BANES CLAIMS, LAST CHANCE AND TELLURIUM CLAIM GROUPS

MINING DISTRICT/AREA/SUBDIST. BABOQUIVAN MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 PRESUMIDO PEAK, ARIZONA

LATITUDE LONGITUDE
31-43-22N 111-35-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3509925.0 443425.0 +12

TWP..... 19S 20S
RANGE.... 07E 07E
SECTION.. 35 SC 02 NC
MERIDIAN. GILA & SALT RIVER

ALTITUDE.. 4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SE FOOTHILLS OF BABOQUIVARI PEAK 7 MI. W OF SASABE ROAD AND 64 MI. SW OF TUCSON

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB ZN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG MO
MINOR PRODUCTS.. CU PB

MAIN COMMOD..... AU A

MINOR COMMOD.... CU PB ZN MO

MAIN ORE MINERALS:
AURIFEROUS PYRITE

MINOR ORE MINERALS:
MOLYBDENITE, CHALCOPYRITE, GALENA, SPHALERITE

COMMODITY COMMENTS:
MO PRODUCTION SEVERAL HUNDRED TONS HIGH GRADE MOLYBDENUM ORE SHIPPING

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ FISSURE VEINS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHAFTS AND UNDERGROUND WORKINGS (KEITH, 1974, P. 109)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 109

PRODUCTION COMMENTS.... INTERMITTENT PRODUCTION IN 1880'S FROM ABOUT 1910 TO 1918, AND IN 1939. SOME 3100 OR MORE TONS PRODUCED, AVERAGING ABOUT 1.0 OZ AU/T, 12 OZ AG/T, AND MINOR CN AND PB. SEVERAL HUNDRED TONS OF HIGH GRADE MOLYBDENUM ORE SHIPPED.

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. DEPT MIN RES, 1962, MO PROSPECTS-AZ

COMMENTS (RESERVES/POT RESOURCES).. TURNED DOWN FOR AN R.F.C. LOAN IN 1943 BECAUSE "THE REST OF THE MOLYBDENITE MINERALIZATION CONSISTS OF THIN STRINGERS TOO LEAN AND TOO FAR APART. ANOTHER HIGH GRADE POCKET WAS CONSIDERED POSSIBLE BUT PROBABLY EXPENSIVE TO FIND

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR. CRET
HOST ROCK TYPES..... METAMORPHASED SEDIMENTARY BED
IGNEOUS ROCK TYPES..... PEGMATITES CUT BY INTRUSIVE DIKES

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ VEINS CUTTING GRANITE; ALONG FAULT FISSURES AND STRONG QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT FISSURES, BEDDING PLANE FAULTS

SIGNIFICANT ALTERATION:
PARTLY OXIDIZED; STRONGLY ALTERED CRET. SEDIMENTS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 199, 156 P. P. 109
- 2) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236 #327
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 6) DONALD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS
 - 7) HAXEL, GORDON, IN PROGRESS, GEOLOGIC MAP OF PRESUMIDO PEAK AND BABOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
 - 8) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
 - 9) JOSEPH, P.E., 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5
 - 10) KEITH, STANTON, B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 183, 80 P.
 - 11) KIRKEMO, HAROLD, ANDERSON C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
 - 12) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 181.
- 4) DALE, V.B., STEWART, L.A., AND MCKINNEY, W.A., 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA: U.S. BUR. MINES R.I. 5650.
 - 5) CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.
 - 6) CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BABOQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 49 P.
 - 7) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS
 - 8) FAIR, CHARLES L. 3. PROBABLE CRETACEOUS-TERTIARY SECTION IN FRESNAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEOL. SOC. DIG., V. 4, P. 93-95 (1961)
 - 9) HEINDL, L.A. AND FAIR, C.L., 1965 MESOZOIC (?) ROCKS IN THE BABOQUIVARI MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA U.S. GEOL. SURVEY BULL. 1194-I
 - 10) KEITH, W.J., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE SAN VICENTE AND COCORAUQUE BUTTE 15' QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUD. MAP MF-769.
 - 11) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
 - 12) KURTZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 13) MIN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1965)
 - 14) MINES HANDBOOK, 1922
 - 15) WARGO, J.G. (1954) GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 67 P.
 - 16) WARGO, J.G. 3. (AND KURTZ, W.L.) GEOLOGIC AND TECTONIC FEATURES OF THE COYOTE MOUNTAINS, ARIZONA: OHIO JOUR. SCI., V. 56, NO. 1, P. 10-16, ILLUS., MAP (1956)

RECORD 00305

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000309
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... NEW YEARS EVE MINE (ESPERANZA)
SYNONYM NAME..... SNYDER GROUP, RED CARBONATE, AMARGOSA

MINING DISTRICT/AREA/SUBDIST. PIMA DISTRICT/SIERRITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES

LATITUDE LONGITUDE
31-52-16N 11-07-21W

UTM NORTHING UTM EASTING UTM ZONE NO
3525975.0 488400.0 +12

TWP..... 18S
RANGE.... 12E
SECTION.. 09 SE 16 NW (FILE CARD)
MERIDIAN. GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: NW IN ESPERANZA PIT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO

MAIN COMMOD..... CU AG MO

MAIN ORE MINERALS:
DISSEM. COPPER SULFIDES (CHALCOPYRITE)

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... FIRST LOCATED AND RECORDED IN 1895 BY P.H. CHAMBERS

BY WHOM..... WAS PARTLY DEVELOPED BY CALUMET AND ARIZONA MIN. CO. IN 1907-08 AND ABANDONED BECAUSE OF
LOW COPPER PRICES

PRESENT/LAST OWNER..... OWNED BY PENNZOIL CO. (DUVAL CORP.)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM.

FORM/SHAPE OF DEPOSIT: ERRATIC SEAMS, BUNCHES

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

200 FT SHAFT AND ADIT OPERATIONS (KEITH, 1974) 216 FT SHAFT WITH UNDERGROUND WORKINGS AND ADIT (ABM FILE CARD)
NOW IN ESPERANZA OPEN PIT

PRODUCTION

YES

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974 P. 136

PRODUCTION COMMENTS.... FROM THE EARLY 1900'S TO 1955, PRODUCED SPORADICALLY SOME 2,600 TONS OF DRE AVERAGING ABOUT
4% CU, 0.3% AG/T AND MINOR AU AND MO NOW PART OF ESPERANZA OPEN PIT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI THRU TERT.

HOST ROCK TYPES..... QUARTZITIC ROCKS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (53.5-58.7 M.Y.)

IGNEOUS ROCK TYPES..... GRANODIORITE AND QUARTZITIC "BLOW-OUT"

AGE OF MINERALIZATION..... TERT. (53.5 M.Y.)

IMPORTANT DRE CONTROL/LOCUS.. BRECCIATED QUARTZITIC ROCKS INTRUDED BY LARAMIDE QUARTZ MONZONITE PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTING AND FRACTURING

COMMENTS (GEOLOGY AND MINERALOGY):

THE NEW YEAR'S EVE MINE CONTAINS ENOUGH MOLYBDENITE TO WARRANT INCLUDING IT IN THE E MINE LIMITS. SPECIMENS OF
MOLYBDENITE VEINS FROM THIS LOCATION USUALLY SHOW A THIN SELVAGE OF POTASH FELDSPAR.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 169, 156 P., P. 135.
- 2) LYNCH, D.W., (1966) THE ECONOMIC GEOLOGY OF THE ESPERANZA MINE AND VICINITY, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZONA PRESS, TUCSON: 267-279.
- 3) KING, R.B., 1969, MOLYBDENUM AND RHEINIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236.
- 4) COOPER, J.R., 1973, GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-745.
- 5) ANDERSON, C.A., AND KUPFER, D.H., 1944, REPORT OF THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INVENTORY.
- 6) ANDERSON, C.A. AND KUPFER, D.H., 1943, REPORT ON THE PROPERTIES OF THE AMARGOSA MOLYBDENUM AND COPPER CORPORATION, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP.
- 6) ESPERANZA MINE AREA:
 - BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIODITE AND BIODITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURV., V. 2, NO. 2, P. 195-211.
 - 5) COOPER, J.R., 1971, MESOZOIC STRATIGRAPHY OF THE SIERRITA MOUNTAINS, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-D.
 - 6) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
 - 7) SCHMIDT, H.A., D.M. CLIPPINGER, J.J. ROPER, AND H. TOOMBS (1959) DISSEMINATED DEPOSITS AT THE ESPERANZA COPPER MINE, IN SOUTHERN ARIZONA GUIDEBOOK 11, COMBINED WITH THE 2ND ARIZ. GEOL. SOC. DIGEST: 205.
 - 8) AIKEN, D.M., AND WEST, R.J., 1978, SOME GEOLOGIC ASPECTS OF THE SIERRITA-ESPERANZA COPPER-MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 117-128.
 - 9) ANTHONY, J.W. WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 121, 156, 205.
 - 10) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87, P. 86.
 - 11) CURTIS, C.N. 1961, THE ESPERANZA MINING ENG., V. 13, P. 1234.
 - 12) DAMON, P.E., AND ASSOCIATES, 1965, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-50: TUCSON, UNIVERSITY OF ARIZONA.
 - 13) 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-689-60: TUCSON, UNIVERSITY OF ARIZONA.
 - 14) D'ANDREA, D.V., LARSON, W.C., CHAMBERLAIN, P.C., AND OLSON, J.J., 1976, SOME CONSIDERATIONS IN THE DESIGN OF BLASTS FOR IN SITU COPPER LEACHING: SYMP. ROCK MECH., PROC., NO. 17, P. 5E1.1-5E1.4.
 - 15) DENIS, M., 1977, THE SIERRITA (ARIZONA) PORPHYRY COPPER; HYDROTHERMAL ALTERATION AND FLUID INCLUSION STUDIES (ABST.): GEOL. SOC. LONDON, JOUR., V. 134, P. 390.
 - 16) DREWES, H., 1976, GEOLOGIC SETTING OF THE SIERRITA MOUNTAINS, SOUTHEASTERN ARIZONA (ABST.): ECON. GEOL., V. 71, NO. 3, P. 699.
 - 17) HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI.
 - 19) HILLMAN, B.A., KILIND, I.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYRY COPPER DEPOSIT (ABST.): EOS, V. 53, NO. 4, P. 531.
 - 19) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1975, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): MIN. ENG., V. 27, NO. 12, P. 70-71.
 - 20) ILES, C.D., WEST, R.J., AND OAKLEY, C.A., 1976, MINERALIZATION AND STRUCTURE OF SIERRITA/ESPERANZA ORE BODY (ABST.): ECON. GEOL., V. 71, NO. 3, P. 700-701.
 - 21) ILES, C.D., 1973, MINERALIZATION CONTROL AT THE DUVAL-SIERRITA PROPERTY, PIMA COUNTY, ARIZONA: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
 - 22) JANIC, T., 1971, DEVELOPMENT OF DUVAL CORPORATION'S SIERRITA MINE, PIMA COUNTY, ARIZONA (ABST.): AIME PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14 15.
 - 23) LYNCH, D.W. (1967) THE GEOLOGY OF THE ESPERANZA MINE AND VICINITY, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 70 P.
 - 24) OAKLEY, C.A., 1973, A SYNOPSIS OF ALTERATION AND MINERALIZATION AT THE SIERRITA AND ESPERANZA MINES: UNPUBLISHED REPORT, DUVAL-SIERRITA CORPORATION, SAHUARITA, ARIZONA.
 - 25) REHRIG, W.A., AND HEIDRICK, T.L., 1972, REGIONAL FRACTURING IN LARAMIDE STOCKS OF ARIZONA AND ITS

RELATIONSHIP TO PORPHYRY COPPER MINERALIZATION: ECON. GEOLOGY, V. 67, P. 198-213.

26)SAVELY, J.P., 1972, ORIENTATION AND ENGINEERING PROPERTIES OF JOINTING IN THE SIERRITA PIT, ARIZONA: M.S. THESIS, UNIV. ARIZ.,

27)SMITH, V.L., 1975, HYPOGENE ALTERATION AT THE ESPERANZA MINE, PIMA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.

28)STECKLEY, R.C., LARSON, W.C., AND D'ANDREA, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUR. MINES REP. INVEST., RI 8070, 47 P.

29)TAINTER, S.L., 1947, REPORT OF INVESTIGATIONS, AMARGOSA (ESPERANZA) MOLYBDENUM-COPPER PROPERTY: U.S. BUR. MINES REPT. INV. 4016.

30)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

31)WORLD MINING, JUNE 1972, SIERRITA

RECORD 00306

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... W002678
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT JAN C.

NAME AND LOCATION

DEPOSIT NAME..... PIMA OPEN PIT MINE

MINING DISTRICT/AREA/SUBDIST. PIMA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PIMA CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 TWIN BUTTES, ARIZONA

LATITUDE LONGITUDE
31-59- N 111-05- W

TWP..... 16S 17S
RANGE.... 12E 12E
SECTION.. 36 S 01 N
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 3340 FT

POSITION FROM NEAREST PROMINENT LOCALITY: .3 KM E OF DAISY MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG MO ZN PB AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. MO AG

MAIN COMMOD..... CU AG
MINOR COMMOD.... MO ZN PB AU

MAIN ORE MINERALS:

CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:

SPHALERITE, GALENA, TENNANTITE, TETRAHEDRITE, BORNITE, MAGNETITE, AND HEMATITE, VALLERITE, MAGNETITE; CHALCOHITE IN LIMITED QUANTITIES. OXIDE MINERALS INCLUDE CHRYSOCOLLA, TENDRITE, MALACHITE, AND AZURITE AND CUPRITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

ACCORDING TO PARKINSON (1976), CURRENT AVERAGE ORE GRADES ARE 0.47% CU AND 0.015% MO. SILVER IS ALSO RECOVERED AS A BY-PRODUCT FROM THE ORES DURING THE SMELTING PROCESS. (LANGLOIS, 1978)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SULFIDE MINERALIZATION CONSISTS OF VEINLET, DISSEMINATED, AND LOCALLY MASSIVE TYPES; PREVIOUSLY CALLED PYROMETASOMATIC.

FORM/SHAPE OF DEPOSIT: OPEN PIT

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE
DEPTH TO TOP 200 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

APPROX. 1900 FT. (NE) BY 1300 FT (NW) BY 900 FT DEEP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PALEOZ (PERM) AND MES

HOST ROCK TYPES..... THE ALTERED PERMIAN ROCKS IN THE PIT VICINITY BELONG TO THE COLINA LIMESTONE,

EPITAPH FORMATION, SCHERER FORMATION, AND CONCHA LIMESTONE MEMBERS OF THE NACO GROUP.

RODOLFO FORMATION IS PRESENT. THIS FORMATION, AS SUBDIVIDED IN THE PIT BY HINES (1973), CONSISTS OF ARGILLITE, ARKOSE, AND LITHIC ARENITE. THE UNIT IS GENERALLY MASSIVELY BEDDED AND PROBABLY CORRELATES WITH THE MIDDLE SILTSTONE MEMBER OF THE RODOLFO FORMATION OF COOPER (1971).

CRETACEOUS UNITS WITHIN THE MINE VICINITY MAY INCLUDE BOTH THE WHITCOMB QUARTZITE AND THE ANGELICA ARKOSE OF COOPER (1971). IN THE MINE VICINITY INTERBEDDED SECTIONS OF ARKOSE, SUBARKOSE, LITHIC ARENITE, AND SILTSTONE EXPOSED ALONG UPPER BENCHES OF THE SOUTH AND EAST WALLS OF THE PIT ARE CORRELATED WITH THE ANGELICA ARKOSE WITH THE THICKNESS OF THESE UNITS UP TO 400 FEET. (LANGLOIS, 1978)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. 56 - 58 M.Y.)

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY. THE PORPHYRY INTRUSION AT THE CYPRUS P MA MINE MAY BE RELATED TO LATE-STAGE DIFFERENTIATES OF THE LARAMIDE -RUBY STAR GRANODIORITE BATHOLITH EXPOSED TO THE SOUTH AND WEST OF THE MINE IN THE CORE OF THE SIERRITA MOUNTAINS. THE 58-60 M.Y. AGE OF THE BATHOLITH, AS REPORTED BY CREASEY AND KISTLER (1962) AND DAMON AND MAUGER (1966), IS CLOSE TO THE AGE OF ALTERATION OF THE PORPHYRY FROM THIS REPORT. IN ADDITION, THE SIMILAR AGE OF THE RHYOLITE TUFF TO THE GRANODIORITE MAY INDICATE A GENETIC RELATION TO THE RUBY STAR BATHOLITH. AS RECOGNIZED IN DRILL CORE TO THE SOUTHEAST OF THE PIT LIMIT, THE TUFF CONSISTS OF SHARDS AND XENOCRYSTS IN A VARIABLE MATRIX AT LEAST IN PART OF VOLCANICLASTIC ORIGIN. SULFIDE MINERALIZATION IN THE FORM OF PYRITE IS PRESENT AS DISSEMINATIONS AND VEINLETS IN THE TUFF. A K-AR ANALYSIS ON BIOTITE FROM A TUFF SAMPLE LOCATED ABOUT ONE MILE SOUTH OF THE MINE YIELDED A DATE OF 57 M.Y. (CREASEY AND KISTLER, 1962). (LANGLOIS, 1978)

AGE OF MINERALIZATION..... AN AGE DATE OF 56.7 M.Y. WAS OBTAINED FROM SERICITE IN CROSSCUTTING QUARTZ-SERICITE-PYRITE VEINS IN THE PORPHYRY (TABLE 1) (SHAFIQUILLAH, 1976) (LANGLOIS, 1978)

IMPORTANT ORE CONTROL/LOCUS.. PREORE BRECCIATION AND STOCKWORK FRACTURING WERE THE MAJOR ORE CONTROLS. WALL-ROCK ENVIRONMENT AS CONTROLLED BY LITHOLOGIES ALSO PLAYED A MAJOR ROLE IN SULFIDE DISTRIBUTION. POSTMINERALIZATION DISPLACEMENT ALONG LOW-ANGLE FAULT PLANES IS ALSO IMPORTANT.

MINERALIZATION WHEN PRESENT IN THE ALTERED CARBONATE LITHOLOGIES, IS BEST DEVELOPED IN THE CONCHA LIMESTONE AND THE EPITAPH FORMATION. ASSUMING THAT EACH OF THE LITHOLOGIES WAS SUBJECTED TO THE SAME STRUCTURAL ENVIRONMENT AND CHANNELWAYS, THE RELATIVE ORDER FOR EACH LITHOLOGY AS A COPPER SULFIDE HOST BASED ON THE STATISTICS IS PALEOZOIC HORNFELS, MESOZOIC CLASTIC ROCKS, PALEOZOIC QUARTZITE, TERTIARY PORPHYRY, AND PALEOZOIC LIMESTONE. THE SULFIDES HAVE PREFERENTIALLY REPLACED THE CALC-MAGNESIAN SILICATES RATHER THAN THE LIMESTONES OR MARBLE. CALC-MAGNESIAN ALTERATION OF THE PALEOZOIC ROCKS, THEN PRECEDED AND CONTROLLED LATER DEPOSITION OF THE SULFIDES. (HIMES, 1973).

IN TERMS OF IMPORTANCE TO MINERALIZATION, THE MESOZOIC ROCKS ARE VOLUMETRICALLY THE MAJOR HOST AND IN PARTICULAR THE RODOLFO FORMATION CURRENTLY SUPPLIES THE BULK OF THE ORE TONNAGE MINE. WITH AN 0.03% CU CUTOFF GRADE, 75 PERCENT OF THE TOTAL VOLUME OF ORE-GRADE MATERIAL MINED IS PRODUCED FROM MESOZOIC ROCKS. (LANGLOIS, 1976)

MOLYBDENITE APPEARS TO BE MORE HEAVILY CONCENTRATED IN HIGHER SILICA ROCKS SUCH AS THE PORPHYRY AND ARKOSE THAN IN THE MORE SILICA-DEFICIENT LENTIC SANDSTONE AND ARGILLITE. MOLYBDENITE MINERALIZATION IS ASSOCIATED IN TIME WITH ALTERATION IN THE SENSE THAT IT IS CONCENTRATED IN QUARTZ VEINLETS. (HIMES, 1973).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

DOMINANT STRUCTURES ARE AN EAST-WEST POSTMINE-AL FAULT IN THE WESTERN PART OF THE PIT, AND STRONG LOW ANGLE FAULTING AND SHEARING WHICH UNLOCKS THE ORE BODY AT DEPTH. THE TWO JOINT SETS, ONE PARALLEL TO BEDDING AND THE OTHER AT RIGHT ANGLES TO BEDDING ARE PROMINENT IN THE MINE. FAULTING IS IN TWO DOMINANT DIRECTIONS, ONE STRIKING N44 DEGREE W AND DIPPING 45 DEGREE 45 DEGREE NE AND THE OTHER LESS PRONOUNCED GROUPING OF FAULTS STRIKES N60 DEGREE E AND DIPS 59 DEGREE NW.

THE PALEOZOIC AND MESOZOIC ROCKS WITHIN THE MINE AREA STRIKE N 60-75E, AND DIP 45-65 SE.

TWO DOMINANT DIRECTIONS OF JOINTING, ONE STRIKING N81 E AND DIPPING 36 SE AND THE OTHER STRIKING N62 E AND DIPPING 42 NW. ONE JOINT SET IS APPROXIMATELY PARALLEL TO BEDDING AND THE OTHER IS APPROXIMATELY PERPENDICULAR TO BEDDING. BEDDING JOINTS AND CROSS JOINTS ARE QUITE COMMON, AND ARE TO BE EXPECTED WHEN DEALING WITH SEDIMENTARY ROCKS. THERE IS A LESS DOMINANT JOINT SET WHICH STRIKES N12 E AND DIPS 52 NW. PALEOZOIC AND MESOZOIC ROCKS HAVE ALL BEEN BROKEN BY THRUSTING AND BY REVERSE AND NORMAL FAULTS. THE BEDROCK STRUCTURES ARE MARKED BY WEST-NORTHWEST TO EAST-NORTHEAST OVERTHRUSTS. IN ADDITION, THERE ARE NORTHERLY STRIKING, STEEPLY DIPPING, NORMAL AND STRIKE SLIP FAULTS WHICH POST-DATE THE EARLIER THRUST FAULTS. A LOW ANGLE FAULT WHICH COOPER THE SAN XAVIER THRUST HAS BEEN CORRELATED WITH LOW ANGLE FAULTING FOUND IN DRILL HOLES NEAR THE PIMA AND MISSION MINES AND IN OTHER AREAS TO THE SOUTH. COOPER HAS POSTULATED A MOVEMENT OF 6 1/2 MILES N10-20 W, AND SUGGESTS THAT THE MOVEMENT WAS POST-HELMET FANGLOMERATE AND THUS ALSO POSTMINERALIZATION. (HIMES, 1973)

GENERAL COMMENTS

SEE RECORD NUMBER M899998 FOR REFERENCES, RECORD NUMBER M899938 FOR FURTHER GEOLOGIC INFORMATION

RECORD 00307

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030468
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. COPPER CREEK AREA/BUNKER HILL DIST/GALTIURO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE, ARIZ.

LATITUDE LONGITUDE
32-45-47N 110-28-17W

UTM NORTHING UTM EASTING UTM ZONE NO
3624950. 549550. +12

TWP..... 08S
RANGE.... 18E
SECTION.. 02
MERIDIAN. G & SR

ALTITUDE.. 4600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF COPPER CREEK POST OFFICE

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB CU AG ZN MO FE

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG
MINOR PRODUCTS.. CU AG

MAIN COMMOD..... PB AG CU

MINOR COMMOD.... MO ZN FE

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... MO ZN FE

MAIN ORE MINERALS:

GALENA, BORNITE, CHALCOPYRITE, TETRAHIDRITE

MINOR ORE MINERALS:

PYRITE, TENNANTITE, SPHALERITE WULFENITE AZURITE, MALACHITE, CERARGYRITE, LIMONITE, NATIVE SILVER, ANGLESITE, CERUSSITE, COVELLITE, CHALCOCITE, STROMEYERITE, DISCLODIZITE, PSILOMELANE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... DISCOVERED IN 1863

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT: PINCH AND SWELL

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 700 FT

MAX WIDTH..... 5 FT

STRIKE OF OREBODY.... N40E-N60E

DIP OF OREBODY..... 80-85 E

PLUNGE OF OREBODY.... 45 DEGREES

DIRECTION OF PLUNGE.. NE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 535 FT

LENGTH OF WORKINGS..... 5000 FT

COMMENTS(DESCRIP. OF WORKINGS):

VERTICAL SHAFT 535 FT DEEP AND 7 LEVELS WITH NEARLY 5000 FT OF WORKINGS (SIMONS, 1964, P. 167)

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 CU EST		2.1	LB	1948	SIMONS, 1964, P. 132
2 PB EST		31.2	LB	1948	SIMONS, 1964, P. 132
3 AG EST		1.085	OZ.	1948	SIMONS, 1964, P. 132

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU EST		200	LBS	1926-1939	
16 PB EST		4000	LBS	1926-1939	
17 AG EST		119	OZ	1926-1939	
19 ORE ACC		1.6	TONS	1921-1948	BLUE BIRD AND RED BIRD GROUPS
19 CU ACC		68,880	LBS	1921-1948	BLUE BIRD AND RED BIRD GROUPS
20 PB ACC		1068	LBS	1921-1948	
21 AG ACC		37	OZ	1921-1948	
22 AU ACC		0.08	OZ	1921-1948	

SOURCE OF INFORMATION (PRODUCTION).. KUHN, 1941, P. 529

PRODUCTION COMMENTS.... ALSO PRODUCED \$150,000 UP TO 1920; WORKED INTERMITTENTLY DURING 1914, 1918-1930, 1939-40, 1947-48.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET (68 M.Y.)

HOST ROCK TYPES..... COPPER CREEK GRANODIORITE, ANDESITE DIKES

PERTINENT MINERALOGY..... BRECCIA OF ANGULAR TO ROUNDED BLOCKS OF GRANODIORITE CEMENTED WITH QUARTZ, LIMONITE, PSILOMELANE

IMPORTANT ORE CONTROL/LOCUS.. FISSURE ZONE IN GRANODIORITE INTRUDED BY SMALL ANDESITE DIKES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

N60E SYSTEM OF FAULTS

SIGNIFICANT ALTERATION:

WALLS FOR A FEW FEET FROM VEIN SHOW PARTIAL ALTERATION TO KAOLIN, SERICITE AND CHLORITE

COMMENTS (GEOLOGY AND MINERALOGY):

PRIMARY MINERALS ARE: GALENA, BORNITE, CHALCOPYRITE, TENNANTITE, SPHALERITE, AND PYRITE. SUPERGENE MINERALS ARE: AZURITE, MALACHITE, CERARGYRITE, CHRYSOCOLLA, LIMONITE, NATIVE SILVER, ANGLESITE, CERUSSITE, COVELLITE, CHALCOCITE, STROMAYERITE, WULFENITE, DISCLOIZITE, AND PSILOMELANE. COPPER CONTENT INCREASES WITH DEPTH APPARENTLY BECAUSE CHALCOPYRITE AND BORNITE INCREASE. WULFENITE ON THE 535 LEVEL OCCURS WITH LIMONITE PARTLY FILLING OPEN SPACES IN A QUARTZ NETWORK. (KUHN, 1951, P. 65).

GENERAL REFERENCES

- 1) GUTHRIE, J.O., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GILBERT MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, 512-538, P. 529.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINCKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY

PROF. PAPER 461.

RECORD 00306

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030467
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... AMERICAN EAGLE BASIN
MINING DISTRICT/AREA/SUBDIST. BUNKER HILL DIST. (COPPER CREEK)
COUNTRY CODE..... US
STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050203

QUAD SCALE QUAD NO OR NAME
1: 0062500 GALUIRD MTS., ARIZ.

LATITUDE LONGITUDE
32-44-45N 110-28-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3623000. 549000. +12

TWP..... 08S
RANGE.... 18E
MERIDIAN. G & SR

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 14 MILES NE OF SAN MANUEL ON W SLOPE OF NORTH CENTRAL GALUIRD MTS. 1/2
MILE SE OF CHILDS-ALDWINKLE MINE.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
BORNITE AND MOLYBDENITE; GALENA AND SPHALERITE, SPECULARITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
3% BY WEIGHT TOTAL SULFIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA PIPE, DISSEM
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
DEPTH TO TOP 2000 FT
MAX LENGTH..... 2500 FT
MAX WIDTH..... 1500 FT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET (68 M.Y.)
HOST ROCK TYPES..... GRANODIORITE AND DACITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y.)
IGNEOUS ROCK TYPES..... BRECCIA PIPES AND DACITE PORPHYRY PLUGS

AGE OF MINERALIZATION..... CRET. (68 M.Y., CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY..... QUARTZ, SERICITE, TOURMALINE AND SULFIDES OCCUPY FRACTURES CUTTING ANDESITE (KUHN)

IMPORTANT ORE CONTROL/LOCUS.. FRACTURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
IN A STRONG ZONE OF FAULTS STRIKING E-W AND CUT BY CROSS-FAULTS STRIKING N60E AND N20E

SIGNIFICANT ALTERATION:
SERICITE IS ASSOCIATED WITH BRECCIA PIPES, VEINS AND DACITE PORPHYRY PLUGS; POTASSIC AND A ARGILLIC ALTERATION OCCUR AS SCATTERED ZONES; LESSER AMOUNTS OF TOURMALINIZATION SILICIFICATION AND PROPYLERLIZATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
THE AMERICAN EAGLE PIPE REPRESENTS AN EARLY STAGE OF BRECCIATION (KUHN P. 538)

GENERAL REFERENCES

- 1) GUIHRIE, J.D., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GALTURO MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, P. 512-538, P. 522.

- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158 GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12; 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 461, P. 154
- 6) HISKEY, C.F., AND MELOCHE, V.W., 1940, DETERMINATION OF RHENIUM IN MOLYBDENITE MINERALS: INDUS. AND ENG. CHEMISTRY, ANAL. ED., V. 12, P. 503-506, TABLE 7.
- 7) KAISER, E. P., HERRING, B. F., AND RABBITT, J. C., 1954, MINOR ELEMENTS IN SOME ROCKS, ORES, AND MILL AND SMELTER PRODUCTS: U.S. GEOL. SURVEY TE1-415, P. 1-119, ISSUED BY THE U.S. ATOMIC ENERGY COMM. TECH. INF. SERVICE, OAK RIDGE, TENN., P. 18.
- 8) GALBRAITH, F.W., AND BRENNAN, D.J., 1959, MINERALS OF ARIZONA: 3D ED. (REVISED), TUCSON, ARIZ., ARIZONA UNIV. PRESS, 116 P., P. 21
- 9) KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.
- 10) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-668.
- 11) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-669.

RECORD 00309

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030489
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... US8M-0040210920
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... BEAR CAT CLAIMS

MINING DISTRICT/AREA/SUBDIST. ORACLE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0024000 CAMPO BONITO, ARIZ.

TWP..... 10S

RANGE.... 16E

SECTION.. 8

MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES S OF ORACLE BY ROAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO V

MAIN COMMOD..... W

MINOR COMMOD..... MO V

MAIN ORE MINERALS:

SCHEELITE

MINOR ORE MINERALS:

IRON OXIDE, SPARSE WULFENITE AND VANADINITE PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... CLAIMS WERE LOCATED IN 1939.
 BY WHOM..... 8 UNPATENTED CLAIMS WERE HELD BY E.B LOVEJOY IN 1941

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT: SHOOTS

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 2 FT

STRIKE OF OREBODY.... N10E

DIP OF OREBODY..... 45 E

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 20 FT

OVERALL LENGTH OF MINED AREA.... 50 FT

COMMENTS(DESCRIP. OF WORKINGS):

IN 1941 WORKINGS INCLUDED AN OPEN CUT 50 FEET LONG BY 15 FT. DEEP AND A 20 FT INCLINED SHAFT (WILSON, 1941, P. 34)

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 W CONC EST	.21		LBS	1941	WILSON, 1941, P. 34

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... GRANITE AND DIORITE PORPHYRY DIKE

IGNEOUS ROCK TYPES..... DIORITE PORPHYRY DIKE

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... QUARTZ VEINS

GENERAL COMMENTS

SEE AMERICAN FLAG MINE ENTRY FOR INFORMATION ON AD JOINING COPPER-SILVER PRODUCER, ALSO IN BEAR CAT CLAIM GROUP.

GENERAL REFERENCES

- 1) WILSON, E.D. 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 34.
- 2) BROMFIELD, C.S. (SEE ALSO BUTLER, B.S., 18) 1. GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS 63 P., MAPS (1950)
- 3)DALE, V.B. (1959) TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES ARIZONA. U.S. BUR. MINES REPT. INV. 5516.
- 4)LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
- 5)LUDDEN, R.W. GEOLOGY OF THE CAMPO BONITO AREA, ORACLE, ARIZONA: UNIV. ARIZ., MS THESIS, 52 P., MAPS (1950)

- 6)HILL, J.M., 1946, REPORT ON THE MAUDINA TUNGSTEN MINE, ORACLE, PINAL COUNTY, ARIZ.: PRIVATE REPORT, 9 P.
 - 7)TENNEY, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 4 P.
 - 8)MINERALS YEARBOOK, 1945, U.S. DEPT. INTERIOR, U.S. BUR. MINES: U.S. GOV'T PRINT. OFFICE, WASHINGTON, P. 663.
- 3) IMPORTANT CATALINA GEOLOGY:
- ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 4)BANKS, N.G. (1976), RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMMON QUAD, ARIZONA, U.S.G.S. MAP MF - 747.
 - 5)CREASEY, S. CYRUS S. GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS BULL. 121B 94 P., GEOL. MAP, SCALE 1:48,000, SECTIONS (1967)
 - 6)CREASEY, S.C., BANKS, N.G., ASHLEY, R.P., AND THEODORE, T.C., 1977, MIDDLE TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY J. OF RESEARCH, V. 5, P. 705-717.
 - 7)DEMPSEY, W.J. AND HILL, M.E. 1963, AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: USGS MAP GP-419.
 - 8)DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
 - 9)KUCK, P. H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
 - 10)HEINDL, L.A., 1963, CENOZOIC GEOLOGY IN THE MAMMOTH AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV. BULL. 1141-E, 41 P.
 - 11)KEITH, S.B., REYNOLDS, S.J., DAMON, P.E., SHAFIQUILLAH, M., LIVINGSTON, D.E., AND PUSHKAR, P.D., 1980, EVIDENCE FOR MULTIPLE INTRUSION AND DEFORMATION WITHIN THE SANTA CATALINA-RINCON-TORTOLITA METAMORPHIC CORE COMPLEX: GEOL. SOC. AMERICA MEM., SYMPOSIUM VOLUME, PENROSE CONF. ON METAMORPHIC CORE COMPLEXES, IN PRESS.

RECORD 00310

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 1030483
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210010
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... BLACK PRINCE MINE
MINING DISTRICT/AREA/SUBDIST. PIONEER DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL

COMMODITY INFORMATION

COMMODITIES PRESENT..... V MD PB

MAIN ORE MINERALS:
VANADINITE

MINOR ORE MINERALS:
WULFENITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

DOUBLY TERMINATED VANADINITE CRYSTALS (BLAKE, 1881)

GENERAL REFERENCES

- 1) BLAKE, W.P., 1881, VANADINITE IN ARIZONA: AMER. JOUR. SCI., V. 22, 3RD SERIES, P. 235.
- 2) PENFIELD, S.D., 1886, CRYSTALLIZED VANADINITE FROM ARIZONA AND NEW MEXICO: AMER. JOUR. SCI., V. 32, 3RD SER., P. 441-443.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 20

RECORD 00311

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030472
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210211
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... CALUMET MINE
MINING DISTRICT/AREA/SUBDIST. MINERAL CREEK DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 SONORA ARIZ.

LATITUDE LONGITUDE
33-11-07N 110-58-53W

UTM NORTHING UTM EASTING UTM ZONE NO
3671630. 501740. +12

TWP..... 03S
RANGE.... 13E
SECTION.. 12 11
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 2500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE ENE OF RAY

LOCATION COMMENTS: NEAR LINE BETWEEN SEC. 11 & 12

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, AND MOLYBDENITE

MINOR ORE MINERALS:
COPPER OXIDES AND SILICATES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA PIPE
FORM/SHAPE OF DEPOSIT..

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... 200 BY 600 FT X 800 FT DEEP

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
2 SHAFTS ON TOPO MAP

PRODUCTION

YES
SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... DIABASE, PINAL SCHIST, PIONEER SHALE, SCANLLON CONGLOMERATE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (63 M.Y. & YOUNGER)
IGNEOUS ROCK TYPES..... GRANITE MTN PORPHYRY; PIPE IS CUT BY DIKE OF QUARTZ DIORITE PORPHYRY AND PEBBLE
DIKES POST MINERAL

AGE OF MINERALIZATION..... TERT.

IMPORTANT ORE CONTROL/LOCUS.. BRECCIATION

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIA PIPE

COMMENTS (GEOLOGY AND MINERALOGY):
THE BRECCIA PIPE CONTAINS FRAGMENTS OF PINAL SCHIST, PIONEER FORMATION, AND DIABASE, AND IS ERRATICALLY
MINERALIZED WITH PYRITE, CHALCOPYRITE, AND MOLYBDENITE. PEBBLE DIKES CUTTING THE BRECCIA CONTAIN FRAGMENTS OF
THESE SAME ROCKS, PLUS SOME OF THE GRANITE MOUNTAIN PORPHYRY. THE PIPE IS CUT BY A RHYODACITE PORPHYR DIKE WHICH
CUTS THE TEAPOT MOUNTAIN PORPHYRY.

GENERAL REFERENCES

- 1) METZ, R.A., AND A. W. ROSE (1966) GEOLOGY OF THE RAY COPPER DEPOSIT, RAY, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZ. PRESS, TUCSON: 177-188, P. 182.
- 2) METZ, ROBERT A. (AND PHILLIPS, C.H. AND CAVINESS, C.R.) 1968, RECENT DEVELOPMENTS IN THE GEOLOGY OF THE RAY AREA: ARIZ. GEOL. SOC., S. ARIZ. GUIDEBOOK III, P. 137-145, ILLUS.
- 3) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
 4) CORNWALL, H.R., BANKS, N.G., AND PHILLIPS, C.H., 1971-1972, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1021.

RECORD 00312

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO..... 4030485
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... CLARK PROSPECT

MINING DISTRICT/AREA/SUBDIST. SUMMIT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15060103
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 PINAL RANCH, ARIZ.

LATITUDE LONGITUDE
33-21-21N 110-59-25W

TWP..... 01S
RANGE.... 13E
SECTION.. 12
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NE OF SUPERIOR 1/4 MI NE OF CLARK RANCH NORTH OF US HWY 60-70

LOCATION COMMENTS: SE

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU

MAIN COMMOD..... W
MINOR COMMOD.... MO CU

MAIN ORE MINERALS:

PYRITE, WOLFRAMITE, SCHEELITE

MINOR ORE MINERALS:
MOLYBDENITE, CHALCOPYRITE TOURMALINE, FLUORITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
STOCKWORK, SHEAR ZONE
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... NE
DIP OF OREBODY..... 80NW

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
ADITS AND PROSPECT PITS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
HOST ROCK TYPES..... SCHULTZE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... SCHULTZE GRANITE

AGE OF MINERALIZATION..... TERT.

IMPORTANT ORE CONTROL/LOCUS.. SHEARZONE CUTTING GRANITE NEAR CONTACT WITH PINAL SCHIST

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEAR ZONE

SIGNIFICANT ALTERATION:
GRANITE WALLROCK IN STOCKWORK IS LARGELY ALTERED TO MUSCOVITE GREISEN

COMMENTS (GEOLOGY AND MINERALOGY):
FLUORITE OCCURS SPARSELY AS MINUTE GRAINS IN GREISEN AND IN VUGS IN QUARTZ

GENERAL REFERENCES

- 1) ARIZONA BUREAU OF MINES FILE DATA.
- 2) PETERSON, N.P., 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-M, 18 P.

RECORD 00313

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M016136
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 10
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER CREEK AREA
SYNONYM NAME..... INCLUDES: CHILDS ALOWINKLE, BLUE BIRD, COPPER PRINCE, OLD RELIABLE, GLORY HOLE
(GLOBE), BUNKER HILL AND MAGNA MTNES AS WELL AS THE AMERICAN EAGLE BASIN PORPHYRY COPPER DEPOSIT.

MINING DISTRICT/AREA/SUBDIST. BUNKER HILL DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-45- N 110-29- W

UTM NORTHING UTM EASTING UTM ZONE NO
3624000. 549000. +12

TWP..... 08S
RANGE.... 18E
SECTION.. 10 11
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: COPPER CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU

MAIN COMMOD..... MO

MAIN ORE MINERALS:
MOLYBDENITE, CHALCOPYRITE BORNITE

MINOR ORE MINERALS:

PYRITE, TENNANTITE, FER-IMOLYBDITE, CHALCOITE, ENARGITE, GALENA, SPHALERITE, MALACHITE, AZURITE, CUPRITE
COVELLITE, NATIVE COPPER

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1863 FIRST RECORDED CLAIMS. 1883 BUNKER HILL DISTRICT ORGANIZED

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE AND VEIN, AND DEEPLY BURIED PORPHYRY COPPER SYSTEM
FORM/SHAPE OF DEPOSIT: FUNNEL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 900 FT

LENGTH OF WORKINGS..... 10000 FT

COMMENTS(DESCRIP. OF WORKINGS):

SEVERAL MINES, ADITS AND GLORY HOLES

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU	EST	8000	LBS	1933-1938	GUTHRIE AND MOORE, 1978, P. 26
16 MO	EST	7000	LBS	1933-1938	GUTHRIE AND MOORE, 1978, P. 26
17 PB	EST	4000	LBS	1933-1938	GUTHRIE AND MOORE, 1978, P. 26
18 AG	EST	200	OZ	1933-1938	GUTHRIE AND MOORE, 1978, P. 26
19 AU	EST	.786	OZ	1933-1938	GUTHRIE AND MOORE, 1978, P. 26
20 CU	EST	1300	LBS	1905-1930	ELSING AND HEINEMAN
21 PB	EST	2000	LBS	1905-1930	ELSING AND HEINEMAN
22 MO	ACC	4173.632	LBS	1933-1938	KUHN, 1951, P. 57
23 CU		9908.326	LBS	1905-1948	KUHN, 1951, P. 57
24 PB	ACC	3180.293	LBS	1917-1948	KUHN, 1951, P. 57
25 AG	ACC	241	OZ	1905-1948	KUHN, 1951, P. 57
26 AU	ACC	1.273	OZ	1917-1948	KUHN, 1951, P. 57

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. 68 M.Y.)

HOST ROCK TYPES..... COPPER CREEK GRANODIORITE, DACITE PORPHYRY, ANLESTITE DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y.)
 IGNEOUS ROCK TYPES..... COPPER CREEK GRANODIORITE

AGE OF MINERALIZATION..... CRET. (68 M.Y.) CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY..... QUARTZ AND CHLORITE MATRIX

IMPORTANT ORE CONTROL/LOCUS.. IN BRECCIA PIPES CONTROLLED BY JOINT SETS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 INTERSECTING JOINT SETS

SIGNIFICANT ALTERATION:
 SERICITE AND CHLORITE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
 ROUGH LATERAL ZONING EXISTS IN THE 2 MILE DIAMETER DISTRICT WITH MOLYBDENITE RESTRICTED TO A SMALL AREA LESS THAN 1 MILE IN DIAMETER (CHILD'S-ALDOWINKLE, OLD RELIABLE, COPPER PRINCE) IN WHICH COPPER EXCEEDS MOLYBDENUM; SURROUNDING THIS IS A ZONE OF COPPER MINERALS PREDOMINATING; SURROUNDING THIS IS A ZONE OF LEAD-SILVER-COPPER DEPOSITS (VEINS SUCH AS THE BLUE BIRD)

GENERAL REFERENCES

- 1) GUTHRIE, J.D., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GILBERT MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PRECEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY V. 368 NO. 5, P. 512-538.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILD'S-ALDOWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS, ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12; 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 461.
- 6) HISKEY, C.F., AND MELOCHE, V.W., 1940, DETERMINATION OF RHEIUM IN MOLYBDENITE MINERALS: INDUS. AND ENG. CHEMISTRY, ANAL. ED., V. 12, P. 503-506, TABLE 7.
- 7) KAISER, E.P., HERRING, R.F., AND RABBITT, J.C., 1954, MINOR ELEMENTS IN SOME ROCKS, ORES, AND MILL AND SMELTER PRODUCTS: U.S. GEOL. SURVEY TFI-415, P. 1-119, ISSUED BY THE U.S. ATOMIC ENERGY COMM. TECHN. INF. SERVICE, OAK RIDGE, TENN., P. 18.
- 8) GALBRAITH, F.W., AND BRENNAN, D.J., 1959, MINERALS OF ARIZONA: 3D ED. (REVISED), TUCSON, ARIZ., ARIZONA UNIV. PRESS, 116 P., P. 21
- 9) KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.
- 10) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-668.
- 11) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-669.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRANTON-SALES VOLUME, V. 2, P. 1163-1190.
- 5) ANDERSON, C.A., 1969, COPPER, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 117-156.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P. ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225,

- 8)CATANACH, C.B., MORAN, E.F., PORTER, D.D., RUDERSHAUSEN, C.G., AND SOMMERS, R.W., 1977, COPPER LEACHING FROM AN OREBODY BLASTED IN PLACE: IN SITU, V. 1, NO. 4, P. 283-303.
- 9)CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1951, RECONNAISSANCE GEOLOGIC MAP OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY MINERAL INVEST. MAP MF238.
- 10)CREASEY, S.C., AND DYSTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 11)CREASEY, S.C., AND KRIEGER, M.H., 1978, THE GALIURD VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA: U.S. GEOLOGICAL SURVEY JOURNAL OF RESEARCH, V. 6, P. 115-131.
- 12)DENTON, I.C., 1947, OLD RELIABLE COPPER MINE, PINAL COUNTY, ARIZONA: U.S. BUR. MINES R.I. 4006,
- 13)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 14)EMMONS, W.H., 1938, DIATREMES AND CERTAIN ORE-BEARING PIPES: A.I.M.E. TECH. PUB. 891, MIN. TECH., V. 2, NO. 3,
- 15)FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
- 16)JORALEMEN, I.B., 1952, AGE CANNOT WITHER, OR VARIETIES OF GEOLOGICAL EXPERIENCE: ECON. GEOLOGY, V. 47, NO. 3, P. 243-259.
- 17)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 18)KING, R.U., 1970, MOLYBDENUM IN THE U.S. (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 19)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HDL JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ 669.
- 20)KRIEGER, M.H., 1968B, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY GEOLOGIC QUADRANGLE MAP GQ-668, SCALE 1:24,000.
- 21)KRIEGER, M.H., 1978, ASH-FLOW TUFFS IN THE GALIURD VOLCANICS, NORTHERN GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1104 (IN PRESS)
- 22)KRIEGER, MEODRA H. 19. ASH-FLOW TUFFS IN THE NORTHERN GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 523 (1969)
- 23)KRIEGER, M.H., JOHNSON, M.G., AND BIGSBY, P., 1978, MINERAL RESOURCES OF THE ARAVAIPA CANYON DESIGNATED WILDERNESS AREA, PINAL AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, 79-291, 183 P.
- 24)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 25)PICKARD, B.O., 2. BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., V. 66, P. 281 282 (1912)
- 26)ULLMER, E., 1978, COPPER CREEK DISTRICT, PINAL COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 160-163.
- 27)WEED, W.H., 1913, "CHIMNEY" OR "PIPE" DEPOSITS IN THE PORPHYRIES: MINING AND ENG. WORLD, V. 38, P. 375-378.
- 28)ANONYMOUS - 137 MOLYBDENUM BOOMS COPPER CREEK DISTRICT; TUCSON (PUBLISHED BY TUCSON, ARIZONA, CHAMBER OF COMMERCE), P. 2, MARCH, 1937.
- 29)BUTLER, B.S., -1939 - GEOLOGY OF THE "QUESTA" MOLYBDENITE DEPOSIT, TADS COUNTY, NEW MEXICO (VANDERWILT, J.W.): CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA (KUHN, T.H.): THE MAMMOTH MINING CAMP AREA, PINAL COUNTY, ARIZONA (PETERSON, N.P.): ECON. GEOL., VOL. 34, PP. 347-51. A REVIEW.
- 30)DAVIS, W.M., 1930, AND BROOKS, BAYLOR, THE GALIURD MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SERIES, VOL. 19, P. 100, 89-115.
- 31)DARTON, N.H. 1925 - A RESUME OF ARIZONA GEOLOGY: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 119, PP. 272-74.
- 32)GOHRING, W.B., FIELD, THOROLD F., AND JORALEMEN, IRA B., 1907 1909 PRIVATE REPORTS TO THE CALUMET AND ARIZONA MINING COMPANY ON THE COPPER GIANT, COPPER PRINCE, GLOBE, AND SUPERIOR MINES.
- 33)HIGGINS, EDWIN 1911 - COPPER CREEK BASIN, ARIZONA: ENG. MIN. JOUR., VOL. 91, PP. 270-73.
- 34)HILL, J.M. 1937 - A PRIVATE REPORT ON THE HILDS-ALDWINKLE MINE TO THE ARIZONA MOLYBDENUM CORPORATION.
- 35)JAKOSKY, J.J. AND DALY, JOHN W. 1931 PRIVATE REPORT OF A GEOPHYSICAL EXAMINATION OF THE FOUR METALS BASIN FOR THE COPPER STATE METALS COMPANY.
- 36)LOCKE, AUGUSTUS 1926 THE FORMATION OF CERTAIN ORE BODIES BY MINERALIZATION STOPING ECON. GEOL., NO. 21, P. 441.
- 37)MARTIN, A.H. 1910 - THE COPPER CREEK MINING DISTRICT, ARIZONA: MINING WORLD, VOL. 32, PP. 515-16.

- 38)NORTON, E.A. 1916 - A PRIVATE REPORT ON THE PROPERTIES OF THE COPPER STATE MINING COMPANY.
- 39)PICKARD, B.O. 1912 - BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., VOL. 66, PP. 181-82.
- 40)RAND, LENOX, AND STURGIS, EDWARD B. (ED), 1931 MINES HANDBOOK, VOL. 18, PART 1. SUCCESSOR TO WEED'S HANDBOOK.
- 41)SIBLEY, R.R., 1909, THE COPPER CREEK MINING DISTRICT, ARIZONA: MINING WORLD, VOL. 30, PP. 477-80.
- 42)WEED, W.H. - 1909 PRIVATE REPORT ON THE OLD RELIABLE MINE.
- 43)WEED, W.H. (EDITOR) 1919- 1926 THE MINES HANDBOOK AND COPPER HANDBOOK, VOLS. 12-17.
- 44)DISCUSSES BRIEFLY THE GEOLOGY, AND LISTS THE PROPERTIES, PRODUCTION, RESERVES, ACTIVITIES, EQUIPMENT, AND OFFICERS OF THE COPPER STATE MINING COMPANY.

RECORD 00314

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030480
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... COPPER HILL MINE
MINING DISTRICT/AREA/SUBDIST. COTTONWOOD DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 30 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 WINKELMAN, ARIZ.

LATITUDE LONGITUDE
32-56-55N 110-51-47W

UTM NORTHING UTM EASTING UTM ZONE NO
3645420. 512800. +12

TWP..... 05S
RANGE.... 14E
SECTION.. 36
MERIDIAN. G & SK

ALTITUDE.. 3360 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BETWEEN THE N. BRANCH OF ROMERO WASH AND S. BRANCH OF SMITH WASH.

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU
MINOR COMMOD.... MO

MAIN ORE MINERALS:
PYRITE CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE

ANALYTICAL DATA(GENERAL)
TRACE OF MOLYBDENITE IN DRILL CORE; MOLYBOMALY

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PORPHYR COPPER

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
DRILL HOLES (BEAR CREEK, 1975) CONOCO, 1971

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. PREC.
HOST ROCK TYPES..... GRANODIORITE, RUIN (ORACLE) GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (68 M.Y. DAMON, 1964)
IGNEOUS ROCK TYPES..... GRANODIORITE

AGE OF MINERALIZATION..... CRET. (68-69 M.Y.)

PERTINENT MINERALOGY..... LIMONITIC ALTERATION AND COPPER STAINING

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
QUARTZ SERICITE - PYRITE ALTERATION IS COMMON AS AN ALTER ENVELOPE AROUND THE IRREGULAR ENE TRENDING
GRANODIORITE PORPHYR INTRUSION; CHLORITE- EPIDOTE-MONTMORILLONITE ALTERATION OF BIOTITES IN PRECAMBRIAN ORACLE
GRANITE OCCURS IN IRREGULAR PATCHES THROUGHOUT THE AREA. THERE IS WEAK TO MODERATE K-SPAR-BIOTITE STABLE
POTASSIC ALTERATION WITHIN THE GRANODIORITE INTRUSION (KEITH, PERS. COMM.)

COMMENTS (GEOLOGY AND MINERALOGY):
THE QUARTZ-SERICITE ALTERATION ADJACENT TO THE GRANODIORITE PORPHYRY INTRUSION CARRIES A 5 TO 25 PPM MOLYBDENUM
ANOMALY (BACKGROUND OF 1-3 PPM). THE INTRUSION CARRIES A 100 PPM COPPER ANOMALY. LEAD, ZINC, AND MANGANESE
ANOMALIES OCCUR NW OF THE COPPER AND MOLYBDENUM ANOMALIES.

GENERAL COMMENTS
NON-PRODUCING PROSPECT IN AREA OF PROVEN CU-NO POTENTIAL.

GENERAL REFERENCES

- 1) EVENSEN, JAMES. 1961, GEOLOGY OF THE COPPER HILL AREA, WINKELMAN, ARIZONA: UNIV. ARIZ., MS THESIS, 45 P.
- 2) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE WINKELMAN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1106.
- 3) SCHMIDT, EBERHARD A., 1971, A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 248 P.
- 4) SCHWARTZ, ROLAND J. DETAILED GEOLOGICAL RECONNAISSANCE OF THE CENTRAL TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 82 P. (1954)

RECORD 00315

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO..... M000723
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210261
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 10
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER PRINCE MINE

MINING DISTRICT/AREA/SUBDIST. BUNKER HILL

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE, ARIZ.

LATITUDE LONGITUDE
32-45-12N 110-29-08W

UTM NORTHING UTM EASTING UTM ZONE NO
3624850. 548210. +12

TWP..... 08S
RANGE.... 18E
SECTION.. 10
MERIDIAN. GCSR

ALTITUDE.. 4300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: N OF COPPER CREEK

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... MO W

MAIN ORE MINERALS:
CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE, PYRITE, WOLFRAMITE, SCHEELITE; NATIVE COPPER; COPPER SULFATE ON MINE WALLS.

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... PROSPECTED BY CALUMET AND ARIZONA MINING CO. IN 1907-1909 (SIMONS, 1964)

PRESENT/LAST OWNER..... MINED BY ARIZONA MOLYBDENUM CORP IN 1937 (SIMONS, 1964)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE

FORM/SHAPE OF DEPOSIT: FUNNEL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DEPTH TO BOTTOM..... 420 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

ON ADIT LEVEL BRECCIA PIPE IS ELLIPTICAL IN PLAN (150 FT IN ENE DIRECTION AND 280 FT IN NNW DIRECTION) (SIMONS, 1964, P. 156)

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 420 FT

COMMENTS(DESCRIP. OF WORKINGS):

ADIT REPORTED BY NEED (1913) TO BE 420 FT DEEP AND VARIOUS STOPES NOW INACCESSIBLE (SIMONS, 1964)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. CRIB

PRODUCTION COMMENTS.... ACCORDING TO JORALEMON (152, P. 254) A FLAT-LYING LENS CUTTING ACROSS OTHERWISE LOW-GRADE BRECCIA ABOUT 200 FEET BELOW THE SURFACE YIELDED SEVERAL THOUSAND TONS OF ALMOST PURE CHALCOPYRITE (SIMONS, 1964, P. 160)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. (68 M.Y., CREASEY AND KISTLER, 1962)

HOST ROCK TYPES..... COPPER CREEK GRANODIORITE (PORPHYRITIC QUARTZ MONZONITE PHASE)

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... CEMENTED BY SILICA, SERICITE, AND SULPHIDES

IMPORTANT ORE CONTROL/LOCUS.. INTERSECTION OF FAULTS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SEVERAL FAULTS STRIKE E-W, N70W, AND N10W; PIPE BOUNDED BY SHORT CURVED PERIPHERAL FAULTS

GENERAL REFERENCES

- 1) GUTHRIE, J.O., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GALIURD MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, P. 512-538.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 461, P. 158-160.
- 4) ANDERSON, C.A. 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
- 5) ANDERSON, C.A., 1969, COPPER, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 117-156.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 9) CATANACH, C.B., MORAN, E.F., PORTER, D.D., RUDERSHAUSEN, C.G., AND SOMMERS, R.W., 1977, COPPER LEACHING FROM AND OREBODY BLASTED IN PLACE: IN SITU, V. 1, NO. 4, P. 283-303.
- 10) CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1951, RECONNAISSANCE GEOLOGIC MAP OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY MINERAL INVEST. MAP MF 238.
- 11) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPERBEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 12) CREASEY, S.C., AND KRIEGER, M.H., 1978, THE GALIURD VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA: U.S. GEOLOGICAL SURVEY JOURNAL OF RESEARCH, V. 6, P. 115-131.
- 13) DENTON, T.C., 1947, OLD RELIABLE COPPER MINE, PINAL COUNTY, ARIZONA: U.S. BUR. MINES R.I. 4006.
- 14) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 15) EMMONS, W.H., 1938, DIATREMES AND CERTAIN ORE-BEARING PIPES: A.I.M.E. TECH. PUB. 891, MIN. TECH., V. 2, NO. 3.
- 16) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
- 17) JORALEMON, I.B., 1952, AGE CANNOT WITHER, OR VARIETIES OF GEOLOGICAL EXPERIENCE: ECON. GEOLOGY, V. 47, NO. 3, P. 243-259.
- 18) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 19) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 20) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ 669.
- 21) KRIEGER, M.H., 1968B, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY GEOLOGIC QUADRANGLE MAP GQ-668. SCALE 1:24,000.
- 22) KRIEGER, M.H., 1979, ASH-FLOW TUFFS IN THE GALIURD VOLCANICS, NORTHERN GALIURD MOUNTAINS, PINAL COUNTY,

ARIZONA: U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1104 (IN PRESS).

23)KRIEGER, MEDORA H. 19. ASH-FLOW TUFFS IN THE NORTHERN GALIURO MOUNTAINS, PINAL COUNTY, ARIZONA (ABS.): ABS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 523 (1969)

24)KRIEGER, M.H., JOHNSON, M.G., AND BIGSBY, P., 1979, MINERAL RESOURCES OF THE ARAVAIPA CANYON DESIGNATED WILDERNESS AREA, PINAL AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, 79-291, 183 P.

25)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,

26)PICKARD, R.O. 2. BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., V. 66, P. 281-282 (1912)

27)ULLMER, E., 1978, COPPER CREEK DISTRICT, PINAL COUNTY, ARIZONA IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY; THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 160-163.

28)WEED, W.H., 1913, "CHIMNEY" OR "PIPE" DEPOSITS IN THE PORPHYRIES: MINING AND ENG. WORLD, V. 38, P. 375-378.

29)KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.

30)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINALCOUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-668.

31)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-669.

RECORD 00316

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030474
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... ELDER GULCH PROSPECTS
MINING DISTRICT/AREA/SUBDIST. DRIPPING SPRINGS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050100

QUAD SCALE QUAD NO OR NAME
1: 0024000 SONORA, ARIZ.

LATITUDE LONGITUDE
33-08-25N 110-56-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3666700. 505250. +12

TWP..... 03S
RANGE.... 14E
SECTION.. 29 0
MERIDIAN. G & SR.

ALTITUDE.. 2800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 1/2 MILES SE OF RAY PIT; 2 MILES W OF BUCKEYE MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AN AG CU

MAIN COMMOD..... PB

MAIN ORE MINERALS:
GALENA,

MINOR ORE MINERALS:

WULFENITE, MINOR CHALCOPYRITE, SPHALERITE HEMIMORPHITE, SMITHSONITE, CERUSSITE, GOETHITE HEMATITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... W30W AND N60-80E

DIP OF OREBODY..... STEEP

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

PHELPS DODGE DRILLED NORTH OF HERE - 1973??)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET, PENN. (70 M.Y.)

HOST ROCK TYPES..... TORTILLA QUARTZ DIORITE, HORQUILLA LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (63 M.Y.?)

IGNEOUS ROCK TYPES..... RHYODOCITE PORPHYRY DIKES ENE

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. VEINS, PARTICULARLY N60-80 E VEINS, CROSSCUT TORTILLA QUARTZ DIORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VEINS ORE MINERALIZED FAULTS AND FISSURES

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL AMOUNTS OF WULFENITE; OUTER LEAD ZINC ZONE NORTH OF TROY- BUCKEYE-ALICE COPPER

GENERAL REFERENCES

- 1) CORNWALL, H.R., BANKO, N.G., AND PHILLIPS, C.H., 1971, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD MAP GQ-1021
- 2) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS, P. 24.
- 3) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, GEOLOGIC QUADRANGLE MAP GQ-1188.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 6) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A MER. MINERAL., V. 19, P. 209-220.

RECORD 00317

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030476
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... FLORENCE LEAD-SILVER MINE

MINING DISTRICT/AREA/SUBDIST. RIPSEY DIST./TORTILLA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

DRAINAGE AREA..... 15050100

LAND CLASSIFICATION..... 30 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 KEARNEY, ARIZ.

LATITUDE LONGITUDE
33-00-26N 110-57-27W

UTM NORTHING UTM EASTING UTM ZONE NO
3651670. 503190. 412

TWP..... 05S
RANGE..... 13E
SECTION.. 12
MERIDIAN. G & SR

ALTITUDE.. 3000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE E OF RIPSEY HILL; 2 MILES WEST OF HACKBERRY MINE

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU MO CR ZN

MAIN COMMOD..... PB AG
MINOR COMMOD..... CU MO CR ZN

MAIN ORE MINERALS:
SILVER BEARING GALENA, PYRITE TENNANTITE

MINOR ORE MINERALS:
WULFENITE, SIDERITE, HEMIHEDRITE WILLEMITE, VANQUELINITE, MINJUM, MIMETITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PRESENT/LAST OWNER..... PROPERTY IS INACTIVE
FORMED BY EDWARD O. RYDEN OF MIAMI, ARIZ. (CORNWALL AND KRIEGER, 1975)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		.22	TONS	1933-1940	
16 CU ACC		1.59	LBS	1923-1940	
17 AG ACC		10.56	OZ	1923-1940	
18 AU ACC		0.013	OZ	1923-1940	

SOURCE OF INFORMATION (PRODUCTION).. ARB FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. MISS.
HOST ROCK TYPES..... GRANITIC CONGLOMERATE OF SAN MANUEL FORMATION; NEAR ESCABROSA LIMESTONE

AGE OF MINERALIZATION..... LCRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. SHEARED FAULT ZONE BETWEEN LIMESTONE AND QUARTZITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEARED FAULT ZONE

SIGNIFICANT ALTERATION:
ALTERATION FROM SPHALERITE AND GALENA

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE FORMED AFTER CERUSSITE, DURING AND AFTER FORMATION OF HEMIHEDRITE. THE WULFENITE THAT IS CONTEMPORANEOUS WITH HEMIHEDRITE IS ORANGE AND CHROME FREE. THE WULFENITE THAT FORMED AFTER AND REPLACED HEMIHEDRITE IS BRILLIANT RED AND CONTAINS AS MUCH AS 0.83% CrO_3 . LATER WULFENITE IS YELLOW AND CHROME FREE.

(WILLIAMS AND ANTHONY, 1970)

GENERAL REFERENCES

- 1) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-1188.
- 2) WILLIAMS, S.A., AND ANTHONY, J.W., 1970, HEMIHEDRITE, A NEW MINERAL FROM ARIZONA: AMER. MIN. V. 55, P. 1088-1102.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 4) SCHMIDT, EBERHARD A., 1971, A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 749 P.
- 3) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.

RECORD 00318

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 7030493
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... FRANCISCO GRANDE
MINING DISTRICT/AREA/SUBDIST. FRANCISCO GRANDE DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0024000 STANFIELD, ARIZ., AND CASA GRANDE WEST, ARIZ.

LATITUDE LONGITUDE
32-53-00N 111-52-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3639000. 418000. 12

TWP..... 06S 06S
RANGE.... 05E 04E
SECTION.. 19 13 24
MERIDIAN. G & SR

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 WAY BETWEEN CASA GRANDE AND STANFIELD

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS ACTIVE
PRESENT/LAST OWNER..... CASA GRANDE COPPER CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	OX & SULF ORE	368000	TONS	1976	1.0% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1976, P. 83

GENERAL COMMENTS

NO PRODUCTION AS YET, RESERVES PROVEN

GENERAL REFERENCES

- 1) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 2) ULLMER, E., 1978, SACATON MINE AREA, PINAL COUNTY, ARIZONA (ABS.), IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMIST: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 235-236.
- 3) BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
- 4) BERGQUIST, J.R., BANKS, N.G., AND BLACET, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELOY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-900.
- 5) BERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF PART OF THE CASA GRANDE MOUNTAINS QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP., NO. 78-547, MAP.
- 6) BERGQUIST, J.R., AND BLACET, P.M., 1979, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF CASA GRANDE WEST QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP LF-79-390.
- 7) BERGQUIST, J.R., AND BLACET, P.M., 1979, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF THE CASA GRANDE EAST QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN FILE MAP OF-79-391.
- 8) MITCHELL, C.M. 1. (AND ZANDLE, G.L.) AEROMAGNETIC MAP OF THE CASA GRANDE AREA, MARICOPA AND PINAL COUNTIES, ARIZONA: USGS GEOPHYS. INV. MAP GP-548, SCALE 1:62,500 (1965)
- 9) PUSHKAR, PAUL, AND DAMON, P.E., 1974, PALEOZOIC AGES FROM SOUTHERN ARIZONA: K-AR AND RB-SR GEOCHRONOLOGY: ISOTOPES, NO. 10, P. 7-10.
- 10) SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ABS. 1969; GEOL. SOC. AM. SP. PAPER 121, P. 556-557
- 11) BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L. AND NAESER, C.W., 1978, RADIO-METRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANIC AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: J. RESEARCH U.S. GEOL. SURVEY, V. 6, NO. 4, P. 439-445.
- 12) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 3) GEOLOGY OF NEARBY AREAS:
 - HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
 - 4) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
 - 5) HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.
 - 6) DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
 - 7) HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S.

THESIS, UNIVERSITY OF ARIZONA.

8)MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK II, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.

9)CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS

10)STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSITS, PINA COUNTY, ARIZONA, (ABS) IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.

11)CHAFFEE, M.A., AND HESSIN, T.D., 1973, AN EVALUATION OF GEOCHEMICAL SMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL. SPEC. VOL., NO. 11, P. 401-409.

12)CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSA QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.

13)CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.

RECORD 00319

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000721
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... I,2
FILE LINK ID..... USBM-0040210393
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 10
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... GLORY HOLE MINE
SYNONYM NAME..... GLOVE MINE

MINING DISTRICT/AREA/SUBDIST. BUNKER HILL DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 62500 KLONDYKE

LATITUDE LONGITUDE
32-45-35N 110-29-26W

UTM NORTHING UTM EASTING UTM ZONE NO
3624570. 547730. +12

TWP..... 008S
RANGE.... 018E
SECTION.. 03 10
MERIDIAN. G&SR

ALTITUDE.. 4200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1500 FT WEST OF COPPER PRINCE

LOCATION COMMENTS: JUST N OF THE CENTER OF THE SOUTH EDGE OF SEC. 3

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:

PYRITE

MINOR ORE MINERALS:

CHALCOHITE FILM; COPPER SULFATE COATINGS COPPER OXIDE STAIN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DEPTH TO BOTTOM..... 600 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

NW PIPE IS OVAL IN PLAN (110 FT N BY 70 FT E); SECOND PIPE (TO SE) IS 100 FT ACROSS; THIRD PIPE IS SMALL.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 650 FT

COMMENTS(DESCRIP. OF WORKINGS):

A SHAFT AND SEVERAL LEVELS (1000 FT AT ADIT LEVEL)

PRODUCTION

NO PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. SIMONS, 1964, P. 160

PRODUCTION COMMENTS.... NO PRODUCTION RECORDED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. (66 M.Y.)

HOST ROCK TYPES..... ANDESITE AND ANDESITE TUFF (HORNFELS OF GLORY HOLE VOLCANICS)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y.)

IGNEOUS ROCK TYPES..... PROBABLY UNDERLAIN BY COPPER CREEK GRANODIORITE

AGE OF MINERALIZATION..... LCRET-TEXT

IMPORTANT ORE CONTROL/LOCUS.. BRECCIA PIPES AT JOING INTERSECTIONS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTS STRIKING EAST-WEST, N60E, AND N10W; CONTACT SHOWS NO EVIDENCE OF MOVEMENT

SIGNIFICANT ALTERATION:

ANDESITE ALTERED TO QUARTZ AND SERICITE

GENERAL REFERENCES

- 1) GUTHRIE, J.D., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GALTURO MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, M.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, P. 512-539, P. 522.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS, ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12, 127-130.
- 5) SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 461, P. 160-162.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1957: RIDGE, J.D., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
- 5) ANDERSON, C.A., 1969, COPPER, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 190, P. 117-156.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) CAMPBELL, M.R., 1904, THE DEER CREEK COAL FIELD, ARIZONA: U.S. GEOL. SURVEY BULL. 225.
- 9) CATANACH, C.B., MORAN, E.F., PORTER, D.D., RUDERSHAUSEN, C.G., AND SUMMERS, R.W., 1977, COPPER LEACHING FROM AN OREBODY BLASTED IN PLACE: IN SITU, V. 1, NO. 4, P. 283-303.
- 10) CREASEY, S.C., JACKSON, E.D., AND GULBRANDSEN, R.A., 1961, RECONNAISSANCE GEOLOGIC MAP OF THE SAN PEDRO AND ARAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: U.S. GEOL. SURVEY MINERAL INVEST. MAP MF 238.
- 11) CREASEY, S.C., AND KISTLER, R.W., 1962, AGE OF SOME COPPER-BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-05.
- 12) CREASEY, S.C., AND KRIEGER, M.H., 1978, THE GALTURO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA: U.S. GEOLOGICAL SURVEY JOURNAL OF RESEARCH, V. 6, P. 115-131.
- 13) DENTON, T.C., 1947, OLD RELIABLE COPPER MINE, PINAL COUNTY, ARIZONA: U.S. BUR. MINES R.I. 4006.
- 14) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 140.
- 15) HEMMONS, W.H., 1938, DIATREMES AND CERTAIN ORE-BEARING PIPES: A.I.M.E. TECH. PUB. 891, MIN. TECH., V. 2, NO. 3.
- 16) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
- 17) JORALEMON, I.B., 1952, AGE CANNOT WITHER, OR VARIETIES OF GEOLOGICAL EXPERIENCE: ECON. GEOLOGY, V. 47, NO. 3, P. 243-259.
- 18) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, 223.
- 19) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 20) KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ 669.
- 21) KRIEGER, M.H., 1968B, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY GEOLOGIC QUADRANGLE MAP GQ-668, SCALE 1:24,000.
- 22) KRIEGER, M.H., 1979, ASH-FLOW TUFFS IN THE GALTURO VOLCANICS, NORTHERN GALTURO MOUNTAINS, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1104 (IN PRESS).
- 23) KRIEGER, MEDOKA H. 19. ASH-FLOW TUFFS IN THE NORTHERN GALTURO MOUNTAINS, PINAL COUNTY, ARIZONA (ABS.): ARS. 1968, GEOL. SOC. AM. SP. PAPER 121, P. 523 (1969).
- 24) KRIEGER, M.H., JOHNSON, M.C., AND BIGSBY, P., 1979, MINERAL RESOURCES OF THE ARAVAIPA CANYON DESIGNATED WILDERNESS AREA, PINAL AND GRAHAM COUNTIES, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REPORT, 79-291, 183 P.
- 25) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 26) PICKARD, B.O. 2. BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., V. 66, P. 281-282 (1912)

- 27)JULLMER, E.. 1978, COPPER CREEK DISTRICT, PINAL COUNTY, ARIZONA, IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY; THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 160-163.
- 28)NEED, W.H., 1913. "CHIMNEY" OR "PIPE" DEPOSITS IN THE PORPHYRIES: MINING AND ENG. WORLD, V. 38, P. 375-378.
- 29)KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.
- 30)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE BRANDENBURG MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-668.
- 31)KRIEGER, M.H., 1968, GEOLOGIC MAP OF THE HOLY JOE PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MAP GQ-669.

RECORD 00320

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030490
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... GOLD CIRCLE GROUP
MINING DISTRICT/AREA/SUBDIST. GOLD CIRCLE DISTRICT
COUNTRY CODE..... US
STATE CODE..... Z04
COUNTY..... PINAL
DRAINAGE AREA..... 15050703
LAND CLASSIFICATION..... 01 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 PUTNAM WASH, ARIZ.

LATITUDE LONGITUDE
32-49-40N 110-51-30W

TWP..... 07S
RANGE.... 14E
SECTION.. 13
MERIDIAN. G & SR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 S. OF ANTELOPE PEAK

LOCATION COMMENTS: LOCATION ESTIMATED

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU

MAIN COMMOD..... W AU
MINOR COMMOD..... MO

MAIN ORE MINERALS:
WOLFRAMITE AND SCHEELITE

MINOR ORE MINERALS:

POWELLITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... C. UPSHAW

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... RUIN GRANITE AND MUSCOVITE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET. (?)

IGNEOUS ROCK TYPES..... DIKES

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS CARRY GOLD AND TUNGSTEN

GENERAL REFERENCES

1) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156

3) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5516.

4) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 35.

5) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1109.

RECORD 00321

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030473
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210497
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... GRAYHORSE VANADIUM PROPERTY
SYNONYM NAME..... VANADIUM PROSPECTS OF J.J. SULLIVAN

MINING DISTRICT/AREA/SUBDIST. DRIPPING SPRINGS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 49 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 KEARNEY ARIZ.

LATITUDE LONGITUDE
33-06-45N 110-54-15W

UTM NORTHING UTM EASTING UTM ZONE NO
3663620. 508900. 412

TWP..... 04S
RANGE.... 14E
SECTION.. 03
MERIDIAN. G & SR

ALTITUDE.. 3000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MI E OF KILVEN

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... V MO PB ZN

MAIN COMMOD..... V PB
MINOR COMMOD..... ZN MO

MAIN ORE MINERALS:
VANADINITE, DESCLOITZITE

MINOR ORE MINERALS:
WULFENITE, GALENA CERUSSITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... N80E
DIP OF OREBODY..... 85 S

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 40 FT

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT 40 FT. DEEP ON FISSURE, A FEW SHORT TUNNELS, AND A SMALL OPEN CUT 600 FT SOUTH OF THE MAIN WORKINGS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... MESCAL LIMESTONE, DIABASE

PERTINENT MINERALOGY..... QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. ORE IS IN N80E FISSURE IN A MESCAL LIMESTONE INCLUSION IN DIABASE AND ALONG BEDDING PLANES IN THE LIMESTONE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
VANADATES ARE YOUNGER THAN GALENA BUT OLDER THAN QUARTZ

GENERAL REFERENCES

- 1) RANSOME, F.L., 1923, DISCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS., P. 24.
- 2) CORNWALL, H.R., AND DRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-1168.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 5) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A

AMER. MINERAL., V. 19, P. 209-220.

6)CORNWALL, H.R., BANKO, N.G., AND PHILLIPS, C.H., 1971, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD MAP GQ-1021.

RECORD 00322

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030481
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210053
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... LAKESHORE MINE
MINING DISTRICT/AREA/SUBDIST. LAKESHORE DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050306
LAND CLASSIFICATION..... 47

QUAD SCALE QUAD NO OR NAME
1: 0062500 SILVER REEF MOUNTAINS

LATITUDE LONGITUDE
32-31-25N 111-54-09W

UTM NORTHING UTM EASTING UTM ZONE NO
3598610. 415270. 412

TWP..... 10S
RANGE.... 04E
SECTION.. 25
MERIDIAN. G. AND S.R.

ALTITUDE.. 1810 FT

POSITION FROM NEAREST PROMINENT LOCALITY: W SIDE SLATE MTS

LOCATION COMMENTS: SE 4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU

MAIN COMMOD..... CU
 MINOR COMMOD..... MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... MO

MAIN ORE MINERALS:
 PYRITE, CHALCOPYRITE, MOLYBDENITE

MINOR ORE MINERALS:
 SPHALERITE, GALENA, BORNITE, CHALCOCITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
 0.76% CU IN SULFIDE ORES IN 1976, 1.03% CU IN OXIDE ORES IN 1976 (ACID SOLUBLE COPPER) (GREELEY, 1978, P. 30)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... ORE OUTCROP IN BOTTOM OF SHALLOW ARRAYS WAS DISCOVERED IN EARLY 1980'S BY TROUT AND
 ATCHISON

PRESENT/LAST OWNER..... OWNED IN 1972 BY EL PASO NAT. GAS AND MECLA MIN. CO; BASED FROM PAPAGO INDIANS 6
 PATENTED AND 19 UNPATENTED LOSE CLAIMS INCOMPASSING 402 ACRES AND IN ADDITIONAL 10142 ACRES LEASED FROM PAPAGO
 INDIANS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 COPPER PORPHYRY (DISSEM); SUPERGENE ENRICHMENT; TACTITE

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
 IN 1884 HAD A 112 FT SHAFT AND DRIFTING; IN 1914 A NEW VERTICAL SHAFT WAS SUNK TO DEPTH OF 285 FT.

PRODUCTION

YES
 MEDIUM PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 LEACH CU	ACC 28407	LBS		1976	GREELEY, 1978, P. 27
2 SULFIDE ORE	ACC 209.34	TONS		1976	GREELEY, 1978, P. 22
3 OXIDE ORE	ACC 410.228	TONS		1976	GREELEY, 1978, P. 22
4 CU FROM SULFIDE	ACC 8426688	LBS		1976	GREELEY, 1978, P. 22
5 CU FROM OXIDE	ACC 607.48	LBS		1976	GREELEY, 1978, P. 22

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU ORE EST	2230	TONS	1976-1978	0.76% CU	
16 LEACH CU ORE	2540	TONS	1976-1978	0.79% CU	
17 CU FST	74500	LBS	1976-1978	TENNEY, 1927	
18 CU EST	28	LBS	1880-1927		
19 ORE ACC	2731	TONS	1929-1976	(1973-75 MISSING) ABM FILE DATA	
20 CU ACC	82016	LBS	1929-1976	(1973-75 MISSING) ABM FILE DATA	
21 AG ACC	7.677	OZ	1929-1976	(1973-75 MISSING) ABM FILE DATA	
22 AU ACC	2.133	OZ	1929-1976	(1973-75 MISSING) ABM FILE DATA	

SOURCE OF INFORMATION (PRODUCTION).. GREELEY, 1978, P. 49; ARIZ. BUR. GEOL. FILE DATA

PRODUCTION COMMENTS.... ESTIMATED POTENTIAL PRODUCTIVE CAPACITY IS 65,000 SHORT TONS RECOVERABLE COPPER PER YEAR IN 1978 (GREELEY); TOTAL PRODUCTION 1880-1927 WAS APPROXIMATELY 280,000 LBS OF COPPER (TENNEY, 1927, P. 338)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 DISSEM SULFIDE	200000	ACCTONS	1969		
2 TACTITE SULFIDE	23000	ACCTONS	1969		
3 OXIDE ORE	ACC207000	TONS	1969		

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1979, P. 85

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT CRET, PREC
 HOST ROCK TYPES..... BIOTITE QUARTZ DIORITE TO QUARTZ MONZONITE PORPHYRY; MESCAL LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (67.3 M.Y.) JOHNSTON 1972

AGE OF MINERALIZATION..... TERT. (64.2 M.Y.) JOHNSTON 1972

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATED CHALCOPYRITE OCCURS IN QUARTZ MONZONITE PORPHYRY, AND CRETACEOUS VOLCANIC AND SEDIMENTARY ROCKS, AND PRECAMBRIAN DIABASE. HIGHER GRADE TABULAR BODIES OF CHALCOPYRITE ARE ASSOCIATED WITH MAGNETITE AND SILICATE MINERALS IN THE MESCAL LIMESTONE (TACTITE ORE).

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE LAKESHORE FAULT, STRIKING NNW DIPPING 50 - 80 W, IS A POST-ORE NORMAL FAULT, AND HAS DROPPED THE PRESUMED CUPOLA PORTION OF THE LAKESHORE STOCK DOWN TO THE WEST TO ITS PRESENT POSITION, THUS PRESERVING THE MAIN LAKESHORE ORE BODY FROM EROSION.

SIGNIFICANT ALTERATION:

POTASSIC, PHYLIC ARGILLIC AND PROPYLLITIC ZONES OCCUR

COMMENTS (GEOLOGY AND MINERALOGY):

A PYRITE CHALCOPYRITE RATIO LOW IS CENTERED ON THE UPPER PORPHYRY WITH RISING VALUES OUTWARD INDICATING A PYRITE HALO (SOUTH, 1972 P. 78)

GENERAL REFERENCES

- 1) SOUTH, D.L., 1972, SULPHIDE ZONING AT THE LAKESHORE COPPER DEPOSIT, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 102 P.
- 2) LAKESHORE GEOLOGY:
 - HARPER, H.E., AND REYNOLDS, J.R., 1969, THE LAKESHORE COPPER DEPOSIT: MINING CONG. JOUR., V. 55, NO. 11, P. 26-30.
 - 3) HOGUE, W.G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 4) JOHNSTON, W.P., 1972, K-AR DATES ON INTRUSIVE ROCKS AND ALTERATION ASSOCIATED WITH THE LAKESHORE PORPHYRY COPPER DEPOSIT, PINAL COUNTY, ARIZONA: ISOCHRON/WEST, NO. 4, P. 29-30.
 - 5) ROMSLO, T.M., (1950) INVESTIGATION OF THE LAKE SHORE COPPER DEPOSITS, PINAL COUNTY, ARIZONA. U.S. BUR. MINES REPT. INV. 4706.
 - 6) ENGINEERING AND MINING JOURNAL, 1960, ARIZONA COPPER SILICATES RESPOND TO SEGREGATION: ENG. MIN. JOUR., V. 161, NO. 1, P. 86-87.
 - 7) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
 - 8) BLACET, P.M., BERGQUIST, J.R., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE SILVER REEF MOUNTAINS QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDIES MAP MF-934.
 - 9) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
 - 10) TENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
 - 11) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
 - 12) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 3) GEOLOGY OF NEARBY AREAS:
 - HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 4) DICKTER, R.D., AND KEITH, W.J., 1978, RECONNAISSANCE GEOLOGIC MAP OF VEKOL MOUNTAINS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-931.
 - 5) SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ABS. 1969; GEOL. SOC. AM. SP. PAPER 121, P. 556-557
 - 6) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS,
 - 7) STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSIT, PIMA COUNTY, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.
 - 8) CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.
 - 9) CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSÁ QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.
 - 10) CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.
 - 11) HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
 - 12) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
 - 13) WILSON, E.D. AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.
 - 14) HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.
 - 15) DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
 - 16) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION,

ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK II, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.

17)PUSHKAR, PAUL, AND DAMON, P.E., 1974, PALEOZOIC AGES FROM SOUTHERN ARIZONA: K-AR AND RB-SR GEOCHRONOLOGY: ISOCHRON/WEST, NO. 10. P. 7-10.

18)HEINDL, L.A., AND MCCLYMONDS, N.E., 1964, YOUNGER PRECAMBRIAN FORMATIONS AND THE BOLSA (?) QUARTZITE OF CAMBRIAN AGE, PAPAGO INDIAN RESERVATION, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1964: U.S. GEOL. SURVEY PROF. PAPER 424-C, P. C160-C164.

RECORD 00323

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030486
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... LITTLE HILL MINE
MINING DISTRICT/AREA/SUBDIST. LITTLE HILLS DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050301
LAND CLASSIFICATION..... 31 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0062500 ORACLE, ARIZ.

LATITUDE LONGITUDE
32-35-12N 110-49-53W

UTM NORTHING UTM EASTING UTM ZONE NO
3505300. 515850. +12

TWP..... 10S
RANGE..... 15E
SECTION.. 05 08 10
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4160 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES WSW OF ORACLE

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG-- PB--

MAIN COMMOD..... CU
MINOR COMMOD..... MO

MAIN ORE MINERALS:

CHRYSOCOLLA, MALACHITE, AZURITE, MELACONITE

MINOR ORE MINERALS:

PYRITE, CHALCOPYRITE, MOLYBDENITE, TRACES OF GALENA AND SPHALERITE, CHALCOCITE, COVELLITE, MAGNETITE, HEMATITE.

ANALYTICAL DATA(GENERAL)

ROCK CHIP GEOCHEMICAL SAMPLING OUTLINES A 250 PPM COPPER ANOMALY IN THE SE PART AND A 6 PPM MOLYBDENUM ANOMALY IN A U-SHAPED AREA SURROUNDING THE COPPER ANOMALY.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 7

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... IN THE 1980'S THE FIRST CLAIMS WERE STAKED FOR GOLD AND SILVER

PRESENT/LAST OWNER..... LITTLE HILL MINING CO, ORACLE

EXPLOR. AND DEVELOP. COMMENTS:

IN 1962-1965, ADJOINING DEL ORD CLAIMS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM. QUARTZ VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

OREBODY MINED UNTIL 1964 EXTENDED 155 FEET DOWNDIP, WAS 200 FEET LONG, 50 FEET WIDE, AND AVERAGED 1.5% COPPER.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

UNDERGROUND WORKINGS IN 1964 CONSISTED OF 1 1/2 COMPARTMENT, 51 DEGREE INCLINED SHAFT 225 FEET DEEP. SEVERAL SMALL PITS DEVELOPED SINCE 1964. (DURNING, 1972)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 CU-BEARING. FLUMMO	EST	TONS		1960-1972	

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE OR USE
1 CU BEARING FLUMMOEST	TONS		1972	PROBABLE RESERVES	

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. TERT.
 HOST ROCK TYPES..... PINAL SCHIST, ORACLE QUARTZ MONZONITE (ORACLE GRANITE), GNEISS, ALASKITE, AND APLITE
 PEGMATITE DIKES; TERTIARY RHYOLITE, LATITE, QUARTZ LATITE.

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... QUARTZ AND SERICITE ARE GENERALLY ONLY GANGUE MINERALS

IMPORTANT ORE CONTROL/LOCUS.. MOST MINERALIZATION IS CONTROLLED BY SHEARING PARALLEL AND SUBPARALLEL TO THE MOGUL FAULT ZONE, PARTICULARLY BY THE HORSETAILS AND WIDENED AREA OF THE FAULT HERE. (DURNING, U.M.I, P. 83)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE WNW STRIKING MOGUL FAULT DIPS 40-60 S AND HAD LEFT LATERAL DISPLACEMENT OF 1500 FEET SINCE INTRUSION OF A MONZONITE PORPHYRY DIKE (DURNING, 1977). CREASEY (1967) SUGGESTED AS MUCH AS 10 MILES OF RIGHT LATERAL DISPLACEMENT. FRITZ CALCULATED 4500 FEET OF THROW WITH NORTHSIDE UP FROM AEROMAGNETIC DATA.

SIGNIFICANT ALTERATION:

PROPLYLITIC AND SERICITIC; WEAK SERICITE ALTERATION COINCIDES WITH MINERALIZATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

HYDROTHERMAL SOLUTIONS PROBABLY PRODUCED SULFIDE MINERALIZATION. THE MAIN STAGE MINERALIZATION OCCURRED AFTER THE FIRST MOVEMENT ON THE MOGUL FAULT AND BEFORE INTRUSION OF THE RHYOLITE DIKES OF PROBABLE TERTIARY AGE. A MINOR EPISODE OF MINERALIZATION OCCURRED AFTER THE RHYOLITE DIKES AND PRIOR TO THE LATITE DIKES.

THE OXIDE ORE MINED AT PRESENT RESULTED FROM PERCOLATION OF COPPER - BEARING GROUND WATERS THROUGH THE QUARTZ BRECCIA ALONG THE MOGUL FAULT. (DURNING, 1977, P. 84)

GENERAL REFERENCES

- 1) DURNING, W.P., 1972. GEOLOGY AND MINERALIZATION OF LITTLE HILL MINE, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS, 91 P.
- 2) DURNING, W.P., AND DAVIS, J.D., 1978, THE ROOT-ZONE CHARACTERISTICS OF PORPHYRY COPPER DEPOSITS, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 81-89.
- 3) JINKS, J.E. (SEE ALSO FAIR, C.L., 2) THE MARGARET WASH SECTION OF THE MOGUL FAULT, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 19 P. (1961)
- 4) RAABE, ROBERT C. STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUEHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 50 P. (1959)
- 5) SUEMNICHT, G.A., 1977, THE GEOLOGY OF THE CANADA DEL ORD HEADWATERS, SANTA CATALINA MOUNTAINS, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 109 PP.
- 6) WALLACE, ROBERT M. 1. STRATIGRAPHY AND STRUCTURE OF A PART OF THE CANADA DEL ORD DISTRICT, SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 55 P., MAPS (1951)
- 7) WALLACE, ROBERT M. 2. STRUCTURE OF THE NORTHERN END OF THE SANTA CATALINA MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 45 P., MAP (1955)
- 3) CATALINAS MAPS, ETC:
 ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 4) BANKS, N.G. (1976). RECONNAISSANCE GEOLOGIC MAP OF THE MOUNT LEMMON QUAD, ARIZONA, U.S.G.S. MAP MF - 747.
 5) CREASEY, S. CYRUS S. GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS BULL. 1218, 94 P., GEOL. MAP, SCALE 1:48,000, SECTIONS (1967)
 6) CREASEY, S.C., BANKS, N.G., ASHLEY, R.P., AND THEODORE, T.G., 1977, MIDDLE TERTIARY PLUTONISM IN THE SANTA CATALINA AND TORTOLITA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY J. OF RESEARCH, V. 5, P. 705-717.
 7) DEMPSEY, W.J. AND HILL, M.E. 1963, AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL AND PIMA COUNTIES,

ARIZONA: USGS MAP GP-419

8)DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)

9)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT:
UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.

RECORD 00324

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M002831
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 01

NAME AND LOCATION

DEPOSIT NAME..... MAMMOTH GROUP

MINING DISTRICT/AREA/SUBDIST. GOLDFIELDS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0024000 APACHE JUNCTION, ARIZ.

LATITUDE LONGITUDE
33-27-30N 111-29-15W

UTM NORTHING UTM EASTING UTM ZONE NO
3701800. 454750. +12

TWP..... 01N
RANGE..... 08E
SECTION.. 01
MERIDIAN. G & SR

LOCATION COMMENTS: LOCATION ESTIMATED FROM SHAFTS ON TOPO MAP.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU MO MN

MAIN COMMOD..... AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

MAMMOTH CLAIM SHAFT SUNK BY GEORGE U. YOUNG IN 1914 (CLIPPING FILE)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE ACC	11.31	TONS	1919-1978	
16	AU ACC	1.262	OZ	1919-1978	
17	AG ACC	.414	LZ	1919-1978	
18	CU ACC	.25	LBS	1919-1978	

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PRLC TERT.

HOST ROCK TYPES..... PEGMATITIC GRANITE, ANDESITES RHYOLITES, DACITE AND MINOR MONZONITE

PERTINENT MINERALOGY..... STAINED WITH IRON OXIDE AND MANGANESE OXIDE

IMPORTANT ORE CONTROL/LOCUS.. ORE FORMED ALONG (N-S) FAULT PLANES AND FRACTURES (SE-NW)

GENERAL REFERENCES

- 1) JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355, 103 P.,
- 2) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LODE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P., P. 167-168.
- 3) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT SPECIAL COLLECTIONS, UNIV. ARIZ. LIBRARY AND ARIZ. BUR MINES LIBRARY, TUCSON 514 P., P. 344-5.
- 4) FODOR, R.V., 1969, PETROGRAPHY AND PETROLOGY OF THE VOLCANIC ROCKS IN THE GOLDFIELDS MOUNTAINS, ARIZONA: ARIZ. STATE UNIV., TEMPE, M.S. THESIS 66 P.
- 5) KELLER, W.D., AND E.E. PICKETT 1954 HYDROXYL AND WATER IN PERLITE FROM SUPERIOR, ARIZONA: AM. JOUR. SCI., V. 252, NO. 2, P. 87-98.
- 6) PETERSON, D.W., 1960, GEOLOGIC MAP OF THE HAUNTED CANYON QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-128, SCALE 1:24,000.
- 7) 1961B, FLATTENING RATIOS OF PUMICE FRAGMENTS IN AN ASH-FLOW SHEET NEAR SUPERIOR, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1961: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. D82-D84.
- 8) 1962, PRELIMINARY GEOLOGIC MAP OF THE WESTERN PART OF THE SUPERIOR QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY MINERAL INV. FIELD STUDIES MAP MF-253, SCALE 1:12,000.
- 9) PETERSON, D.W., 1961, DACITIC ASH-FLOW SHEET NEAR SUPERIOR AND GLOBE, ARIZONA: STANFORD UNIV., STANFORD, CALIF., PH.D. THESIS, 130 P., U.S. GEOL. SURVEY OPEN-FILE REPORT, APRIL 3, 1961, 130 P.
- 10) PETERSON, D.W., 1966, GEOLOGY OF PICKET POST MOUNTAIN, NORTHEAST PINAL COUNTY, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 8, P. 159-176.
- 11) PETERSON, D.W., 1968, ZONED ASH-FLOW SHEET IN THE REGION AROUND SUPERIOR, ARIZONA: ARIZ. GEOL. SOC. SOUTHERN ARIZONA GUIDEBOOK III, P. 215-222.
- 12) PETERSON, D.W., 1962, GEOLOGY AND ORE DEPOSITS OF THE GLOBE-MIAMI DISTRICT, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 342, 151 P.
- 13) 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, P. H1-H18.
- 14) ROBERTS, R.J., AND PETERSON, D.W., 1961, SUGGESTED MAGMATIC DIFFERENCES BETWEEN WELDED "ASH" TUFFS AND WELDED

CRYSTAL TUFFS, ARIZONA AND NEVADA: ART. 320 IN U.S. GEOL. SURVEY PROF. PAPER 424-D, P. 073-079.

15)SELL, J.D., 1968, CORRELATIONS OF SOME POST-LARAMIDE TERTIARY UNITS, GLOBE (GILA COUNTY) TO GILA BEND (MARICOPA COUNTY), ARIZONA: ARIZ. GEOL. SOC. SOUTHERN ARIZONA GUIDEBOOK III, P. 69-74.

16)SHERIDAN, M.F., 1968, VOLCANIC GEOLOGY ALONG THE WESTERN PART OF THE APACHE TRAIL, ARIZONA: ARIZ. GEOL. SOC. SOUTHERN ARIZONA GUIDEBOOK III, P. 227-230.

17)SHERIDAN, J.F., AND FODOR, R.V., IN PRESS, ORIGIN OF THE SILICIC ASH-FLOW TUFFS AND LAVAS IN THE GOLDFIELD MOUNTAINS, ARIZONA (ABS.), IN ABSTRACTS FOR 1969, GEOL. SOC. AMERICA SPEC. PAPER.

18)SHERIDAN, J.F., STUCKLESS, J.S., AND FODOR, R.V., 1970, A TERTIARY SILICIC CAULDRON COMPLEX AT THE NORTHERN MARGIN OF THE BASIN AND RANGE PROVINCE, CENTRAL ARIZONA, U.S.A.: BULL. VOLCANOL., V. 34, NO. 3, P. 649-662.

19)SHERIDAN, M.F., AND STUCKLESS, J.S., 1969, VOLCANICS RELATED TO THE BLACK MESA CALDERA, CENTRAL ARIZONA (ABS.): GEOL. SOC. AMERICA, ABS. WITH PROGRAMS FOR 1969, PT. 3 (CORDILLERAN SEC.) P. 60-61.

20)SHORT, M.N., F.W. GALBRAITH, E.N. HARSHMAN, T.H. KUHN, AND E.D. WILSON 1943 GEOLOGY AND ORE DEPOSITS OF THE SUPERIOR MINING AREA, ARIZONA: ARIZONA BUR. MINES BULL. 151, GEOL. SER. 16, 159 P.

21)STUCKLESS, J.S., AND SHERIDAN, M.F., 1971, TERTIARY VOLCANIC STRATIGRAPHY IN THE GOLDFIELD AND SUPERSTITION MOUNTAINS, ARIZONA: GEOL. SOC. AMERICA BULL., V. 82, NO. 11, P. 3235-3240.

RECORD 00325

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 0000829
RECORD TYPE..... X1M
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... MAMMOTH-ST.ANTHONY MINE
SYNONYM NAME..... COLLIN, MOHAWK, NEW YEARS

MINING DISTRICT/AREA/SUBDIST. MAMMOTH DIST./BLACK HILLS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0024000 MAMMOTH, ARIZ.

LATITUDE LONGITUDE
32-42-23N 110-41-04W

UTM NORTHING UTM EASTING UTM ZONE NO
3618570. 529600. 412

TWP..... 08S
RANGE.... 16E
SECTION.. 26
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES S.W. OF TOWN OF MAMMOTH ON SAN PEDRO RIVER

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN V F BA AU AG PB ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU AG MO V PB ZN
MINOR PRODUCTS.. CU

MAIN COMMOD..... AU AG MO V
 MINOR COMMOD.... CU

MAIN ORE MINERALS:
 WULFENITE, VANADINITE, GOLD IN QUARTZ, GALENA, SPHALERITE

MINOR ORE MINERALS:
 ANGLESITE, CERUSSITE, MALACHITE, AZURITE, LINARITE, BROCHNANTITE, DESCLOIZITE, MOTTAMITE.

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 YEAR OF DISCOVERY..... CLAIMS FIRST LOCATED IN 1879

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FISSURE VEINS

PRODUCTION
 YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	1889.375	TONS	1881-1947	
16 AU	EST	397.201	OZ	1881-1947	
17 AG	EST	983.918	OZ	1881-1947	
18 CU	EST	3456.121	LB	1881-1947	
19 PB	EST	74730.29	LB	1881-1947	
20 ZN	EST	48272.65	LB	1881-1947	
21		6314.822	LB	1881-1947	
22 V205	EST	2540.842	LB	1881-1947	
23 WULF ORE	EST				
G15A 50					
G15B TONS					
G15C 191701919					
G15D YIELDED 450,000 LBS MOD3 (.45%)					

MOD3 EST
 5800
 LBS
 1934-1943
 GREASEY, 1950

2500

V205 EST

LBS
1934-1943

MO EST

4210
LBS
1919-1944
SULFENITE

ORE EST

1283
TONS
1919-1944

V205 EST

2541
LBS
1919-1944
VANADINITE

ORE ACC

4091.377
TONS
1930-1978

CU ACC

11647.33
LBS
1930-1978

PB ACC

214007.1
LBS
1930-1978

ZN ACC

143152.6
LBS
1930-1978

AG ACC

3016.002
OZ
1930-1978

AU ACC

563.667

OZ
1930-1978

4209.881 MD ACC
LBS
1930-1978

2540.842 V205 ACC
LBS
1930-1978

SOURCE OF INFORMATION (PRODUCTION).. CREASEY, 1967; ANDERSON, 1968, P. 1185; PETERSON, 1938, P. 29

PRODUCTION COMMENTS.... ELSING AND HEINEMAN, 1936, P. 99, \$3,000,000 WORTH OF GOLD PRODUCED 1886-1918.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (22.3 M.Y., KRIEGER, 1974); PREC. (1420-1450 M.Y., LIVINGSTON ETAL (1967), DAMON ETAL (1962,1963), GILLET)) AND DAMON (1961))

HOST ROCK TYPES..... RHYOLITE (TERT.) AND QUARTZ MONZONITE (PRECAMBRIAN ORACLE GRANITE)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (22.3 M.Y.)

IGNEOUS ROCK TYPES..... RHYOLITE INTRUSIVE, RHYOLITE BRECCIA

AGE OF MINERALIZATION..... TERT. (POST 26 M.Y. (SHAFIQUILLAH ETAL, 1978), POST 22 M.Y. (KRIEGER, 1974))

PERTINENT MINERALOGY..... FOLLOWING IS A LISTING OF KNOWN MINERAL SPECIES FROM TIGER, CATEGORIZED INTO

SOMEWHAT ARBITRARY DIVISIONS:

GANGUE MINERALS

ADULARIA, AMESITE, ANTIGORITE, BARITE, BIDENTITE, CALCITE, CHLORITE, CLAYS, EPIDOTE, FLUORITE, HEULANDITE, MAGNETITE, PLAGIOCLASE, QUARTZ, STILBITE, TOURMALINE;

PRIMARY SULFIDES

CHALCOPYRITE, GALENA, PYRITE, SPHALERITE;

SECONDARY SULFIDES

ACANTHITE, BORNITE, CHALCOCITE, COVELLITE, DJURLEITE, WURZITE;

OXIDIZED MINERALS: "NORMAL SEQUENCE" -

ANGLESITE, AURICHALCITE, AZURITE, CERUSSITE, CHRYSOCOLLA, CREASEYITE, CUPRITE, DEVILLINE, DIOPHASE, GOETHITE, GOLD, HEMATITE, HEMIMORPHITE, HISINGERITE, HOLLANDITE, MALACHITE, MINIM, MURDOCHITE, PLANCHEITE, RAMSOELLITE, ROSASITE, SILVER, SMITHSONITE, SULFUR, TENORITE, WILLEMITE;

OXIDIZED MINERALS: "ANOMALOUS SEQUENCE" -

ALAMOSITE, ATACAMITE, BEAVERITE, BIDEAUXITE, BOLEITE, BROCHANTITE, CALEDONITE, CONNELLITE, DIABOLEITE, EMBOLITE, HYDROCERUSSITE, IODARGYRITE, LEADHILLITE, LINARITE, MATLOCKITE, MELANDTEKITE, PARALAURIONITE, PARATACAMITE, PHOSGENITE, PLUMBONACRITE, PSEUDOBOLEITE, WHERRYITE, YEDOLITE;

OXIDIZED MINERALS: LATE STAGE -

DESCLOIZITE, FORNACITE, MIMETITE, MOTTAMITE, PYROMORPHITE, TSUMEBITE, VANADINITE, WULFENITE. (ANTHONY, WILLIAMS, AND BIDEAUX, 1977, P. 22).

IMPORTANT ORE CONTROL/LOCUS.. VEINS OCCUR WITHIN SHEAR ZONES WHICH STRIKE WNW AND DIP STEEPLY SW. AN EARLIER PERIOD OF FISSURING CONTROLLED THE LOCATION OF THE NW STRIKING RHYOLITE INTRUSION. THE FISSURE ZONES ARE WIDEST WHERE THE WALL ROCK IS QUARTZ MONZONITE. (CREASEY, 1950). THE ORE APPEARS TO HAVE BEEN DEPOSITED ALONG SECTIONS OF THE FAULTS WHERE SHATTERING AND BRECCIATION WERE RELATIVELY INTENSE (PETERSON, 1938, P. 30)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE MAMMOTH FAULT (STRIKING N22W, DIPPING 56 TO 70 NE) CUT THE OXIDIZED VEIN INTO 2 SEGMENTS -- THE COLLINS VEIN, WHICH HAD BEEN LOWER, ON THE WEST AND THE MAMMOTH VEIN ON THE EAST BY OBLIQUE SLIP DISPLACEMENT OF AT LEAST 1200 FEET ON A NORMAL FAULT WITH THE EAST SIDE RELATIVELY DOWN. THIS FAULTING CUTS THE GILA CONGLOMERATE, SO IS PROBABLY RELATED TO THE BASIN AND RANGE LATE TERTIARY FAULTING. (PETERSON, 1938, P. 2E BOUNDARY BETWEEN THE GRANITE AND LAVA FLOWS WITH THE FLOWS RELATIVELY 4) CREASEY, 1956, V. 72-76. THE TURTLE FAULT, STRIKING N70E, FORMS TH DOWN.

SIGNIFICANT ALTERATION:

SILICIFICATION FROM SLIGHT TO COMPLETE REPLACEMENT IS COMMON BUT MOST INTENSE IN THE VEINS. WALLROCKS AND BRECCIA FRAGMENTS ARE ALTERED TO SERICITE AND CLAY. SOME CHLORITIZATION.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

GEOLOGIC SEQUENCE: 1) IN NEARBY AREAS CLOUDBURST FORMATION (28.3 +/- 0.6 M.Y. ON BASLAT, SHAFIQUILLAH, ETAL, 1978) WAS DEPOSITED ON MINERALIZED LARAMIDE GRANODIORITE PORPHYRY (67 M.Y., CREASEY, 19) 2) RHYOLITE (22.3 M.Y. IN PUTNAM WASH QUAD, KRIEGER, 1974) INTRUDED NW FISSURES. 3) NW FAULTING PRODUCED SHEAR ZONES. 4) SULFIDE MINERALIZATION (PYRITE, CHALCOPYRITE, GALENA, AND SPHALERITE) AND ASSOCIATED SILICATE MINERALS WERE INTRODUCED IN SEVERAL STAGES AS THE FAULTS CONTINUED TO MOVE. 5) DEPOSIT WAS OXIDIZED TO DEPTH OF 900 FT. 6) MAMMOTH FAULT SEPARATED VEIN INTO COLLINS AND MAMMOTH VEINS AFTER DEPOSITION OF GILA CONGLOMERATE. 7) SEGMENTS WERE BROKEN BY SMALLER FAULTS. 8) MOLYBDENUM AND VANADIUM BEARING SOLUTIONS WHICH COULD NOT HAVE COME FROM THE SULFIDES IN THE OREBODY WERE THEN INTRODUCED INTO THE FAULTS AND INTO THE OXIDIZED PARTS OF THE VEINS. 9) REACTION WITH CERUSSITE AND POSSIBLY ANGLESITE PRODUCED WULFENITE AND SLIGHTLY LATER VANADINITE. 10) FURTHER OXIDATION OCCURRED (CREASEY, 1950, P. 63).

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS AS LIGHT YELLOW TO BRIGHT RED CRYSTALS CONTAINING TUNGSTEN. SPECIMENS ARE IN MOST MAJOR MUSEUMS (HARVARD 101755, UNIV. ARIZ. 8208; BRITISH MUSEUM 1961, 539; AND OTHERS.

GENERAL COMMENTS

SEE RECORD NUMBER M899990 FOR REFERENCES

RECORD 00326

GRID MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030487
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... MAUDINA MINE
SYNONYM NAME..... PURE GOLD WORKINGS, CODY TUNNEL, AND OLD MAUDINA MINE. (THE PURE GOLD WORKINGS ARE ONLY 240 FEET FROM THE MORNING STAR MINE AND THESE 2 ARE GROUPED AS BONITO MINE ON THE TOPO. MAP.)

MINING DISTRICT/AREA/SUBDIST. ORACLE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050301
LAND CLASSIFICATION..... 41 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 MAMMOTH, ARIZ. 15'; CAMPO-BONITO, ARIZ.

LATITUDE LONGITUDE
32-33-07N 110-43-37W

UTM NORTHING UTM EASTING UTM ZONE NO
3601440. 525660. 412

TWP..... 10S
RANGE.... 16E
SECTION.. 20 17
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE SE OF CAMPO BONITO

LOCATION COMMENTS: ON THE TOPO MAP THE NORTHERN SYMBOL OF THE BONITO MINE IS THE PURE GOLD WORKINGS AND THE SOUTHERN ONE OF THE BONITO MINE IS THE MORNING STAR MINE; 3500 FEET SE OF THEM IS THE OLD MAUDINA MINE; THE SOUTHERN ADIT OF THE 2 ON THE RIDGE E OF THE PURE GOLD WORKINGS IS THE CODY TUNNEL (CREASEY, 1967)

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU PB MO CU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. W

MAIN COMMOD..... W
MINOR COMMOD.... AU MO PB CU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL.....
OCCURRENCE..... AU MO PB

MAIN ORE MINERALS:
SCHEELITE

MINOR ORE MINERALS:
CERUSSITE WULFENITE, VANADINITE, MINOR PYRITE, GOLD, GALENA, CHALCOPYRITE, COVELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINLETS, REPLACEMENT MASSES
FORM/SHAPE OF DEPOSIT: WELL DEFINED SHOOTS

SIZE/DIRECTIONAL DATA
MAX LENGTH..... 200 FT
MAX WIDTH..... 40 FT
STRIKE OF OREBODY.... N80W
DIP OF OREBODY..... 50 S
PLUNGE OF OREBODY.... 45 DEGREES
DIRECTION OF PLUNGE.. EAST

COMMENTS(DESCRIPTION OF DEPOSIT):
THE ORE BODY IN THE PURE GOLD WORKINGS IS LOCALIZED IN THE SILICIFIED UPPER PART OF THE BRECCIA IN THE MOGUL FAULT (FIG. 9). THE SURFACE WIDTH OF THE ZONE RANGES FROM 5 TO 40 FEET, AND THE EXPOSED LENGTH IN 1943 WAS ABOUT 200 FEET. THE MINERALIZED ZONE APPEARS TO DIP PARALLEL TO THE FAULT, ABOUT 40 - 50 SOUTHWARD.
THE ORE SHOOT IN THE OLD MAUDINA MINE IS ALONG A STEEP-DIPPING FAULT (N. 80 W.) THAT IS ABOUT PARALLEL TO THE MOGUL FAULT. THE ORE SHOOT PLUNGES 45 E., RANGES IN WIDTH FROM 4 TO 15 FEET, AND IS 50 FEET OR MORE IN SLOPE LENGTH (WILSON, 1941, P. 32). WILSON (1941, P. 33) DESCRIBES A SMALL SEPARATE ORE SHOOT, 20 BY 12 BY 4 FEET, ON THE 150-FOOT LEVEL NORTH OF THE MAIN ORE SHOOT AND SUGGESTS FURTHER EXPLORATION ALONG THE FAULT. (CREASEY, 1967, P. 85-869)

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 175 FT
LENGTH OF WORKINGS..... 2000 FT
OVERALL LENGTH OF MINED AREA.... 160 FT
OVERALL WIDTH OF MINED AREA..... 30 FT

COMMENTS(DESCRIP. OF WORKINGS):
THE PURE GOLD WORKINGS CONSIST OF A 175-FOOT ADIT, AND OPENCUT 30 BY 160 FEET, AN INCLINED SHAFT 35 FEET DEEP,

AND ADIT 88 FEET LONG, AND TWO SHALLOW SHAFTS (DALE, 1959, P. 52). THE WORKINGS IN THE CODY TUNNEL TOTAL 1,165 FEET: 830 FEET OF TUNNEL AND 335 FEET OF CROSSCUTS (DALE, 1959, P. 52). THE WORKINGS OF THE OLD MAUDINA MINE CONSIST OF A 175-FOOT VERTICAL SHAFT AND LEVELS AT 50, 100, 150, AND 175 FEET BELOW THE COLLAR OF THE SHAFT. THE LEVELS COMPRISE ABOUT 1,000 FEET OF CROSSCUTS AND DRIFTS (DALE, 1959, P. 52; BROMFIELD, 1950) (CREASEY, 1967, P. 85).

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CONC EST	3		UNITS W03	1908-1912; 1918	MAUDINA MINE
16 CONC ACC	9.803		UNITS W03	1943-1944	PURE GOLD WORKINGS
17 ORE ACC	6.284		TONS	1943-1944	PURE GOLD WORKINGS
18 ORE EST	15		SHORT TON UNITS		DALE, 1959, P. 52

SOURCE OF INFORMATION (PRODUCTION).. CREASEY, 1967, P. 87.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS. CAMP.
 HOST ROCK TYPES..... ESCABROSA LIMESTONE, ABRIGO LIMESTONE (RECRYSTALLIZED TO MARBLE)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (?)
 IGNEOUS ROCK TYPES..... RICE PEAK GRANODIORITE PORPHYRY

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... QUARTZ GANGUE

IMPORTANT ORE CONTROL/LOCUS.. ALL MINERALIZED ZONES ARE IN A FAULT BLOCK OF ESCABROSA LIMESTONE ADJACENT TO THE MOGUL FAULT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MOGUL FAULT DIPS 30-60 S. AND IS A ZONE OF BRECCIA AND MYLONITE AS MUCH AS 50 FT THICK

SIGNIFICANT ALTERATION:

SILICIFIED ESCABROSA LIMESTONE IS RESTRICTED TO FAULTS AND FRACTURES RELATED TO MOGUL FAULT

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

MOST LIKELY THE MINERALIZING SOLUTIONS ORIGINATED FROM SOME "RELATIVE" OF THE GRANODIORITE PORPHYRY THAT CRYSTALLIZED AT SOME DEPTH WITHIN THE CRUST. THE MOGUL AND RELATED FAULTS SERVED TO GUIDE THE MINERALIZING FLUIDS TO THE CARBONATE HOST ROCKS. THE MOGUL IS A STRONG FAULT AND UNDOUBTEDLY PENETRATES THE EARTH'S CRUST TO CONSIDERABLE DEPTHS. (CREASEY, 1967, P. 87).

COMMENTS (GEOLOGY AND MINERALOGY):

CERUSSITE AND WULFENITE WERE IN UPPER 50 FT OF ORE SHOOT

GENERAL REFERENCES

- 1) CREASEY, S CYRUS 5. GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS BULL. 1218, 94 P.,
GEOLOG. MAP, SCALE 1:48,000, SECTIONS (1967), P. 84-87.
- 2) WILSON, E.D., 1941. TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 32-34.
- 3) BROMFIELD, C.S. (SEE ALSO BUTLER, B.S., 18) 1. GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA
MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 63 P., MAPS (1950)
4) DALE, V.B. (1959) TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES
REPT. INV. 5516.
5) LEMMON, D.M., AND TWETO, D.L., 1962, TUNGSTEN IN THE U.S.: U.S. GEOL. SURVEY MAP, MR-25.
6) LUDDEN, R.W. GEOLOGY OF THE CAMPO BUNITO AREA, ORACLE, ARIZONA: UNIV. ARIZ., MS THESIS, 52 P., MAPS (1950)
7) HILL, J.M., 1946, REPORT ON THE MAUDINA TUNGSTEN MINE, ORACLE, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 9 P.
8) TENNEY, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY,
ARIZONA: PRIVATE REPORT, 4 P.
9) MINERALS YEARBOOK, 1945, U.S. DEPT. INTERIOR, U.S. BUR. MINES: U.S. GOV'T PRINT. OFFICE, WASHINGTON, P. 663.

RECORD 00327

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04079
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210686
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... MINERAL BUTTE PROSPECT

MINING DISTRICT/AREA/SUBDIST. MINERAL BUTTE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

DRAINAGE AREA..... 15050100

LAND CLASSIFICATION..... 47

QUAD SCALE QUAD NO OR NAME
1: 0024000 BLACKWATER, ARIZ.

LATITUDE LONGITUDE
33-06-50N 111-34-45W

UTM NORTHING UTM EASTING UTM ZONE NO
3663900. 445900. 412

TWP..... 04S
RANGE.... 07E
SECTION.. 01
MERIDIAN. G & SR

ALTITUDE.. 1500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MI. S. W OF MINERAL BUTTE; - MILES NW OF COOLIDGE

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU

MAIN COMMOD..... CU

MINOR COMMOD.... AU MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... DUVALS CORP LEASES LAND FROM GILA RIVER INDIANS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PORPHYRY COPPER

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... GRANITE (ORADE); PINAL SCHIST (GNEISS); DIABASE DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (70 M.Y.) (BALLA, 1972)

IGNEOUS ROCK TYPES..... BIOTITE QUARTZ MONZONITE

AGE OF MINERALIZATION..... LCRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION CONCENTRATED IN GRANITE NEAR GRANITE-QUARTZ MONZONITE CONTACT

GENERAL REFERENCES

- 1) CHAFFEE, M.A., 1976, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, MINERAL BUTTE COPPER DEPOSIT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-D, 55 P.
- 2) BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
- 3) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 4) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
 - 5) ULLMER, E., 1978, SACATON MINE AREA, PINAL COUNTY, ARIZONA (ABS.), IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 235-236.
 - 6) BERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF PART OF THE CASA GRANDE MOUNTAINS QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP., NO. 78-547, MAP.
 - 7) MITCHELL, C.H. 1. (AND ZANDLE, G.L.) AEROMAGNETIC MAP OF THE CASA GRANDE AREA, MARICOPA AND PINAL COUNTIES, ARIZONA: USGS GEOPHYS. INV. MAP GP-548, SCALE 1:62,500 (1965)
 - 8) CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.
 - 9) BERGQUIST, J.R., BANKS, N.G., AND BLACET, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELOY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-990.
 - 10) YEEND, W., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE PICACHO MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUDIES MAP, MF-778.

11) WILSON, E.D. 1969 MINERAL DEPOSITS OF THE GILA RIVER INDIAN RESERVATION ARIZONA: ARIZ. BUR. MINES BULL. 179
34 P.

RECORD 00328

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030470
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... MINERAL CREEK DISTRICT

MINING DISTRICT/AREA/SUBDIST. MINERAL CREEK DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 0024000 SONORA, ARIZ.

LATITUDE LONGITUDE
33-10- N 111- - W

TWP..... 03S
RANGE..... 13E

ALTITUDE.. 2200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BETWEEN RAY AND SONORA, ARIZ.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN AG AU

MAIN COMMOD..... CU MO
MINOR COMMOD..... AG AU PB ZN

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, CHALCOHITE

MINOR ORE MINERALS:

MOLYBDENITE, BORNITE, GALENA, SPHALERITE, TENNANTITE, TETREHEDRITE, COPPER, CUPRITE, CHRYSOCOLLA, COVELLITE,
SILVER AZURITE, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SEC. ENRICH., VEINS, DISSEM, BRECCIA PIPES
FORM/SHAPE OF DEPOSIT: TABULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE

PRODUCTION

YES

MEDIUM PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... APACHE GROUP AND PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. CRET - TERT

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY AND RELATED PLUTONIC ROCKS

AGE OF MINERALIZATION..... TERT. (60 M.Y.)

GENERAL REFERENCES

- 1) MEIZ, R.A., AND A.W. ROSE (1966) GEOLOGY OF THE RAY COPPER DEPOSIT, RAY, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.). UNIV. ARIZ. PRESS, TUCSON: 177-188.
- 2) PHILLIPS, C.H., GAMBELL, N.A., AND FOUNTAIN, D.S., 1974, HYDROTHERMAL ALTERATION, MINERALIZATION, AND ZONING IN THE RAY DEPOSIT: ECON. GEOL. V. 69, NO. 8, P. 1237-1250.
- 3) CORNWALL, H.R., BANKS, N.G., AND PHILLIPS, C.H., 1971-1972, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1021.
- 4) ANDERSON, C.A., 1968, ARIZONA AND ADJACENT NEW MEXICO, IN ORE DEPOSITS OF THE UNITED STATES, 1933-1967: RIDGE, J.O., ED., AIME GRATON-SALES VOLUME, V. 2, P. 1163-1190.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 8) BANKS, N.G., 1976, HALOGEN CONTENTS OF IGNEOUS MINERALS AS INDICATORS OF MAGMATIC EVOLUTION OF ROCKS ASSOCIATED WITH THE RAY PORPHYRY COPPER DEPOSIT. ARIZONA: U.S. GEOL. SURVEY JOUR. RESEARCH V. 4, P. 91-117.
- 9) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN Biotite AND Biotite ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOL. SURVEY, V. 2, NO. 2, P. 195-211.
- 10) BANKS, N.G., 1977, MAGMATIC BEHAVIOR OF CU, S, CL, F, AND H₂O IN IGNEOUS ROCKS ASSOCIATED WITH THE RAY PORPHYRY COPPER DEPOSIT, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT NO. 77-500, 28 P.
- 11) BANKS, N.G., AND PAGE, N.J., 1977, SOME OBSERVATIONS THAT BEAR ON THE ORIGIN OF PORPHYRY COPPER DEPOSITS: U.S. GEOL. SURVEY, OPEN-FILE REP. NO. 77-127, 14 P.
- 12) BANKS, N.G., AND STUCKLESS, J.S., 1973, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA: PART II, FISSION-TRACK AGES: ECON. GEOL., V. 68, NO. 5, P. 657-664.

- 13)BANKS, N.G., 1973, BIOTITE AS A SOURCE OF SOME OF THE SULFUR IN PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 68, NO. 5, P. 697-703.
- 14)BANKS, N.G., CORNWALL, H.R., SILBERMAN, M.L., CREASEY, S.C., AND MARVIN, R.F., 1972, CHRONOLOGY OF INTRUSION AND ORE DEPOSITION AT RAY, ARIZONA; PART I, K-AR AGES: ECON. GEOL., V. 67, NO. 7, P. 864-878.
- 15)CLARKE, D.M., JR., 1952, STRUCTURAL CONTROL OF ORE DEPOSITION AT RAY, ARIZONA: ARIZONA GEOL. SOC. GUIDEBOOK FOR FIELD EXCURSIONS IN SOUTHERN ARIZONA, P. 91-95.
- 16)CLARKE, D.M., JR. (1953) GEOCHEMICAL PROSPECTING FOR COPPER AT RAY, ARIZONA. ECON. GEOL. 48: 39-45.
- 17)CORNWALL, H.R., AND BANKS, N.G., 1977, IGNEOUS ROCKS AND COPPER MINERALIZATION IN THE RAY PORPHYRY COPPER DISTRICT, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP. 77-255, 11 P.
- 18)CREASEY, S.C., AND DISTLER, R.W., 1962, AGE OF SOME COPPER BEARING PORPHYRIES AND OTHER IGNEOUS ROCKS IN SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1962: U.S. GEOL. SURVEY PROF. PAPER 450-D, P. D1-D5.
- 19)CREASEY, S.C., D.W. PETERSON, AND N.A. GAMBELL (1975), PRELIMINARY GEOLOGIC MAP, TEAPOT MOUNTAIN QUAD, ARIZONA, U.S.G.S. OPEN FILE REPORT 75-314
- 20)DAMON, P.E. 1968, POTASSIUM-ARGON DATING OF IGNEOUS AND METAMORPHIC ROCKS WITH APPLICATIONS TO THE BASIN RANGES OF ARIZONA AND SONORA, IN HAMILTON, E.T., AND FARQUHAR, R.M., EDS. RADIOMETRIC DATING FOR GEOLOGISTS: NEW YORK, INTERSCIENCE PUBLISHERS, P. 1-71.
- 21)DAMON, P.E., AND MAUGER, R.L., 1966, EPEIROGENY-OROGENY VIEWED FROM THE BASIN RANGE PROVINCE: SOC. MINING ENGINEERS TRANS., V. 235, P. 99-111.
- 22)DAMON, P.E., ET AL., 1970, NEW K-AR DATES FOR THE SOUTHERN BASIN AND RANGE PROVINCE, IN ANNUAL PROGRESS REPORTS TO RESEARCH DIVISION: U.S. ATOMIC ENERGY COMM., JUNE 1970, P. 38.
- 23)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P., P. 99, 78, 64.
- 24)GAMBELL, N.A., 1978, GEOLOGY AND MINERALIZATION OF RAY SILICATE OREBODY, PINAL COUNTY, ARIZONA (ABS.), IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 35.
- 25)GOWING, F.A., 1904, NOTES ON GEOLOGY OF MINERAL CREEK DISTRICT, PINAL COUNTY, ARIZONA: MIN. REPORTER, V. 49, P. 501-504 (1904)
- 26)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA; ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 27)HEINDL, L.A., 1959, STRATIGRAPHIC RELATIONSHIPS OF THE WHITETAIL AND GILA CONGLOMERATES NEAR RAY, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 70, NO. 12, P. 1724-1725 (1959)
- 28)JAMES, A.H., 1971, HYPOTHETICAL DIAGRAMS OF SEVERAL PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 66, NO. 1, P. 43-47.
- 29)JAMES, A.H., 1970, HYPOTHETICAL DIAGRAMS OF SEVERAL PORPHYRY COPPER DEPOSITS (ABS.): ECON. GEOL., V. 64, NO. 7, P. 833.
- 30)KEITH, W.J., AND THEODORE, T.G., 1978, TERTIARY VOLCANIC ROCKS OF THE MINERAL MOUNTAIN AND TEAPOT MOUNTAIN QUADRANGLES, PINAL COUNTY, ARIZONA (ABS): GEOL. SOC. AM., ABSTR. WITH PROGRAMS, V. 10, NO. 7, P. 433.
- 31)KEITH, W.J., THEODORE, T.G., AND CREASEY, S.C., 1978, TERTIARY VOLCANIC SEQUENCE AT MINERAL MOUNTAIN IN ARIZONA (ABS.): U.S. GEOL. SURVEY, PROF. PAPER 1100, P. 192-183.
- 32)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 33)KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 34)KRIEGER, M.H., CORNWALL, H.R., AND BANKS, N.G., 1968, BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: U.S. GEOL. SURVEY BULL. 1394-A, P. 54-62.
- 35)KRIEGER, M.H., 1973, MEGABRECCIAS (LARGE LANDSLIDE BLOCKS) INTERBEDDED IN MIOCENE PLAYA AND ALLUVIAL DEPOSITS, SOUTH OF RAY, ARIZONA (ABS.): GEOL. SOC. AMERICA ABSTRACTS WITH PROGRAMS, V. 5, NO. 7, P. 699-700.
- 36)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 37)LIVINGSTON, D.E., MAUGER, R.L., AND DAMON, P.E., 1968, GEOCHRONOLOGY OF THE EMPLACEMENT, ENRICHMENT, AND PRESERVATION OF ARIZONA PORPHYRY COPPER DEPOSITS: ECON. GEOL., V. 63, P. 30-36.
- 38)METZ, ROBERT A. 2. (AND PHILLIPS, C.H., AND CAVINESS, C.R.) RECENT DEVELOPMENTS IN THE GEOLOGY OF THE RAY AREA: ARIZ. GEOL. SOC., S. ARIZ. GUIDEBOOK III, P. 137-145, ILLUS. (1968)
- 39)MOURBATH, S., HURLEY, P.M., AND FAIRBAIRN, H.W., 1967, EVIDENCE FOR THE ORIGIN AND AGE OF SOME MINERALIZED LARAMIDE INTRUSIVES IN THE SOUTHWESTERN UNITED STATES FROM STRONTIUM ISOTOPE AND RUBIDIUM-STRONTIUM MEASUREMENTS: ECON. GEOL. V. 62, NO. 2, P. 228-236.

- 40)PHILLIPS, C.H., H.R. CORNWALL, AND M. RUBIN (1971) A MIOCENE ORE BODY OF COPPER OXIDES AND CARBONATES AT RAY, ARIZONA. ECON. GEOL. 66: 495-498.
- 41)RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 42)RANSOME, F.L., 1915, THE COPPER DEPOSITS OF RAY AND MIAMI, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 115, 192 P.
- 43)SCHMIDT, E.A. (1971) A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA. UNIVERSITY OF ARIZONA, UNPUBLISHED PHD THESIS, 248 P.
- 44)STEPHENS, J.D., AND METZ, R.A., 1968, COPPER-BEARING CLAY MINERALS IN OXIDIZED PORTIONS OF THE DISSEMINATED COPPER DEPOSITS AT RAY, ARIZONA: GEOL. SOC. AMERICA ANN. MEETING (1967) PROGRAM, NEW ORLEANS, LA., P. 213; GEOL. SOC. AMERICA SPEC. PAPER 115, P. 213.
- 45)STEPHENS, J.D., AND METZ, R.A., 1967, THE OCCURRENCE OF COPPER BEARING CLAY MINERALS IN OXIDIZED PORTIONS OF THE DISSEMINATED COPPER DEPOSIT AT RAY, ARIZONA (ABS.): ECON. GEOL., V. 62, NO. 6, P. 876-877.
- 46)THEODORE, T.G., AND KEITH, W.J., 1978, CALC-ALKALINE INTRUSIVE RELATIONS AT MINERAL MOUNTAINS IN ARIZONA (ABS.): U.S. GEOL. SURV., PROF. PAPER 1100, P. 186.
- 47)THEODORE, T.G., KEITH, W.J., AND CREASEY, S.C., 1978, CALC-ALKALIC INTRUSIVE ROCKS AT MINERAL MOUNTAIN, SOUTH SOUTH-CENTRAL ARIZONA (ABS.): U.S. GEOL. SURV., PROF. PAPER 1100, P. 74.
- 48)THEODORE, T.G., KEITH, W.J., TILL, A.B., AND PETERSON, J.A., AND CREASEY, S.C., 1978, PRELIMINARY GEOLOGIC MAP OF THE MINERAL MOUNTAIN 7.5 MINUTE QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REP. NO. 78-468.

RECORD 00329

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M000385
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210902
MAP CODE NO. OF REC..

REPORTER

UPDATED..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... NINETY-ONE MINE
MINING DISTRICT/AREA/SUBDIST. DRIPPING SPRINGS DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0074000 SONORA ARIZ.

LATITUDE LONGITUDE
33-08-18N 110-54-28W

TWP..... 03S
RANGE..... 14E
SECTION.. 27
MERIDIAN. GCSR

ALTITUDE.. 3795

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE SW OF TRDY SITE; 1/4 MILE NE OF BUCKEYE MINE

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB MO V

MAIN ORE MINERALS:
OXIDE CU, PB, MO AND V MINERALS

MINOR ORE MINERALS:
WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT

FORM/SHAPE OF DEPOSIT: LENTICULAR BUNCHES

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT WAS APPARENTLY 150 FT DEEP WITH THREE LEVELS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 AG	EST	.05	OZ	1945-1955	
16 CU	EST	.1	LBS		
17 PB	EST	1	LB		

SOURCE OF INFORMATION (PRODUCTION).. ABM FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... MESCAL LIMESTONE, DIABASE, DRIPPING SPRING QUARTZITE

AGE OF MINERALIZATION..... LCRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. ALONG BEDDING PLANES IN LIMESTONE INCLUSIONS IN DIABASE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

1180E STEEPLY DIPPING VEIN

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

TR2 DIKES (PHYODACITE PORPHYRY DIKES) DILUTE TO 91 MINE MINERALIZATION (63 M.Y.) AN EARLIER MO MINERALIZATIVE
IN E PORT OF RATTLER GRANODIORITE (SEC. 23 & 26, T 35, R 14 E) (IS MORE PROMISING)?

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS IN JOINTS IN FRACTURED DRIPPING SPRING QUARTZITE AS PRODUCT OF OXIDATION.

GENERAL COMMENTS

THREE SAMPLES BY AN R.F.C. ENGINEER RUN 0.8, 0.16, AND 1.16% MO. THE ENGINEER CONSIDERED THAT EVIDENCE INDICATED ONLY A SMALL BUNCH OF THE 1.16% MATERIAL.

GENERAL REFERENCES

- 1) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS., P. 24.
- 2) CORNWALL, H.R., BANKO, N.G., AND PHILLIPS C.H., 1971, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD MAP GQ-1201.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 5) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A MER. MINERAL., V. 19, P. 209-220.
- 6) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-11R8.
- 4) GEOLOGY OF NEARBY AREAS:
 - ZELINSKI, W.P., 1973, GEOLOGIC EVALUATION OF THE KELVIN COPPER-MOLYBDENUM PROSPECT, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, NEW MEXICO M AND T
 - 5) EVENSEN, JAMES, GEOLOGY OF THE COPPER HILL AREA, WINKELMAN, ARIZONA: UNIV. ARIZ., MS THESIS, 45 P. (1961)
 - 6) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE GRAYBACK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUADRANGLE MAP GQ-1206.
 - 7) SCHWARTZ, ROLAND J., DETAILED GEOLOGICAL RECONNAISSANCE OF THE CENTRAL TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 82 P. (1954)
 - 8) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE WINKELMAN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1106.
 - 9) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE CROZIER PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1107.
 - 10) SCHMIDT, EBERHARD A., 1971, A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 248 P.
 - 11) SCHMIDT, E.A., 1967, GEOLOGY OF THE MINERAL MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 111 P.
 - 12) KRIEGER, MEDORA H. 11. GEOLOGIC MAP OF THE CROZIER PEAK QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., SCALE 1:24,000 (1968)
 - 13) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1109.
 - 14) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE BLACK MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1108.
 - 15) KRIEGER, M.H., 1974, GENERALIZED GEOLOGY AND STRUCTURE OF THE WINKELMAN 15-MINUTE QUADRANGLE AND VICINITY, PINAL AND GILA COUNTIES, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 3, P. 311-321.
 - 16) KRIEGER, MEDORA H. 16. GEOLOGIC MAP OF THE WINKELMAN QUADRANGLE, ARIZONA: OPEN-FILE REP., SCALE 1:24,000 (1968)
 - 17) KRIEGER, MEDORA H. 15. GEOLOGIC MAP OF SADDLE MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: USGS MAP GQ-671, SCALE 1:24,000, TEXT (1968)
 - 18) WILLIAMS, S.A., AND ANTHONY, J.W., 1970, HEMITHEORITE, A NEW MINERAL FROM ARIZONA: AMER. MIN., V. 55, P. 1088-1102.
 - 19) BARRETT, L.F., 1972, IGNEOUS INTRUSIONS AND ASSOCIATED MINERALIZATION IN THE SADDLE MOUNTAIN MINING DISTRICT, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. UTAH, 89 P.
 - 20) BKADFISH, L.J., 1979, PETROGENESIS OF THE TEA CUP GRANDDIORITE, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 160 P.
 - 21) ROSS, C.P. (19258) GEOLOGY OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS. U.S. GEOL. SURVEY BULL. 771, 72 P.
 - 22) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 23) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.

- 24)VALENTINE, JEFFREY, THESTS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
- 25)WILLDEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY, BULL. 1161-E, 64 P.
- 26)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
- 27)KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL INV. RES. MAP MR-55, 21 P.
- 28)KRIEGER, M.H. (1977) LARGE LANDSLIDES, COMPOSED OF MEGABRECCIA, INTERBEDDED IN MIOCENE BASIN DEPOSITS, SOUTHEASTERN ARIZONA: USGS PROFESSIONAL PAPER 1008, 25 P.
- 29)KRIEGER, M.H., CORNHALL, H.R. N.G. BANKS (1968) BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: USGS BULLETIN 1394-A, P. A54 - 62.

RECORD 00330

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030466
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210024
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... OLD RELIABLE MINE

MINING DISTRICT/AREA/SUBDIST. BUNKER HILL DIST./COPPER CREEK AREA/GALUIRD MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE

LATITUDE LONGITUDE
32-45-08N 110-29-23W

UTM NORTHING UTM EASTING UTM ZONE NO
3623700. 547780. +12

TWP..... 08S
RANGE.... 18E
SECTION.. 10
MERIDIAN. G & SR.

ALTITUDE.. 3900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: WEST OF COPPER CREEK

LOCATION COMMENTS: OLD RELIABLE MINE IS CENTER SEC 10, BUNKER HILL MINE IS CENTER OF WEST 1/2 SEC 14, MAGNA MINE IS
NW 1/4 SEC. 23.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU
MINOR COMMOD..... MO

MAIN ORE MINERALS:
PYRITE

MINOR ORE MINERALS:
MOLYBDENITE, CHALCOCITE, MALACHITE, SCARCE CHALCOPYRITE, COVELLITE, BORNITE, TETRAHEDRITE, ATACAMITE, BORITE,
OLIVENITE

ANALYTICAL DATA(GENERAL)

ACCORDING TO WEED (1913), THE COPPER CONTENT OF THE VARIOUS ORE BLOCKS RANGED FROM 2.13-4.06 PERCENT, AND THE AVERAGE WAS 2.71 PERCENT. CONCENTRATE FROM THE MINE AT THAT TIME ASSAYED 17.81 PERCENT COPPER, 17.26 PERCENT IRON, 20.52 PERCENT SULFUR, AND 42.10 INSOLUBLE MATERIAL. DENTON REPORTS THAT MIXED OXIDE-SULFIDE ORE FROM THE 100 LEVEL ASSAYED 3.65 PERCENT COPPER, AND SULFIDE ORE FROM THE SAME LEVEL, 1.20 PERCENT COPPER. ORE IN THE RAISE FROM THE 100 LEVEL TO THE SURFACE CONTAINED 0.22-2.17 PERCENT COPPER AND AVERAGED 0.86 PERCENT. (SIMONS, 1964, P. 164)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNER 1976 WAS RANCHERO EXPLORATION AND DEVELOPMENT CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE

FORM/SHAPE OF DEPOSIT: FUNNEL SHAPED

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

COMMENTS(DESCRIPTION OF DEPOSIT):

BRECCIA PIPE IS 600 FT LONG NW BY 200-300 FT WIDE IN SURFACE.

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 2200 FT

COMMENTS(DESCRIP. OF WORKINGS):

2 ADIT LEVELS 100 FT APART-VERTICALLY, 3 CONNECTING WINZES AND A RAISE TO THE SURFACE.

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 LEACH CU	ACC	5992	LBS	1973	GREELEY, 1976, P. 27
2 LEACH CU	ACC	2175	LBS	1974	GREELEY, 1976, P. 27
3 LEACH CU	ACC	467	LBS	1975	GREELEY, 1976, P. 27

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERRUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC		6.83	TONS	1922-1975	
16 CU ACC		10457	LBS	1922-1975	
17 AG ACC		0.86	OZ	1922-1975	

SOURCE OF INFORMATION (PRODUCTION).. SIMONS, 1964, P. 162 (DENTON, 1947); ARM FILE DATA

PRODUCTION COMMENTS.... PRODUCTION UNKNOWN THOUGH MOST OF COPPER STATES MINING CO'S PRODUCTION (30,000 T ORE CONCENTRATED AND 700,000 LBS COPPER) PRODUCED BETWEEN 1908-1919.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE OR USE
1 OXIDE CU	EST	4000	TONS	1971	0.74% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1976, P. 96

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. (68 M.Y.)
 HOST ROCK TYPES..... COPPER CREEK GRANODIORITE AND ANDESITE TUFF (ALTERED GLORY HOLE VOLCANICS AND BIOTITE LATITE PORPHYRY)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y.)
 IGNEOUS ROCK TYPES..... COPPER CREEK GRANODIORITE

AGE OF MINERALIZATION..... CRET. (68 M.Y. CREASEY AND KISTLER 1962)

PERTINENT MINERALOGY..... CEMENTING MATERIAL IS QUARTZ, SERICITE, AND SULPHIDES (KUHN)

IMPORTANT ORE CONTROL/LOCUS.. BRECCIA PIPES AND VEINS NEAR CONTACT OF GRANODIORITE AND ANDESITE TUFF

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 MOST FAULTS STRIKE E-W WITH N60E SYSTEM LESS DEVELOPED

SIGNIFICANT ALTERATION:
 CENTRAL PART OF PIPE IS HIGHLY SILICIFIED (KUHN 1941, P. 521)

GENERAL REFERENCES

- 1) GUTHRIE, J.O., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, CALIUD MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC. DIGEST, V. 11, P. 25-31.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY V. 36, NO. 5, P. 512-538, P. 521.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT 2: ARIZONA BUR. MINES BULL. 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR.

MINES BULL. 145, GEOL. SERIES 12: 127-130.

5)SIMONS, F.S., 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY
PROF. PAPER 461.

RECORD 00331

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030492
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1.2
FILE LINK ID..... USBM-0040210934
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... ORIZABA MINE
MINING DISTRICT/AREA/SUBDIST. SLATE DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
LAND CLASSIFICATION..... 47 (1979)

LATITUDE LONGITUDE
32-37-11N 111-54-42W

UTM NORTHING UTM EASTING UTM ZONE NO
3609250. 415400. +12

TWP..... 09S
RANGE.... 04E
SECTION.. 25 NW
MERIDIAN. G & S.R.

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NW OF JACKRABBIT MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB AG AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB
MINOR PRODUCTS.. CU AG

MAIN COMMOD..... AG
MINOR COMMOD.... CU MO PB AU

MAIN ORE MINERALS:
SILVER BEARING CERUSSITE

MINOR ORE MINERALS:
 LIMONITE, CHRYSOCOLLA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1883-4

BY WHOM..... JOHN KRON

YEAR OF FIRST PRODUCTION. 1880'S

YEAR OF LAST PRODUCTION. 1979

PRESENT/LAST OWNER..... A W ROBERT, 1971(ROBERT MINING CO)

EXPLOR. AND DEVELOP. COMMENTS:

6 CLAIMS AND A MILL SITE CLAIM, 1960'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT; FAULT ZONE

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N

DIP OF OREBODY..... 60-75 W

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

IN 1915 A DEEP VERTICAL SHAFT WAS DEVELOPED AND A SMALL MILL ERECTED; SHALLOW PITS, STOPES, AND OPENCUTS; SEVERAL THOUSAND FEET OF WORKINGS OLD PIT L-SHAPED, SW WINZE, 150 BY 75

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE EST		.005	TONS	1884	\$2000 IN AG

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC		156.271	TONS	1923-1978	0.4 OZ AG/T
16 AG ACC		63.840	OZ	1923-1978	
17 PB ACC		26.957	LB	1923-1978	
18 LB				1923-1978	
19 AU ACC		.005	OZ	1923-1978	

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	ORE ON DUMP	ES006	TONS	1864	45-100 AG

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. TENNEY, 1927-9

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... DEV
 HOST ROCK TYPES..... MARTIN FORMATION QUARTZITE AND SANDSTONE, PORPHYRITIC QUARTZ MONZONITE DIKE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY DIKES (TENNEY); PORPHYRITIC BIOTITE HORNBLENDE QUARTZ MONZONITE

AGE OF MINERALIZATION..... TERT

IMPORTANT ORE CONTROL/LOCUS.. RED CEMENTED SANDSTONE OVERLAIN BY SHALE AND LIMESTONE; 50 FT WIDE FRACTURED ZONE AT CONTACT CAMBRIAN QUARTZITE AND PERMIAN SANDSTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

50 FT WIDE FRACTURE ZONE AT CONTACT OF CAMBRIAN QUARTZITE AND PERMIAN SANDSTONE WHERE LS THRUST OVER QUARTZITE

COMMENTS (GEOLOGY AND MINERALOGY):

QUARTZITE DIPS NE. STRIKES NW. SOUTH

GENERAL REFERENCES

- 1) BLACET, P.M., BERGQUIST, J.R., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE SILVER REEF MOUNTAINS QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FILED STUDIES MAP MF-934.
- 2) GEOLOGY OF SILVER REEF DIST:
 - TENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
 - 3) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
 - 4) HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 5) HOGUE, W.G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 6) JOHNSTON, W.P., 1972 K-AR DATES ON INTRUSIVE ROCKS AND ALTERATION ASSOCIATED WITH THE LAKESHORE PORPHYRY COPPER DEPOSIT PINAL COUNTY, ARIZONA: ISOCHRON/WEST NO. 4 P. 29-30.
 - 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 8) U.S. ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE AT ARIZONA BUREAU OF MINES.
- 3) GEOLOGY OF NEARBY AREAS:
 - BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
 - 4) DOCKTER, R.D. AND KEITH, W.J. 1978, RECONNAISSANCE GEOLOGIC MAP OF VEKOL MOUNTAINS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-931.
 - 5) BERGQUIST, J.R., BANKS, N.G., AND BLACET, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELDY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-990.
 - 6) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA,

IN SOUTHERN ARIZONA GUIDEBOOK 11, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.

7)CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSIT OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS

8)STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSIT, PIMA COUNTY, ARIZONA, (ABS) IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SUMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.

9)CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PRJC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.

10)CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSA QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.

11)CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.

12)SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ABS. 1959; GEOL. SOC. AM. SP. PAPER 121, P. 556-557

13)HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.

14)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.

15)WILSON, E.D. AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.

16)HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.

17)DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.

RECORD 00332

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000011
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 11
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... POMONA

MINING DISTRICT/AREA/SUBDIST. VEKOL DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 62500 VEKOL MINS

LATITUDE LONGITUDE
32-35-20N 112-07-44W

UTM NORTHING UTM EASTING UTM ZONE NO
3606100. 394050. +12

TWP..... 010S
RANGE.... 002E
SECTION.. 02
MERIDIAN. GCSR

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO ZN V AU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG

MAIN COMMOD..... PB AG

MINOR COMMOD.... MO ZN V AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	.001	TON		
16 PB	EST	.400	LBS		
17 AG	EST	.127	OZ		

SOURCE OF INFORMATION (PRODUCTION).. ABGNT FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS CRET.
HOST ROCK TYPES..... ESCABROSA LIMESTONE; CONGLOMERATE AND ANDESITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (?)
IGNEOUS ROCK TYPES..... VEKOL FM, CHIAPUK RHYOLITE AND PHONODOREE FM. (?)

GENERAL REFERENCES

- 1) STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSIT, PIMA COUNTY, ARIZONA, (ABS) IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDING OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.
- 2) VEKOL DIST.:
 - DOCKTER, R.D., AND KEITH, W.J., 1978, RECONNAISSANCE GEOLOGIC MAP OF VEKOL MOUNTAINS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-931.
 - 3) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS, 108 P.
 - 4) GREELYE, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
 - 5) HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
 - 6) CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.
 - 7) CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSA QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.
 - 8) CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.
 - 9) DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
 - 10) TENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
 - 11) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA

- LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P., P. 333-337.
- 12) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.
- 3) GEOLOGY OF VEKOL MTS AND NEARBY AREAS:
- BLACET, P.M., BERGQUIST, J.R., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE SILVER REEF MOUNTAINS QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDIES MAP MF-934.
- 4) WILSON, E.O. AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 5) HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.
- 6) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 7) HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
- 8) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK II, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.
- 9) SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABST.): ABS. 1969; GEOL. SOC. AM. SP. PAPER 121, P. 556-557.
- 10) HEINDL, L.A. AND MCCLYMONDS N.E., 1964, YOUNGER PRECAMBRIAN FORMATIONS AND THE BOLSA (?) QUARTZITE OF CAMBRIAN AGE, PAPAGO INDIAN RESERVATION, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH, 1964: U.S. GEOL. SURVEY PROF. PAPER 501-C, P. 143-146.
- 11) HOGUE, WILLIAM G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS.
- 4) GEOPHYDROLOGY OF S.W. PINAL CO:
- HOWARD, A.D. 2. PEDIMENT PASSES AND PEDIMENT PROBLEMS: JOUR. GEOMORPH., V. 5, NO. 1, P. 1-31 (1942); NO. 2, P. 95-136 (1942).
- 5) HOWARD, A.D. 1. PEDIMENT GAPS OF THE SACATON MOUNTAINS, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 51, P. 1930-1931 (1940).
- 6) PASHLEY, E.F., JR. 1. SUBSIDENCE CRACKS IN ALLUVIUM NEAR CASA GRANDE, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 4, P. 95-101 (1961).
- 7) POULSON, E.N. 1/2: (AND WILDERMUTH, R., AND HARPER, W.G.) SOIL SURVEY OF THE CASA GRANDE AREA, ARIZONA: U.S. DEPT. AGR., BUR. PLANT INDUSTR., SER. 1936, NO. 7, P. 1-94 (1941).
- 8) DENIS, C.E. (SEE ALSO AKERS, J.P., 2) GROUND-WATER CONDITIONS IN THE WATERMAN WASH AREA, MARICOPA AND PINAL COUNTIES, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 37, 23 P., ILLUS., TABLES (1968).
- 9) HARDT, WILLIAM F. (SEE ALSO COOLEY, MAURICE E., 7; KISTER, L.R., 2; WHITE, NATALIE D., 5) 1. (AND CATTANY, R.E., AND KISTER, L.R.) BASIC GROUND-WATER DATA FOR WESTERN PINAL COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 18, 59 P. (1964).
- 10) HARDT, WILLIAM F. 2. (AND CATTANY, R.E.) DESCRIPTION AND ANALYSIS OF THE GEOPHYDROLOGIC SYSTEM IN WESTERN PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. 92 P. (1965).
- 11) KEM, J.D. 3. QUALITY OF WATER IN LOWER SANTA CRUZ AREA: USGS OPEN-FILE REP., P. 135-136 (1952).
- 12) KISTER, L.R. 2. (AND HARDT, WILLIAM F.) SALINITY OF THE GROUND WATER IN WESTERN PINAL COUNTY, ARIZONA: USGS WATER-SUPPLY PAPER 1919-E, 21 P., ILLUS., TABLES (1966).
- 13) SKIBITZKE, H.E. 2. (AND YOST, C.B., JR.) LOCATION OF SITES FOR IRRIGATION WELLS NEAR CHIU CHUISCHU, PAPAGO INDIAN RESERVATION, PINAL COUNTY, ARIZONA: USGS GROUND-WATER BRANCH OPEN-FILE REP., 6 P. (1951).
- 14) YOST, C.B., JR. (SEE ALSO ARMSTRONG, C.A.; FETH, J.H., 10; SKIBITZKE, H.E., 1,2) GEOPHYSICAL AND GEOLOGICAL RECONNAISSANCE TO DETERMINE GROUND-WATER RESOURCES OF CHIU CHUISCHU AREA, PAPAGO INDIAN RESERVATION, ARIZONA: USGS MIMED. REP., 19 P., ILLUS., MAP (1953).

RECORD 00333

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030479
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... POSTON BUTTE
SYNONYM NAME..... FLORENCE

MINING DISTRICT/AREA/SUBDIST. POSTON BUTTE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 FLORENCE ARIZ.

LATITUDE LONGITUDE
33-02-48N 111-25-45W

UTM NORTHING UTM EASTING UTM ZONE NO
3656 460 .

TWP..... 04S
RANGE.... 09E
SECTION.. 28
MERIDIAN. G & SR

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NW OF FLORENCE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PROPERTY IS ACTIVE
PRESENT/LAST OWNER..... CONOCO

EXPLOR. AND DEVELOP. COMMENTS:
AZTEC EXPLORATION AND DEVELOPEMTN OPERATED IN 1970.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
POR. CU.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 MIXED OXS SULF.	500000	TONS	1972	0.50% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. CREELEY, MN, 1976, P. 84

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
HOST ROCK TYPES..... QUARTZ MONZONITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY

AGE OF MINERALIZATION..... TERT. (63.4 +/- 1.5 M.Y.)

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SEKICITE AND KAOLINITE

COMMENTS (GEOLOGY AND MINERALOGY):
HOST ROCK INTO WHICH PORPHYRY WAS EMPLACED IS PREC

GENERAL REFERENCES

- 1) YEFEND, W., 1976, RECONNAISSANCE GEOLOGIC MAP OF THE PICACHO MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY, MISC. FIELD STUDIES MAP, MF-778.
- 2) WILSON, E.O., 1969, MINERAL DEPOSITS OF THE GILA RIVER INDIAN RESERVATION ARIZONA: ARIZ. BUR. MINES, BULL. 179, 34 P.
- 3) BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
- 4) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 5) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 6) JULLMER, E., 1978, SACATON MINE AREA, PINAL COUNTY, ARIZONA (ABS.), IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 235-236.
- 7) GERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF PART OF THE CASA GRANDE MOUNTAINS QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP., NO. 78-547, MAP.
- 8) MITCHELL, C.M., 1. (AND ZANDLE, G.L.) AEROMAGNETIC MAP OF THE CASA GRANDE AREA, MARICOPA AND PINAL COUNTIES,

ARIZONA: USGS GEOPHYS. INV. MAP GP-54H, SCALE 1:62,500 (1955)

9)CHAFFEE, M.A., AND HESSIN T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.

10)BERGQUIST, J.R., BANKS, N.G., AND BLACET, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELOY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-990.

RECORD 00334

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030482
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210999
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... RAINBOW GROUP
SYNONYM NAME..... SEE CLARK AND SWEDE

MINING DISTRICT/AREA/SUBDIST. SUMMIT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

TWP..... 01S

RANGE..... 13E

SECTION.. 12

POSITION FROM NEAREST PROMINENT LOCALITY: 6 MILES NE OF SUPERIOR

COMMODITY INFORMATION

COMMODITIES PRESENT..... W CU MO

MAIN COMMOD..... W
MINOR COMMOD..... CU MO

GENERAL REFERENCES

- 1) ABM FILE PAGE
- 2) USBM RI 5516

RECORD 00335

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4000334
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... RARE METALS MINE

MINING DISTRICT/AREA/SUBDIST. RIVERSIDE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

DRAINAGE AREA..... 15050100

QUAD SCALE QUAD NO OR NAME
1: 0024000 GRAYBACK ARIZ.

LATITUDE LONGITUDE
33-05-30N 111-02-01W

UTM NORTHING UTM EASTING UTM ZONE NO
3661270. 496140. 12

TWP..... 04S
RANGE..... 13E
SECTION.. 08 09 15
MERIDIAN. G&SR

ALTITUDE.. 2200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MI. W OF KELVIN 1 MILE S OF GILA R.

LOCATION COMMENTS: SE 1/4 OF 5; SW 1/4 OF 9

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU MO

MAIN ORE MINERALS:

CHALCOHITE, PYRITE

MINOR ORE MINERALS:

MOLYBDENITE FERRIMOLYBDITE A77 MALACHITE, CHRYSOCOLLA

ANALYTICAL DATA(GENERAL)

PHK--5-69: MOLYBDENITE, RARE METALS MINE, ZELLEWEGER WASH. 1.7 KM SOUTH OF THE GILA RIVER, GRAYBACK QUADRANGLE, TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA. 33 05'26" N, 111 01'56" W. QUARTZ VEINLETS OCCUR ALONG THE CONTACT BETWEEN ALTERED PRECAMBRIAN RUIN GRANITE AND A LARAMIDE QUARTZ MONZONITE PORPHYRY DIKE. THE QUARTZ VEINLETS CONTAIN MOLYBDENITE ROSETTES AND CHALCOPYRITE. SE WAS NOT DETERMINED.

MO 50.5 %

			B	0.010		
MG	0.0068					
AL	1.4					
SI	3.1					
CA	0.14					
TI	TR-0.002 & MN	0.13 & FE	1.4 & CU	0.099 & ZN	0.69	
AG	0.0015					
PB	0.12					

		NA	ND-0.10 & K	ND-0.30 & V	ND-0.004 & CR	ND-0.002 & GA
ND-0.05 & GE	ND-0.01 & SR	ND-0.01 & NB	ND-0.08 & RU	ND-0.02 & RH	ND-0.03 & SN	ND-0.01 & E
SB	ND-0.03 & TE	ND-0.10 & TA	ND-1.0 & W	ND-0.10 & RE	ND-0.07 & PT	ND-0.01 & TL
ND-0.80 & BE	ND-0.002 & U	ND-0.30 & E		MO52	84.3 %	

			B203	0.032		
MGU	0.011					
AL2O3	2.6					
SiO2	6.6					
CAO	0.20 & TiO2	TR-0.003 & MNS	0.21 & FES2	3.0 & CUS	0.15	
ZNS	1.0					
AG2S	0.0017					
PBS	0.14					

TOTAL 98.2 % (KUCK, 1978, P. 185)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHAFTS AND DIAMOND DRILL HOLES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. PREC.
 HOST ROCK TYPES..... TEACUP GRANODIORITE UNTRUDES RUIN GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (62.9 +/- 1.3 K-AR DAMON) (61.4 +/- 3.2 STUCKLERS
 IGNEOUS ROCK TYPES..... TEA CUP GRANODIORITE; QUARTZ MONZONITE PORPHYRY DIKE WAS 63.1 +/- 1.3 M.Y. (DAMON
 1970)

AGE OF MINERALIZATION..... TERT. (62.9 M.Y.)

PERTINENT MINERALOGY..... LIMONITE WIDESPREAD

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 SHEAR FAULT 40 FT. WIDE

SIGNIFICANT ALTERATION:
 QUARTZ AND SERICITE

COMMENTS (GEOLOGY AND MINERALOGY):
 UA # 9488 A77 FERRIMOLYBDITE

GENERAL COMMENTS

VEIN IN GRANITE SAID BY OWNER TO CARRY 2 1/2 % CU, AND 2 1/2% MO AS SULFIDES AT BOTTOM OF 84 FT SHAFT. 8 SHAFTS
 RAN FROM 10 TO 84 FT. DEPTH. A SHEAR FAULT 40 FT WIDE WAS DRILLED AND "A STRONG MOLYBDENUM SHOWING" WAS CUT AT 195
 FT.

GENERAL REFERENCES

- 1) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.
 180, P. 230-238, P. 236, #25.
- 2) KING, R.U., 1970, MOLYBDENUM IN THE UNITED STATES (EXCLUSIVE OF ALASKA AND HAWAII): U.S. GEOL. SURVEY MINERAL
 INV. RES. MAP MR-55, 21 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255
 P., P. 102
- 4) KUCK, P.H., 1976, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT:
 UNPUB. PHD THESIS, UNIV. ARIZ., P. 185.
- 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 6) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE GRAYBACK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S.
 GEOL. SURVEY, GEOL. QUADRANGLE MAP GQ-11206.
- 7) BRADFISH, L.J., 1979, PETROGENESIS OF THE TEA CUP GRANODIORITE, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS,
 UNIV. ARIZ., 160 P.
- 8) SCHMIDT, EBERHARD A., 1971, A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY,
 ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 248 P.
- 9) SCHMIDT, E.A., 1967, GEOLOGY OF THE MINERAL MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS,
 UNIV. ARIZ., 111 P.
- 10) CORNWALL, H.R., AND KRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S.
 GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-1188.
- 11) ZELINSKI, WP., 1973, GEOLOGIC EVALUATION OF THE KELVIN COPPER-MOLYBDENUM PROSPECT, PINAL COUNTY, ARIZONA:
 UNPUB. M.S. THESIS, NEW MEXICO M AND T

- 12)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORT AND FILE RECORDS
- 13)DAMON, P.E., 1970 CORRELATION AND CHRONOLOGY OF THE ORE DEPOSITS AND VOLCANIC ROCKS: ATOMIC ENERGY COMM. ANN. REPORT NO. CDO-689-130 P. 38.
- 4) GEOLOGY OF NEARBY AREAS:
- CORNWALL, H.R., BANKS, N.G., AND PHILLIPS, C.H., 1971, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD MAP GQ-1021.
- 5)KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE WINKELMAN QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD. MAP GQ-1106.
- 6)KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE CROZIER PEAK QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1107.
- 7)SCHWARTZ, ROLAND J., DETAILED GEOLOGICAL RECONNAISSANCE OF THE CENTRAL TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 92 P. (1954)
- 8)EVENSEN, JAMES GEOLOGY OF THE COPPER HILL AREA, WINKELMAN, ARIZONA: UNIV. ARIZ., MS THESIS, 45 P. (1961)
- 9)RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS.
- 10)KRIEGER, MEDORA H. 11. GEOLOGIC MAP OF THE CROZIER PEAK QUADRANGLE, ARIZONA: USGS OPEN-FILE REP., SCALE 1:24,000 (1968)
- 11)KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1109.
- 12)KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE BLACK MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1108.
- 13)KRIEGER, M.H., 1974, GENERALIZED GEOLOGY AND STRUCTURE OF THE WINKELMAN 15-MINUTE QUADRANGLE AND VICINITY, PINAL AND GILA COUNTIES, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 3, P. 311-321.
- 14)KRIEGER, MEDORA H. 15. GEOLOGIC MAP OF SADDLE MOUNTAIN QUADRANGLE, PINAL COUNTY, ARIZONA: USGS MAP GQ-671, SCALE 1:24,000, TEXT (1969)
- 15)KRIEGER, MEDORA H. 16. GEOLOGIC MAP OF THE WINKLEMAN QUADRANGLE, ARIZONA: OPEN-FILE REP., SCALE 1:24,000 (1966)
- 16)BARRETT, L.F., 1972, IGNEOUS INTRUSIONS AND ASSOCIATED MINERALIZATION IN THE SADDLE MOUNTAIN MINING DISTRICT, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. UTAH, 99 P.
- 17)ROSS, C.P. (1925B) GEOLOGY OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS. U.S. GEOL. SURVEY BULL. 771, 72 P.
- 18)VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
- 19)WILLDEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY, BULL. 1161-E, 64 P.
- 20)KRIEGER, M.H. (1977) LARGE LANDSLIDES, COMPOSED OF MEGABRECCIA, INTERBEDDED IN MIOCENE BASIN DEPOSITS, SOUTHEASTERN ARIZONA: USGS PROFESSIONAL PAPER 1008, 25 P.
- 21)KRIEGER, M.H., CORNWALL, H.R. N.G. BANKS (1968) BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN THE RAY-SAN MANUEL AREA, ARIZONA: USGS BULLETIN 1394-A, P. A54 - 62.

RECORD 00336

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030471
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210006
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... RAY MINE

MINING DISTRICT/AREA/SUBDIST. MINERAL CREEK DIST./TORTILLA-DRIPPING SPRING MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 SONORA, ARIZ.

LATITUDE LONGITUDE
33-10-28N 110-59-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3670400. 500500. +12

TWP..... 03S
RANGE.... 13E
SECTION.. 09 16 15 14 11
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 2200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BETWEEN TOWNS OF RAY AND SONORA, ARIZONA

LOCATION COMMENTS: SE 1/4 OF SEC 9, NE 1/4 OF SEC 16, S 1/2 OF SEC 10, N 1/2 OF SEC 15

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN AG AU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU

MINOR PRODUCTS.. AG AU MO

MAIN COMMOD..... CU MO

MINOR COMMOD.... PB ZN AG AU

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, AND CHALCOCITE (SECONDARY ENRICHMENT)

MINOR ORE MINERALS:

MOLYBDENITE AND BORNITE, TRACES OF GALENA AND SPHALERITE, TENNANTITE, TETRAHEDRITE; SECONDARY ENRICHED MINERALS INCLUDE NATIVE COPPER, CUPRITE, CHALCOTRICHITE, COVELLITE, NATIVE SILVER; AND OXIDATION PRODUCTS (FROM CHALCOPYRITE) OF CHRYSOCOLLA, AZURITE, AND MALACHITE.

ANALYTICAL DATA(GENERAL)

PRIMARY COPPER (AS CHALCOPYRITE) AVERAGES 0.1-0.2% IN PINAL SCHIST AND GRANITE MOUNTAIN PORPHYRY AND AVERAGES MORE THAN 0.4% IN DIABASE.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS ACTIVE

YEAR OF DISCOVERY..... MINING ACTIVITIES BEGAN ABOUT 1870; MINERALIZATION WAS NOTED IN 1846 BY THE ARMY OF THE WEST WHO NAMED THE AREA MINERAL CREEK

PRESENT/LAST OWNER..... KENNECOTT COPPER CO

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SECONDARY ENRICHMENT DISSEMINATED, VEINS
FORM/SHAPE OF DEPOSIT: TABULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 2 MI. E-W BY 1 1/2 MI N-S BY 1/4 MI DEEP

PRODUCTION

YES

MEDIUM PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		315000	TONS	1911-1976	
16 CU EST		27843742	LBS	1948-1976	LESS THAN 0.6%
17 AG EST		5137.799	OZ	1948-1976	.022 OZ/T
18 AU EST		34.089	OZ	1948-1976	.00015 OZ/T
19 MO ACC		4921	LBS	1967-1978	.0014% MO
20 CU EST		2200	TONS	1911-1928	0.4% CU (GAMBELL)
21 CU EST		1750	TONS	1911-1976	
22 AG EST		4500	OZ	1911-1976	
23 AU EST		45	OZ	1911-1976	
24 CU EST		578	TONS	1911-1931	RAY
25 ORE ACC		255376.5	TONS	1930-1978	

26 CU ACC 3093040. LBS 1930-1978

SOURCE OF INFORMATION (PRODUCTION).. ELSING AND HEINEMAN 1936 P. 99; CORNWALL AND BANKS, 1977

PRODUCTION COMMENTS.... 1950 & 1954 DATA MISSING.

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR
AG	ACC	7312.93	OZ	1930-1978
AU	ACC	109.981	OZ	1930-1978
MO	ACC	49219372	LBS	1930-1978

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SILICAT CU	ACC	3000	TONS	1978	GAMBELL, 1978
2 ORE EST		650000	TONS	1976	G.6

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. ARIZ. DEPT. MINERAL RESOURCES (GREELEY, 1978)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... PINAL SCHIST CONTAINS MOST OF SECONDARY CHALCOHITE, DIABASE SILLS CONTAIN HIGHEST CONCENTRATION OF PRIMARY SULFIDES. QUARTZOSE SEDIMENTARY ROCKS (DRIPPING SPRING QUARTZITE AND PIONEER SHALE) AND GRANITE MOUNTAIN PORPHYRY CONTAIN MINOR PRIMARY SULFIDES.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TERT (70-60 M.Y.A.)
 IGNEOUS ROCK TYPES..... GRANITE MOUNTAIN PORPHYRY IS MOST CLOSELY ASSOCIATED WITH ORE. THE LARAMIDE PLUTONS INCLUDE: TORTILLA QUARTZ DIORITE (70.5 M.Y.); RATTLER GRANODIORITE RANGES FROM QUARTZ DIORITE TO QUARTZ MONZONITE (69.8 M.Y.); TEACUP GRANODIORITE IN THE GRAYBACK QUADRANGLE RANGES FROM GRANODIORITE TO QUARTZ MONZONITE; GRANITE MOUNTAIN PORPHYRY IS MOSTLY GRANODIORITE AND PARTLY QUARTZ MONZONITE (60.8 M.Y.); TEAPOT MOUNTAIN PORPHYRY IS SIMILAR TO RHYODACITE PORPHYRIES BUT HAS LARGE PINK K-FELDSPAR PHENOCRYSTS AND QUARTZ MONZONITE COMPOSITION (63 M.Y.); RHYODACITE DIKES ARE SLIGHTLY LATER. (CORNWALL AND BANKS, 1977; BANKS AND STUCKLESS, 1973; BANKS, ETAL, 1972)

AGE OF MINERALIZATION..... TERT. (60 M.Y.A.; BANKS AND STUCKLESS, 1973)

PERTINENT MINERALOGY..... QUARTZ VEINS, CALCITE, RARE ANHYDRITE

IMPORTANT ORE CONTROL/LOCUS.. ORE DEPOSIT AND INTRUSION OCCUR AT INTERSECTION OF MAJOR NORTHWEST AND NORTHEAST TRENDING FAULT ZONES - THE PORPHYRY BREAK AND THE MAJOR FAULTS WHICH INTERSECT IT (METZ AND ROSE, 1966). THE HYPOGENE MINERALIZATION WAS CONTROLLED BY THE PERMEABILITY AND TYPE OF HOST ROCK AND BY THE ARRANGEMENT OF FAULTS. COPPER MINERALIZATION IS GREATEST IN HIGHLY FRACTURED ROCKS. DIABASE, THE BEST HOST FOR COPPER, PRESUMABLY REACTED MORE STRONGLY WITH THE MINERALIZING FLUIDS THAN DID THE MORE SILICEOUS ROCKS. THE ZONE OF SUPERGENE COPPER ENRICHMENT IS RELATED TO MAJOR STRUCTURES, AS WELL AS TO LITHOLOGY AND DISTRIBUTION OF PRIMARY SULFIDES. COPPER WAS LEACHED MOST THOROUGHLY FROM AREAS RICH IN PYRITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE ORE DEPOSIT IS BOUNDED ON THE EAST BY THE BROKEN HILL FAULT, ON THE WEST BY THE WEST END FAULT (HALF A MILE WEST OF THE QUADRANGLE BOUNDARY), ON THE NORTH BY THE NORTH END FAULT, AND ON THE SOUTH BY THE CONTACT BETWEEN THE PINAL SCHIST AND RUIN GRANITE, POSSIBLY BECAUSE THESE STRUCTURES ACTED AS BARRIERS TO MINERALIZATION OR AS BOUNDARIES BEYOND WHICH THERE WAS NO SEVERE FRACTURING (METZ AND ROSE, 1966).

THE THICK GAUGE ZONE OF THE LOW ANGLE EMPEROR FAULT INFLUENCED SECONDARY ENRICHMENT BY APPARENTLY FORMING A

PERCHED WATER TABLE RESULTING IN A HIGH GRADE CHALCOCITE BLANKET BELOW.

MOST OF THE PROMINENT FAULTS HAVE TWO OR MORE DISTINCT AGES OF MOVEMENT FROM PRECAMBRIAN TO MIOCENE ALONG WIDE ZONES. MOST FAULTS NORMAL, BUT REVERSE AND THRUST FAULTS ALSO OCCUR.

THE FAULTY DOMED EMPEROR FAULT, EXPOSED IN THE OPEN PIT MINE AT RAY, HAS THRUST PINAL SCHIST OVER PINAL SCHIST AND UPPER PRECAMBRIAN ROCKS FOR A MINIMUM DISTANCE OF 3,000 FEET. THE THRUST HAS BEEN CUT OFF ON THE EAST BY THE STEEPLY WEST-DIPPING DIABASE FAULT, WHICH HAS AN APPARENT STRATIGRAPHIC DISPLACEMENT OF ABOUT 1,200 FEET, WEST SIDE DOWN (SEE SEC. 8-B'). FARTHER NORTH ALONG THE SAME FAULT SET THE WEST-DIPPING SCHOOL FAULT HAS A REVERSE DISPLACEMENT ESTIMATED AT 1,500 FEET, WITH PRECAMBRIAN ROCKS THRUST EASTWARD OVER PLIOCENE TUFFS AND CONGLOMERATES, WHICH AS A RESULT HAVE BEEN FOLDED INTO A SYNCLINE ALONG THE EAST SIDE OF THE FAULT.

EXPOSURES IN THE RAY MINE INDICATE THAT THE LAST MOVEMENT ALONG THE EMPEROR FAULT OCCURRED AFTER MINERALIZATION AND AFTER INTRUSION OF THE GRANITE MOUNTAIN PORPHYRY (K-AR AGE 63 M.Y., CREASEY AND KISTLER, 1962). BOTH THE GRANITE MOUNTAIN PORPHYRY AND THE EMPEROR FAULT ARE BOUNDED ON THE EAST BY THE DIABASE FAULT. THUS THE NORMAL DISPLACEMENT ON THE DIABASE FAULT OF 1,200 FEET, WEST SIDE DOWN, OCCURRED IN THE PALEOCENE OR LATER, WHEREAS THE REVERSE MOVEMENT, WEST SIDE UP, ON THE RELATED SCHOOL FAULT FARTHER NORTH MUST HAVE OCCURRED IN THE LATE MIOCENE OR LATER.

THE EMPEROR FAULT IS CUT BY THE BISHOP FAULT ON THE WEST SIDE OF THE PEARL HARBOR PIT, WHERE THE LATTER HAS A NORMAL DISPLACEMENT OF ABOUT 30 FEET, WEST SIDE DOWN. EAST OF THE BISHOP FAULT, STEEPENING OF THE DIPS OF EAST-DIPPING PRECAMBRIAN SEDIMENTARY ROCKS TOWARD THE SURFACE MAY HAVE RESULTED FROM SUBSTANTIAL REVERSE MOVEMENT ALONG THE BISHOP FAULT PRIOR TO DEVELOPMENT OF THE EMPEROR FAULT.

SIGNIFICANT ALTERATION:

OVERLYING THE CHALCOCITE BLANKET WAS AN AVERAGE OF 200 FEET OF LEACHED AND HEMATITE-STAINED SCHIST, WHICH AS BEEN REMOVED IN OPEN-PIT OPERATIONS. SULFIDES ARE ZONED FROM A CENTER OF TOTAL SULFIDES AND HIGH CHALCOPYRITE TO PYRITE RATIO, OUTWARD TO A DOUGHNUT-SHAPED HIGH COPPER ZONE OF HIGH SULFIDES AND LOW CHALCOPYRITE TO PYRITE RATIO, CONTINUING OUTWARD TO A LOW COPPER HALO OF HIGH SULFIDES AND VERY LOW CHALCOPYRITE TO PYRITE RATIO (A PYRITE HALO).

HYPOGENE ALTERATION ZONING PATTERNS ARE AFFECTED BY HOST ROCK COMPOSITION: IN DIABASE -- BIOTITE-CLAY ZONE GRADES INTO CHLORITE-EPIDOTE ZONE, WITH RARE SERICITE AND K-FELDSPAR, AND COMMON SECONDARY MAGNETITE; IN QUARTZOSE ROCKS -- K-FELDSPAR-BIOTITE ALTERATION IS IN THE LOW SULFIDE CORE AND HIGH COPPER ZONE, SERICITE OVERLAPS K-FELDSPAR AND BIOTITE ZONE IN HIGH COPPER ZONE AND DECREASES OUTWARD TO PROPYLITIC ZONE. (PHILLIPS, GAMBELL, AND FOUNTAIN, 1974).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

DURING SECONDARY ENRICHMENT THE AREAS RICH IN PYRITE FORMED SULFURIC ACID UNDER OXIDIZING CONDITIONS AND ACTED AS A COPPER SOLVENT. THE COPPER SOLUTIONS MOVED DOWNWARD AND LATERALLY ALONG STRUCTURES IN THE SCHIST AND PORPHYRY, BUT NOT IN THE DIABASE, WHICH TENDED TO REACT WITH AND PRECIPITATE THE COPPER. THE COPPER PRECIPITATED AT MODERATE DEPTHS AS CHALCOCITE REPLACING PYRITE AND CHALCOPYRITE.

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE APPEARS TO FAVOR THE GRANITE MOUNTAIN PORPHYRY AND QUARTZOSE PRECAMBRIAN ROCKS. MOST MOLYBDENITE VEINS ARE THIN FRACTURE FILLINGS CUTTING MOST COPPER-BEARING VEINS BUT CUT BY QUARTZ-PYRITE VEINS. IN THE DIABASE MOLYBDENITE OCCURS MOST FREQUENTLY ALONG THE OUTER EDGES OF QUARTZ - CHALCOPYRITE-PYRITE VEINS. UNIV. ARIZ. MINERAL MUSEUM SAMPLE # 7129.

GENERAL COMMENTS

SEE RECORD M600129 FOR FURTHER REFERENCES

GENERAL REFERENCES

- 1) MEIZ, R.A., AND A.W. ROSE (1966) GEOLOGY OF THE RAY COPPER DEPOSIT, RAY, ARIZONA, IN GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA, S.R. TITLEY AND C.L. HICKS (EDS.), UNIV. ARIZ. PRESS, TUCSON: 177-188.

RECORD 00337

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030489
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USRM-0040210005
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... SACATON/CASA GRANDE MINE
SYNONYM NAME..... SACATON WEST IS OPEN PIT, SACATON EAST IS UNDERGROUND

MINING DISTRICT/AREA/SUBDIST. CASA GRANDE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 40

COUNTY..... PINAL
LAND CLASSIFICATION..... 01 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 CASA GRANDE WEST, ARIZ.

LATITUDE LONGITUDE
32-57-30N 111-49- W

UTM NORTHING UTM EASTING UTM ZONE NO
3647000. 424000. +12

TWP..... 05S
RANGE..... 05E
SECTION.. 26 35
MERIDIAN. G & S.R.

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MI. SOUTH OF SACATON MTS.; 6 MILES NW OF CASA GRANDE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
MINOR PRODUCTS.. AU AG

MAIN COMMOD..... CU

MINOR COMMOD.... MO AU AG

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:
CHALCOCITE, COVELLITE, GOLD, SILVER ANTLERITE, BROCHANTITE, AZURITE, MALACHITE, CHRYCOCOLLA

ANALYTICAL DATA(GENERAL)
IN PRIMARY MINERALIZED ZONE SULFIDES OCCUR IN A VOLUME PROPORTION OF 1.5 PARTS PYRITE TO 1 PART CHALCOPYRITE.
TOTAL SULFIDE CONTENT BY VOLUME AVERAGES BETWEEN 1.5% AND 3.0%

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 7
YEAR OF FIRST PRODUCTION. 1929
YEAR OF LAST PRODUCTION. 1981
PRESENT/LAST OWNER..... ASARCO

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PORPHYRY COPPER; ENRICHED
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... THE CHALCOCITE BLANKET OF THE WEST DEPOSIT IS ABOUT 1200 FT IN DIAMETER AND VARIES FROM 100 TO 700 FT THICK IN THE CENTER. THE EAST DEPOSIT IS 600 FT BY 1200 FT AND 300 FT THICK, BUT IS AT A DEPTH OF ABOUT 1500 FT.

DEPTH TO TOP 600-1500 FT
MAX LENGTH..... 600 FT
MAX WIDTH..... 1200 FT
MAX THICKNESS..... 700 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

DEPOSIT IS COVERED BY 60-100 FT OF ALLUVIUM AND 600 FT OF TERTIARY CONGLOMERATE OVER THE WEST DEPOSIT AND 700-1500 FT TERTIARY CONGLOMERATE OVER THE EAST DEPOSIT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	CU ORE ACC	3606.4	TONS	1975	GREELEY 1976 P. 21
2	CU ACC	43635.16	LBS	1975	
3	CU ACC	3781.8	TONS	1976	GREELEY 1976 P. 21
4		44042.24	LB	1976	GREELEY 1976, P. 21

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		17061.4	TONS		1929-1978
16 CU ACC		83510.7	LBS		1929-1978
17 PB ACC		31.1	LBS		1929-1978
18 ZN ACC		4.5	LBS		1929-1978
19 AG ACC		643.5	OZ		1929-1978
20 AU ACC		15	OZ		1929-1978

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 OPEN PIT SULFIDE ORE		10000	ESTONS	1976	0.70% CU
2 UNDERGROUND SULFIDE ORE		10000	ESTONS	1976	1.25% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1976, P. 93

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PRECAMB.
 HOST ROCK TYPES..... PINAL SCHIST, ORADE GRANITE, YOUNGER PE SACATON GRANITE; LARAMIDE (PAY DIRT) THREE PEAKS MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (71.3 MY)
 IGNEOUS ROCK TYPES..... THREE PEAKS MONZONITE PORPHYRY

AGE OF MINERALIZATION..... LCRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. VEINLETS AND GRAINS IN INTENSELY FRACTURED AND BRECCIATED GRANITE AND MONZONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

INTENSELY FRACTURED, BRECCIATED, AND FAULTED. MOST COMMON MINERALIZED FRACTURES STRIKE N50-70E AND ARE NEARLY VERTICAL. THE SACATON FAULT, A NORMAL FAULT STRIKING N20W AND DIPPING 60-70 E, CUTS OFF THE WEST DEPOSIT AND DOWNDROPS THE EAST SIDE OF THE ORE BODY 1000 TO 1800 FT.

SIGNIFICANT ALTERATION:

HYDROTHERMAL ALTERATION ZONE IS 2.5 MILES LONG BY 1 MILE WIDE ALONG ELONGATED IN A N 60-70E DIRECTION. PHYLIC AND ARGILLIC ALTERATION ARE PRINCIPAL TYPES WITH STRONGER ALTERATION COINCIDENT WITH MORE ABUNDANT SULFIDE MINERALIZATION.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SECONDARY ENRICHMENT WITH SOME POST-ENRICHMENT OXIDATION

GENERAL REFERENCES

- 1) PAY DIRT 1974 ASARCO'S NEW \$40 MILLION SACATON UNIT DEDICATED TODAY: PAY DIRT, NO. 413, MARCH 25, 1974, BISBEE, AZ, P. 1-27.
- 2) CUMMINGS, R.B., IN PRESS, SACATON PORPHYRY COPPER DEPOSIT, IN TITLEY, S.R., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, V. 2.

- 3)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 4)ULLMER, E., 1978, SACATON MINE AREA, PINAL COUNTY, ARIZONA (ABS.), IN LOVERING, T.G., AND MCCARTHY, J.H., JR., EDS., CONCEPTUAL MODELS IN EXPLORATION GEOCHEMISTRY: THE BASIN AND RANGE PROVINCE OF THE WESTERN UNITED STATES AND NORTHERN MEXICO: JOUR. GEOCHEM. EXPLOR., V. 9, NO. 2-3, P. 235-236.
- 5)BERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF PART OF THE CASA GRANDE MOUNTAINS QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN-FILE REP., NO. 78-547, MAP.
- 6)BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
- 7)BERGQUIST, J.R., BANKS, N.G., AND BLACET, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELOY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-990.
- 8)MITCHELL, C.M. 1. (AND ZANDLE, G.L.) AEROMAGNETIC MAP OF THE CASA GRANDE AREA, MARICOPA AND PINAL COUNTIES, ARIZONA: USGS GEOPHYS. INV. MAP GP-548, SCALE 1:62,500 (1955)
- 9)BANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L. AND NAESER, C.W., 1978, RADIOMETRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANIC AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: J. RESEARCH U.S. GEOL. SURVEY, V. 6, NO. 4, P. 439-445.
- 10)PUSHKAR, PAUL, AND DAMON, P.E., 1974, PALEOZOIC AGES FROM SOUTHERN ARIZONA: K-AR AND RB-SR GEOCHRONOLOGY: ISOCHRON/WEST, NO. 10, P. 7-10.
- 11)BERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF CASA GRANDE WEST QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP OF-79-390.
- 12)BERGQUIST, J.R., AND BLACET, P.M., 1978, PRELIMINARY RECONNAISSANCE BEDROCK GEOLOGIC MAP OF THE CASA GRANDE EAST QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, OPEN FILE MAP OF-79-391.

RECORD 00338

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030477
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040211060
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... SADDLE MOUNTAIN GROUP
MINING DISTRICT/AREA/SUBDIST. SADDLE MOUNTAIN DIST/DEER CREEK AREA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 CHRISTMAS ARIZ.

LATITUDE LONGITUDE
33-02-04N 110-41-08W

UTM NORTHING UTM EASTING UTM ZONE NO
3654920. 529350. +12

TWP..... 04S 05S
RANGE.... 16E 16E
SECTION.. 35 02
MERIDIAN. G& SR

ALTITUDE.. 2600-2800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE N. OF OLD MILL, ON RIDGE S. OF DEER CREEK, 4 MILES SE OF CHRISTMAS

LOCATION COMMENTS: LINE BETWEEN 35 & 2

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB AG AN

MAIN ORE MINERALS:

PYRITE, GALENA, SPHALERITE

MINOR ORE MINERALS:

CHALCOPYRITE, GOLD, SILVER, CERUSSITE, ANGLESITE, CHRYSOCOLLA, MALACHITE, AND AZURITE RARE; ARGENTITE
PYRRARGYRITE, CHALCOCITE, COVELLITE, BORNITE

ANALYTICAL DATA(GENERAL)

5% DISSEMINATED PYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... SADDLE MTN MINING CO. ORGANIZED IN 1900 BY G B CHITTENDEN.

EXPLOR. AND DEVELOP. COMMENTS:

15 PATENTED AND 1 UNPATENTED CLAIM IN 1923 (ROSS)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, DISSEM., SKARN (PYROMETASOMATIC)

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT

STRIKE OF OREBODY.... N50E

DIP OF OREBODY..... 60-90

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 3450 FT

COMMENTS(DESCRIP. OF WORKINGS):

5 SHAFTS ON TOPO MAP ON A RIDGE BETWEEN ASH CREEK AND DEER CREEK; PORTABLE CONCENTRATING MILL WAS ERECTED AT ASH CREEK IN 1900 AND RUINS ARE NOW KNOWN AS OLD MILL

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. BARRETT

PRODUCTION COMMENTS.... PRODUCTION OF GOLD AND PB-AG-ZN DRES IN EARLY 1900'S

GEOLOGY AND MINERALUGY

AGE OF HOST ROCKS..... CRET., TERT.

HOST ROCK TYPES..... WILLIAMSON CANYON VOLCANICS, DIORITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (62 M.Y. CREASEY AND KISTLER)

IGNEOUS ROCK TYPES..... DIORITE PORPHYRY-QUARTZ DIORITE DIKE SWARM

AGE OF MINERALIZATION..... TERT. (62 M.Y.)

PERTINENT MINERALOGY..... GANGUE OF QUARTZ, BARITE, CALCITE AND GYPSUM; SKARNS INCLUDE MAGNETITE AND SPECULARITE AND GARNET

IMPORTANT ORE CONTROL/LOCUS.. IN BRECCIATED ZONES OF E-W SHEARS AND NE TENSION FRACTURES IN A MILE WIDE ZONE NEAR THE DIORITE PORPHYRY - QUARTZ DIORITE, DIKE SWARM

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VOLCANICS WERE FOLDED INTO DFER CREEK SYNCLINE WITH N40-55 E TENSION FRACTURES PARALLEL TO AXIS OF SYNCLINE INTRUDED BY LARAMIDE DIORITE

SIGNIFICANT ALTERATION:

ALTERATION MINERALS ON THE DIORITE ARE CALCITE, CHLORITE, QUARTZ, CLAY, SERICITE, EPIDOTE, PYRITE, MAGNETITE, AND GYPSUM (PROPYLITIC HYDROTHERMAL ALTERATION)

COMMENTS (GEOLOGY AND MINERALOGY):

PYRITE MINERALIZATION FAVORED THE DIORITE PORPHYRY - QUARTZ DIORITE AS HOSTS; LEAD-SILVER-ZINC VEIN MINERALIZATION FAVORED THE VOLCANICS AND VOLCANIC-INTRUSION CONTACTS. GALENA, SPHALERITE AND PYRITE ARE COMMON IN VEINS IN NE PART; PYRITE AND QUARTZ PREDOMINATE IN VEINS IN CENTRAL AND SW PARTS OF DISTRICT. SILVER IS MORE PREVALENT IN GALENA AND SPHALERITE VEINS, GOLD AND CHALCOPYRITE IN QUARTZ - PYRITE VEINS.

GENERAL REFERENCES

- 1) BARRETT, L.F., 1972, IGNEOUS INTRUSIONS AND ASSOCIATED MINERALIZATION IN THE SADDLE MOUNTAIN MINING DISTRICT, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. UTAH, 89 P.
- 2) ROSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOL. SURVEY BULL. 771, 72 P.
- 3) WILLDEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY, BULL. 1161-E, 64 P.
- 4) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00339

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M000670
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210001
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... SAN MANUEL-KALAMAZOO DEPOSIT
MINING DISTRICT/AREA/SUBDIST. SAN MANUEL DIST./S. BLACK HILLS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 MAMMOTH

LATITUDE LONGITUDE
32-41-45N 110-41-20W

UTM NORTHING UTM EASTING UTM ZONE NO
3617435. 529150. +12

TWP..... 08S
RANGE.... 16E
SECTION.. 35 34
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3320 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE SOUTHWEST OF TIGER, 3 1/2 MILES SOUTHWEST OF MAMMOTH IN SAN PEDRO RIVER

LOCATION COMMENTS: ON LINE BETWEEN SEC 34 & 35.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU

MAIN COMMOD..... CU MO
MINOR COMMOD.... AG AU

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:
MAGNETITE, CHALCOHITE, COVELLITE, BORNITE, CHRYCOCOLLA, CUPRITE, MALACHITE, NATIVE COPPER, ATRCAMITE,
PLANCHEITE, BLACK COPPER OXIDES, SILVER, GOLD

ANALYTICAL DATA(GENERAL)

PHK-21-76: MOLYBDENITE, DACITE PORPHYRY DIKE, 2015 FT LEVEL, SAN MANUEL MINE, MAGMA COPPER CORP., BLACK HILLS,
PINAL COUNTY, ARIZONA. 32 41'46" N, 110 41'23" W. A 1.3 CM WIDE QUARTZ-MOLYBDENITE VEINLET CUTS A DACITE
PORPHYRY DIKE, AND IS CUT IN TURN BY A CHALCOPYRITE-QUARTZ-KAOLINITE-CEMENTED FRACTURE. THE DACITE PORPHYRY DIKE
CONTAINS FINELY DISSEMINATED CHALCOPYRITE AND MICROVEINLETS OF CHALCOPYRITE. SE WAS NOT DETERMINED.

MO	45.5 %						
MG	0.066						
AL	0.43						
SI	6.9						
CA	2.4						
TI	0.20						
V	0.0044						
CR	0.0033						
MN	0.025 & FE	0.98 & CU	0.018 & SR	TR-0.01 & AG	0.0020 & RE	0.10	
PB	0.29						

			B	ND-0.007 & VA	ND-0.010 & K	ND-0.30 & ZN	ND-0.06 & GA
ND-0.05 & GE	ND-0.01 & NB	ND-0.08 & RU	ND-0.02 & RH	ND-0.03 & SN	ND-0.01 & SB	ND-0.03 & E	
TE	ND-0.10 & TA	ND-1.0 & W	ND-0.10 & PT	ND-0.01 & TL	ND-0.08 & BI	ND-0.002 & U	
ND-0.30				MO52	75.9 %		

			MGO	0.11			
AL2O3	0.81						
SiO2	14.8						
CAO	3.4						
TI02	1 & CUS	0.027 & SR0	TR-0.01 & AG2S	0.0023 Y RES2	0.13 & P85	0.33	

TOTAL 98.0 %

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM. STOCKWORK-VEINLET, SECONDARY ENRICHMENT
FORM/SHAPE OF DEPOSIT: OVAL TO PIPELIKE

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... LARGE
DEPTH TO BOTTOM..... 2700 FT

MAX LENGTH..... 9300 FT
 MAX WIDTH..... 9000 FT
 STRIKE OF OREBODY.... N60E
 DIP OF OREBODY..... 55SE

DESCRIPTION OF WORKINGS
 UNDERGROUND

COMMENTS (DESCRIP. OF WORKINGS):
 BLACK DAVING

PRODUCTION
 YES
 LARGE PRODUCTION
 4 MIXED CU EST

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU	ACC	3697381	LBS	1956-1978	
16 AG	ACC	6783	OZ	1956-1978	
17 AU	ACC	356	OZ	1956-1978	
18 MO	ACC	60461	LBS	1956-1978	

SOURCE OF INFORMATION (PRODUCTION).. AZ. BUR. GEOL. FILE DATA

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SULFIDE CU	ACC	57907	TONS	1962	0.747%
2 OXIDE CU	ACC	130364	TONS	1962	0.699% TOTAL CU.
3 SULFIDE CU	ES	74000	TONS	1969	0.67% CU SAN MANUEL
4		130000	TONS	1969	0.70% SAN MANUEL

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. THOMAS, 1966; GREELEY, 1978

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. CRET. TERT.
 HOST ROCK TYPES..... ORACLE GRANITE (ACTUALLY IS A PRECAMBRIAN PORPHYRITIC QUARTZ MONZONITE), MONZONITE PORPHYRY (A PORPHYRITIC QUARTZ MONZONITE OF TERTIARY-CRETACEOUS AGE), AND DIABASE DIXES (CONSIDERABLY ALTERED DIABASE OF TERTIARY-CRETACEOUS AGE).

AGE OF ASSOC. IGNEOUS ROCKS.. CRETACEOUS-TERTIARY FROM HYDROTHERMAL BIOTITE (65 M.Y. 69 M.Y., K-AR, CREASEY, 1965
 IGNEOUS ROCK TYPES..... MONZONITE PORPHYRY (ALSO CALLED GRANDDIDRITE PORPHYRY)

AGE OF MINERALIZATION..... CRET.-TERT. (65 69 M.Y.)

PERTINENT MINERALOGY..... QUARTZ, SERICITE, KAOLINITE, BIOTITE, AND POTASSIUM FELDSPAR (PELLETIER AND CREASEY, 1965, P. 36)

IMPORTANT ORE CONTROL/LOCUS.. ORE LOCALIZATION IS RELATED TO ROCK PERMEABILITY, WHICH VARIES WITH CLOSENESS OF

FRACTURING AND DENSENESS OF HOST ROCK. THE BROAD ZONE OF CONTACT BETWEEN ORACLE QUARTZ MONZONITE AND MONZONITE (GRANODIORITE) PORPHYRY WAS MOST FAVORABLE ZONE OF CHALCOPYRITE DEPOSITION (THOMAS, 1966, P. 142)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE POST-ORE SAN MANUEL FAULT, STRIKING N66W AND DIPS 26 SW, DISPLACED THE SW PART OF THE ORE DEPOSIT (THE KALAMAZOO SEGMENT) APPROXIMATELY 8000 FEET DOWNWARD AND THE NE PART (THE SAN MANUEL SEGMENT) RELATIVELY UPWARD. THE YOUNGER N25 W SYSTEM OF STEEP EASTERLY DIPPING NORMAL FAULTS, AND STILL YOUNGER VENT RAISE FAULT N60E, DIPPING 90 -65 SE) OFFSET THE SAN MANUEL FAULT. THE CLOSE FRACTURING CAUSED BY REGIONAL COMPRESSION CONTROLS THE SITES OF ORE DEPOSITION (THOMAS, 1966, P. 136; LOWELL AND GUILBERT, 1970)

SIGNIFICANT ALTERATION:

ALTERATION ZONES ARE ARRANGED OUTWARD FROM A POTASSIC CORE THROUGH PHYLIC QUARTZ SERICITE-PYRITE ARGILLIC QUARTZ-KAOLIN-MONTMORILLONITE AND PROPYLITIC (EPIDOTE-CALCITE-CHLORITE) ZONES. ALTERATION ZONES AT DEPTH COMPRISE AN OUTER CHLORITE-SERICITE-EPIDOTE-MAGNETITE ASSEMBLAGE YIELDING TO AN INNER ZONE OF QUARTZ-K-FELDSPAR-SERICITE-CHLORITE. THE ORE ZONE (0.5% CU CUTOFF) OVERLAPS POTASSIC AND PHYLIC ZONES (LOWELL AND GUILBERT, 1970).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE HYDROTHERMAL SYSTEM WHICH DEPOSITED THE SAN MANUEL-KALAMAZOO PRIMARY ORE WAS CLOSELY RELATED TO THE INTRUSION OF SWARMS OF MONZONITE PORPHYRY (MORE PROPERLY TERMED BIOTITE LATITE PORPHYRY, BUT ONCE CALLED GRANODIORITE PORPHYRY) DIKES AND MASSES. THE SULFIDE MINERALIZATION CHANGES UPWARD AND OUTWARD FROM DISSEMINATED AT THE LOW-GRADE CORE THROUGH MICROVEINLET TO VEINLET AND VEIN OCCURRENCE INDICATING THE PROGRESSIVELY INCREASING EFFECT OF STRUCTURAL CONTROL. EROSION AND SUPERGENE ACTIVITY FORMED A THIN CHALCOCITE ENRICHMENT BLANKET (LOWELL AND GUILBERT, 1970) BEFORE DEPOSITION OF THE CLOUDBURST FORMATION (28 M.Y., K-AR, SHAFIQULLAH, ETAL, 1978, P. 236).

COMMENTS (GEOLOGY AND MINERALOGY):

WIDESPREAD MOLYBDENITE MINERALIZATION OFTEN IS ASSOCIATED WITH NARROW QUARTZ-FILLED VEINLETS THAT ALSO MAY CARRY CHALCOPYRITE, AND BORNITE. MOLYBDENITE ALSO OCCURS AS SLICK COATINGS ALONG FRACTURES.

GENERAL COMMENTS

SEE RECORD NUMBER M899992 FOR REFERENCES

RECORD 00340

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030484
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... SWEDE MINE

MINING DISTRICT/AREA/SUBDIST. SUMMIT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

DRAINAGE AREA..... 15060103

LAND CLASSIFICATION..... 41 -- (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 PINAL RANCH

LATITUDE LONGITUDE
33-21-40N 110-59-30W

TWP..... 01S
RANGE.... 13E
SECTION.. 12
MERIDIAN. GILA AND SALT RIVER

ALTITUDE.. 4350 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NE OF SUPERIOR

LOCATION COMMENTS: NE

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. W

MAIN COMMOD..... W
MINOR COMMOD.... MO CU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... MO CU

MAIN ORE MINERALS:

PYRITE, WOLFRAMITE, SCHEELITE

MINOR ORE MINERALS:

MOLYBDENITE, CHALCOPYRITE, TOURMALINE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN, STOCKWORK

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... NE

DIP OF OREBODY..... 70SE

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND ADIT

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. PETERSON, 1963 P. 15

PRODUCTION COMMENTS.... A FEW TONS OF TUNGSTEN CONCENTRATE HAVE BEEN RECOVERED FROM ORE MINED FROM A STOPE BETWEEN THE ADIT LEVEL AND SURFACE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT

IGNEOUS ROCK TYPES..... SCHULTZE GRANITE PORPHYRY DIKES AND SILLS

AGE OF MINERALIZATION..... TERT

PERTINENT MINERALOGY..... CENTRAL CORE OF MASSIVE WHITE QUARTZ FLANKED BY COARSE GREISEN

IMPORTANT ORE CONTROL/LOCUS.. SHEAR ZONE INTERSECTION WITH GRANITE PORPHYRY DIKES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NE SHEAR ZONE

COMMENTS (GEOLOGY AND MINERALOGY):

ROUNDED CLOTS AND THIN SEAMS OF MOLYBDENITE, PLATY CRYSTALS OF WOLFRAMITE PARTLY ALTERED TO SCHEELITE

GENERAL REFERENCES

- 1) ARIZONA BUREAU OF MINES FILE DATA.
- 2) PETERSON, N.P., 1963, GEOLOGY OF THE PINAL RANCH QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY BULL. 1141-H, 18 P.

RECORD 00341

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030469
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... TABLE MOUNTAIN MINE
MINING DISTRICT/AREA/SUBDIST. TABLE MOUNTAIN DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 49 01 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE, ARIZ.

LATITUDE LONGITUDE
32-49-03N 110-29-08W

UTM NORTHING UTM EASTING UTM ZONE NO
3630950. 548200. 412

TWP..... 07S
RANGE.... 18E
SECTION.. 15 22
MERIDIAN. G & SR

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: W. SIDE OF VERGUS CANYON; 1 1/4 MILES NNE OF LITTLE TABLE MTN

LOCATION COMMENTS: SE 1/4 OF 15, NE 1/4 OF 22

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU AG PB MO V ZN

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU AG AU
MINOR PRODUCTS.. MO V

MAIN COMMOD..... CU AG AU
MINOR COMMOD..... PB MO V ZN

MAIN ORE MINERALS:
CHRYSOCOLLA, WULFENITE, VANADINITE

MINOR ORE MINERALS:
GOLD IN QUARTZ, MALACHITE, AZURITE, DISSTASE CONICALCITE, PLANCHITE, MINETITE, AUSTINITE, WILLEMITE

ANALYTICAL DATA(GENERAL)
ORE ON THE DUMP IN 1964 ASSAYED 2-3% CU, 0.5-0.6 OZ/TON AG AND 0.14-0.15 OZ/T AU. SORTED CHRYSOCOLLA AVERAGES 20-25% CU. THE SLAG ASSAYS 2.4% CU AND 0.02 OZ AU/T.

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... FIRST PROSPECTED IN LATE 1870'S FOR GOLD
PRESENT/LAST OWNER..... 12 PATENTED CLAIMS OWNED IN 1964 BY MOLLIE MORGAN, EVELYN SANDSTROM, AND MATTIE YOUNG OF MAMMOTH, AND MARION GILLS (SIMONS, 1964, P. 150)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS
FORM/SHAPE OF DEPOSIT: SPORADIC AND IRREGULAR PODS

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS..... 2000 FT

COMMENTS(DESCRIP. OF WORKINGS):
ADITS AND DRIFTS. FORMER MAIN ADIT IS COVERED 200 FT FROM PORTAL, BUT WAS 700 FT LONG WITH 40 FT WINZE

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	100		TONS		7-9% CU, 44/T AU
16 ORE EST	.6		TONS	1870-1928	14% CU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM., TERT. (29 M.Y.)
HOST ROCK TYPES..... SEDIMENTARY BRECCIA; ESCABROSA LIMESTONE; LOWER ANDESITE OF GALUIRD VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (29 M.Y.)
 IGNEOUS ROCK TYPES..... LOWER ANDESITE OF GALIURD VOLCANICS

AGE OF MINERALIZATION..... TERT (29 M.Y.)

PERTINENT MINERALOGY..... JASPEROID, QUARTZ, BARITE, HEMATITE

IMPORTANT ORE CONTROL/LOCUS.. AJASPEROID BRECCIA LAYER 20-25 FT THICK OF THE ESCABROSA LIMESTONE IS overlain
 UNCONFORMABLY BY GALIURD VOLCANICS AND CONTAINS PODS OF MINERALIZATION ALONG FAULT AND JOINT SURFACES AND COATING
 WEATHERED SURFACES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 VERTICAL FAULT ZONES IN LIMESTONE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
 OXIDATION MAY HAVE OCCURRED BEFORE DEPOSITION OF VOLCANICS (SIMONS, 1964). DEPOSIT APPEARS TO BE EXOTIC
 (SECONDARILY DERIVED BY EROSION OF NEARBY OXIDIZED LEAD-SILVER AND COPPER DEPOSITS TO THE SOUTH AT COPPER
 CREEK). (KEITH, PERS COMMUN.) NO SULFIDES ARE PRESENT AND MOST EARLY OXIDATION PRODUCTS SUCH AS CERUSSITE
 ETC. ARE ABSENT OR RARE.

COMMENTS (GEOLOGY AND MINERALOGY):

AT A DISTANCE OF 450 FT FROM PORTAL THE ADIT IS RUMORED TO HAVE CUT A VEIN OF VANADINITE - WULFENITE - QUARTZ ORE
 OVER 10 FT WIDE. ONE CAVE LINED WITH WULFENITE AND VANADINITE IS REPORTED TO BE 300 FT LONG AND 50-60 FT WIDE
 (SIMONS, 1964, P. 150)

GENERAL REFERENCES

- 1) SIMONS, F.S. 1964, GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: U.S. GEOL. SURVEY
 PROF. PAPER 461, P. 150-152, 125.
- 2) KUHN, T.H., 1941, PIPE DEPOSITS OF THE COPPER CREEK AREA, ARIZONA: ECON. GEOLOGY, V. 36, NO. 5, P. 512-538.
- 3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZONA BUR. MINES BULL.
 158, GEOL. SER. 19, P. 56-65.
- 4) KUHN, T.H. (1938) CHILDS-ALOWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS. ARIZ. BUR. MINES
 BULL. 145, GEOL. SERIES 12: 127-130.
- 5) GUTHRIE, J.D., MOORE, D.G., 1978, THE GEOLOGY OF THE COPPER CREEK AREA, BUNKER HILL MINING DISTRICT, GALIURD
 MOUNTAINS, ARIZONA, IN JENNEY, J.P., AND HAUCK, H.R., EDS., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ.
 GEOL. SOC. DIGEST, V. 11, P. 25-31.

RECORD 00342

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M00004B
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 11
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TURNING POINT MINE

MINING DISTRICT/AREA/SUBDIST. SILVER REEF DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL

QUAD SCALE QUAD NO OR NAME
1: 62500 SILVER REEF MTNS

LATITUDE LONGITUDE
32-35-60N 111-53-45W

UTM NORTHING UTM EASTING UTM ZONE NO
3607100. 415925. +12

TWP..... 009S
RANGE..... 004E
SECTION.. 36
MERIDIAN. 66SR

ALTITUDE.. 1575 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ADJOINS JACK RABBIT ON WEST

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB CU AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB
MINOR PRODUCTS.. CU AU

MAIN COMMOD..... AG PB
MINOR COMMOD.... MD CU AU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL.....
OCCURRENCE..... MD

MAIN ORE MINERALS:

MINOR ORE MINERALS:
COPPER SILICATE, IRON STAIN

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
\$18/TON IN AG AND AU IN 1880-1902

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... DISCOVERED IN EARLY 1880'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT, FISSURE VEIN
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... N20E
DIP OF OREBODY..... 60 E

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
OVERALL LENGTH OF MINED AREA.... 2000 FT

COMMENTS(DESCRIP. OF WORKINGS):
FIRST DEVELOPMENT WORK DONE IN 1898; 10 STAMP MILL BUILT IN 1902 TO TRENT SMALL TONNAGE; SURFACE TRENCHING
BETWEEN TURNING POINT AND JACK RABBIT SHAFTS IS ABOUT 2000 FT (TENNEY, 1934)

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	ACC	.761	TONS	1937-1946	
16 AG	ACC	1.577	OZ	1937-1946	
17 CU	ACC	1.054	LBS	1937-1946	
18 PB	ACC	.885	LBS	1937-1946	
19 AU	ACC	.135	OZ	1937-1946	

SOURCE OF INFORMATION (PRODUCTION).. ABGHT FILE DATA

PRODUCTION COMMENTS.... SOME HIGH GRADE ORE WAS STOPED AND SHIPPED IN 1911 (TENNEY, 1934)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS. TERT.
HOST ROCK TYPES..... ESCABROSA LIMESTONE; ANDESITE PORPHYR

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.

AGE OF MINERALIZATION..... TERT.

IMPORTANT ORE CONTROL/LOCUS.. REPLACEMENTS IN LIMESTONE IN STRONG FAULT ZONES NEAR ANDESITE PORPHYRY DIKES

GENERAL REFERENCES

- 1) BLACEY, P.M., BERGQUIST, J.R., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE SILVER REEF MOUNTAINS QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDIES MAP MF-934.
- 2) GEOLOGY OF SILVER REEF DIST:
 - TENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
 - 3) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
 - 4) HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 5) HOGUE, W.G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
 - 6) JOHNSTON, W.P., 1972 K-AR DATES ON INTRUSIVE ROCKS AND ALTERATION ASSOCIATED WITH THE LAKESHORE PORPHYRY COPPER DEPOSIT PINAL COUNTY, ARIZONA: ISOCHRON/WEST NO. 4 P. 29-30.
 - 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 8) U.S. ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO: PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE AT ARIZONA BUREAU OF MINES
- 3) GEOLOGY OF NEARBY AREAS:
 - 1) BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
 - 2) DUCKLER, R.D., AND KEITH, W.J. 1978, RECONNAISSANCE GEOLOGIC MAP OF VEKOL MOUNTAINS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-931.
 - 3) BERGQUIST, J.R., BANKS, N.G., AND BLACEY, P.M., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE ELOY QUADRANGLE, ARIZONA: U.S. GEOL. SURV. MISC. FIELD STUDIES MAP MF-990.
 - 4) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK 11, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.
 - 5) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS.
 - 6) STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSIT, PIMA COUNTY, ARIZONA, (ABS.) IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.
 - 7) CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.
 - 8) CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSAS QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.
 - 9) CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.
 - 10) SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND

- ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ARS. 1953; GEOL. SOC. AM. SP. PAPER 121, P. 556-557
- 13)HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
- 14)HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 15)WILSON, E.D. AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 16)HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PINA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.
- 17)DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
- 4) GEOHYDROLOGY OF SW PINAL CO:
- HOWARD A.D. 2. PEDIMENT PASSES AND PEDIMENT PROBLEMS: JOUR. GEOMORPH., V. 5, NO. 1, P. 1-31 (1942); NO. 2, P. 95-136 (1942)
- 5)HOWARD, A.D. 1. PEDIMENT GAPS OF THE SACATON MOUNTAINS, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 51, P. 1930-1931 (1940)
- 6)PASHLEY, E.F., JR. 1. SUBSIDENCE CRACKS IN ALLUVIUM NEAR CASA GRANDE, ARIZONA: ARIZ. GEOL. SOC. DIG., V. 4, P. 95-101 (1961)
- 7)POULSON, E.N. 2. (AND WILDERMUTH, R., AND HARPER, W.G.) SOIL SURVEY OF THE CASA GRANDE AREA, ARIZONA: U.S. DEPT. AGR., BUR. PLANT INDUSTR., SER. 1936, NO. 7, P. 1-94 (1941)
- 8)DENIS, E.E. (SEE ALSO AKERS, J.P., 2) GROUND-WATER CONDITIONS IN THE WATERMAN WASH AREA, MARICOPA AND PINAL COUNTIES, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 37, 23 P., ILLUS., TABLES (1968)
- 9)HARDT, WILLIAM F. (SEE ALSO COOLEY, MAURICE E., 7; KISTER, L.R., 2; WHITE, NATALIE D., 5) 1. (AND CATTANY, R.E., AND KISTER, L.R.) BASIC GROUND-WATER DATA FOR WESTERN PINAL COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 18, 59 P. (1964)
- 10)HARDT, WILLIAM F. 2. (AND CATTANY, R.E.) DESCRIPTION AND ANALYSIS OF THE GEOHYDROLOGIC SYSTEM IN WESTERN PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP., 92 P. (1965)
- 11)HEM, J.D. 3. QUALITY OF WATER IN LOWER SANTA CRUZ AREA: USGS OPEN-FILE REP., P. 135-136 (1952)
- 12)KISTER, L.R. 2. (AND HARDT, WILLIAM F.) SALINITY OF THE GROUND WATER IN WESTERN PINAL COUNTY, ARIZONA: USGS WATER-SUPPLY PAPER 1819-E, 21 P., ILLUS., TABLES (1966)
- 13)SKIBITZKE, H.E. 2. (AND YOST, C.B., JR.) LOCATION OF SITES FOR IRRIGATION WELLS NEAR CHIU CHUISCHU, PAPAGO INDIAN RESERVATION, PINAL COUNTY, ARIZONA: USGS GROUND-WATER BRANCH OPEN-FILE REP. 6 P. (1951)
- 14)YOST, C.B., JR. (SEE ALSO ARMSTRONG, C.A.; FETH, J.H., 10; SKIBITZKE, H.E., 1,2) GEOPHYSICAL AND GEOLOGICAL RECONNAISSANCE TO DETERMINE GROUND-WATER RESOURCES OF CHIU CHUISCHU AREA, PAPAGO INDIAN RESERVATION, ARIZONA: USGS MIMED. REP., 19 P., ILLUS., MAP (1953)

RECORD 00343

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030479
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... UPSHAM TUNGSTEN MINES GROUP

MINING DISTRICT/AREA/SUBDIST. GOLD CIRCLE DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 PUTNAM WASH, ARIZ.

LATITUDE LONGITUDE
32-50-30N 110-52-00W

TWP..... 07S
RANGE.... 14E
SECTION.. 11
MERIDIAN. G& SR

ALTITUDE.. 3800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 SOUTH OF ANTELOPE PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... W AU MO

MAIN COMMOD..... W AU
MINOR COMMOD..... MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

POWELLITE WITH WOLFRAMITE AND SCHEELITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... DRACLE (RUIN) GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT - CRET. (?)
IGNEOUS ROCK TYPES..... DIKES

AGE OF MINERALIZATION..... LCRET-TER1

PERTINENT MINERALOGY..... QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS CARRY GOLD AND TUNGSTEN

GENERAL REFERENCES

- 1) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 156.
- 3) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, PINAL, AND GRAHAM COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5516.
- 4) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 35.
- 5) KRIEGER, M.H., 1974, GEOLOGIC MAP OF THE PUTNAM WASH QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1109.

RECORD 00344

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030491
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210003
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... VEKOL HILLS MINE
MINING DISTRICT/AREA/SUBDIST. VEKOL DIST/NE EDGE VEKOL MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... PINAL
DRAINAGE AREA..... 15050306

QUAD SCALE QUAD NO OR NAME
1: 0062500 VEKOL MOUNTAINS

LATITUDE LONGITUDE
32-35-15N 112-03-22W

UTM NORTHING UTM EASTING UTM ZONE NO
3605850. 400950. +12

TWP..... 10S
RANGE.... 03E
SECTION.. 04
MERIDIAN. G & S.R.

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MILES SW OF REWARD MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO ZN PB AG

MAIN COMMOD..... CU MO
MINOR COMMOD..... ZN PB AG

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, MOLYBDENITE

MINOR ORE MINERALS:
SPHALERITE, OXIDIZED SULFIDES

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM: FRAC. FILLINGS

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		.045	TONS	1931-1965	
16 CU EST		.118	LBS	1931-1965	
17 AG EST		.387	OZ	1931-1965	

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 SULFIDE ORE EST	100000		TONS	1978	0.56% CU, 0.014% MO
2 OXIDE COPPER EST	8000		TONS	1978	

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GREELEY, 1975, P. 85 FROM NEWMONT MIN. CORP. FIGURES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. CRET, PRECAM, CAMB. DEV
 HOST ROCK TYPES..... LARAMIDE PORPHYRITIC DACITE TO DIORITE AND FINE GRAINED QUARTZ MONZONITE INTRUSIONS;
 CAMBRIAN BOLSA QUARTZITE AND ABRIGO FORMATION, DEVONIAN MARTIN FORMATION AND MISSISSIPPIAN ESCABROSA LIMESTONE;
 PRECAMBRIAN DIABASE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET
 IGNEOUS ROCK TYPES..... QUARTZ, FELDSPAR AND HORNBLende PORPHYRIES (QUARTZ MONZONITE)

AGE OF MINERALIZATION..... LCRET-TERT

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION IS IN PRECAMBRIAN DIABASE AND LOWER PALEOZOIC SEDIMENTS NEAR CONTACT
 WITH LARAMIDE QUARTZ MONZONITE STOCK

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 FRACTURES

COMMENTS (GEOLOGY AND MINERALOGY):

HIGHEST ZINC, LEAD, SILVER AND MANGANESE AND CADMIUM ARE TO WEST OF PORPHYRY COPPER DEPOSIT IN PALEOZOIC
 FORMATIONS SURROUNDING THE QUARTZ MONZONITE STOCK (CHAFFEE, 1977 P. 15)

GENERAL REFERENCES

- 1) STEELE, H.J., 1978, VEKOL HILLS COPPER DEPOSIT, PIMA COUNTY, ARIZONA, (ABS) IN JENNEY, J.P., AND HAUCK, H.R., PROCEEDINGS OF THE PORPHYRY COPPER SYMPOSIUM: ARIZ. GEOL. SOC., DIGEST, V. 11, P. 36.

2) VEKOL DEPOSIT:

- DOCKTER, R.D., AND KEITH, W.J., 1978, RECONNAISSANCE GEOLOGIC MAP OF VEKOL MOUNTAINS QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-931.
- 3) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS, 100 P.
- 4) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 5) HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
- 6) CHAFFEE, M.A., AND HESSIN, T.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENTS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PROC.): DAN. INST. MIN. METALL. CONF. VOL., NO. 11, P. 401-409.
- 7) CHAFFEE, M.A., 1974, STRATIGRAPHIC RELATIONS OF THE BOLSA QUARTZITE, VEKOL MOUNTAINS, PINAL COUNTY, ARIZONA: JOUR. RESEARCH U.S. GEOL. SURVEY, V. 2, NO. 2, P. 143-146.
- 8) CHAFFEE, M.A., 1977, GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, VEKOL PORPHYRY COPPER DEPOSIT AREA, PINAL COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 1278-E, 78 P.
- 9) DENTON, T.C., AND HAURY, P.S., 1946, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
- 10) TENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
- 11) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P., P. 333-337.
- 12) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PH.D. THESIS, UNIV. ARIZ., P. 51.

3) GEOLOGY OF VEKOL MTS AND NEARBY AREAS:

- BLACFT, P.M., BERGQUIST, J.R., AND MILLER, S.T., 1978, RECONNAISSANCE GEOLOGIC MAP OF THE SILVER REEF MOUNTAINS QUADRANGLE, PINAL AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY MISC. FIELD STUDIES MAP MF-934.
- 4) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 5) HEINDL, L.A., 1960, CENOZOIC GEOLOGY OF THE PAPAGO INDIAN RESERVATION, PIMA, MARICOPA, AND PINAL COUNTIES, ARIZONA: ARIZONA GEOL. SOC. DIGEST, V. 3, P. 31-34.
- 6) HEINDL, L.A., 1965, MESOZOIC FORMATIONS IN THE VEKOL MOUNTAINS, PAPAGO INDIAN RESERVATION, ARIZONA: U.S. GEOL. SURVEY BULL. 1194-G, 9 P.
- 7) HAMMER, D.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.
- 8) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEOZOIC SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK II, L.A. HEINDL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.
- 9) SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ABS. 1969: GEOL. SOC. AM. SP. PAPER 121, P. 556-557.
- 10) HEINDL, L.A. AND MCCLYMONDS N.E., 1964, YOUNGER PRECAMBRIAN FORMATIONS AND THE BOLSA (?) QUARTZITE OF CAMBRIAN AGE, PAPAGO INDIAN RESERVATION, ARIZONA, IN GEOLOGICAL SURVEY RESEARCH, 1964: U.S. GEOL. SURVEY PROF. PAPER 501-C, P. 143-146.
- 11) HOGUE, WILLIAM G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS.
- 12) BRANKS, N.G., DOCKTER, R.D., SILBERMAN, M.L. AND NAESER, C.W., 1978, RADIOMETRIC AGES OF SOME CRETACEOUS AND TERTIARY VOLCANIC AND INTRUSIVE ROCKS IN SOUTH-CENTRAL ARIZONA: J. RESEARCH U.S. GEOL. SURVEY, V. 6, NO. 4, P. 439-445.

RECORD 00345

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030475
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USBM-0040210841
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 11

NAME AND LOCATION

DEPOSIT NAME..... TROY RANCH PROSPECT
SYNONYM NAME..... MARY ALICE CLAIMS B THRU 21; NEARBY CLAIMS 2,3,4,7

MINING DISTRICT/AREA/SUBDIST. DRIPPING SPRINGS DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL AND GILA
DRAINAGE AREA..... 15050100
LAND CLASSIFICATION..... 49 30 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0024000 SONORA, ARIZ.

LATITUDE LONGITUDE
33-08-53N 110-53-03W

UTM NORTHING UTM EASTING UTM ZONE NO
3667500. 510040. +12

TWP..... 03S
RANGE..... 14E
SECTION.. 23 26
MERIDIAN. G AND SR.

ALTITUDE.. 3480 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE N OF RATTLER MINE

LOCATION COMMENTS: S 1/2 OF 23, N 1/2 OF 26

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU MO

MAIN ORE MINERALS:
CHALCOPYRITE, MOLYBDENITE, PYRITE

MINOR ORE MINERALS:
MINOR BORNITE, INSIGNIFICANT OXIDIZED MINERALS

ANALYTICAL DATA(GENERAL)
STRONG MOLYBDENUM ANOMALY AND COPPER ANOMALY

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
TESTED BY SHALLOW SURFACE DRILLING BY INSPIRATION CONS. COPPER CO. IN 1966-67; GEOCHEMICAL SAMPLING BY AMAX IN 1972

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET
HOST ROCK TYPES..... RATTLER GRANODIORITE, RHYODACITE PORPHYRY DIKES

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... RATTLER GRANODIORITE, RHYODACITE PORPHYRY DIKES

AGE OF MINERALIZATION..... TERT.

PERTINENT MINERALOGY..... QUARTZ-SERICITE-PYRITE SECONDARY K-SPAR, BIOTITE

IMPORTANT ORE CONTROL/LOCUS.. E-W VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
E-W VEINS, DIKES

SIGNIFICANT ALTERATION:
QUARTZ SERICITE-PYRITE VEINS WHICH CUT EARLY K-SPAR-BIOTITE-CHALCOPYRITE-MOLYBDENITE VEINS

COMMENTS (GEOLOGY AND MINERALOGY):
EARLY K-SPAR-BIOTITE-CHALCOPYRITE-MOLYBDENITE VEINS ARE PRESENT THROUGH EAST AND SOUTHERN PARTS OF RATTLER 170 M.Y.) GRANODIORITE. AND APPEAR TO BE RELATED TO INTRUSION OF THAT BODY. QUARTZ-SERICITE-PYRITE-CHALCOPYRITE MINERALIZATION CUTS 63 M.Y.? RHYODACITE PORPHYRY DIKES AND APPEARS TO BE TEMPORALLY RELATED TO THE INTRUSION OF THE DIKE SWARM. AREA OF OVERLAP BETWEEN THESE TWO MINERALIZATION EVENTS OCCURS IN EAST HALF A RATTLER GRANODIORITE PLUTON IN THE AREA OUTLINED IN FIELD A (S.B. KEITH UNPUBLISHED DATA).

GENERAL REFERENCES

- 1) CORNWALL, H.R., BANKO, M.G., AND PHILLIPS, C.H., 1971, GEOLOGIC MAP OF THE SONORA QUADRANGLE, PINAL AND GILA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, GEOL. QUAD MAP GQ-1021.
- 2) KEITH, S.B., UNPUB DATA.
- 3) RANSOME, F.L., 1923, DESCRIPTION OF THE RAY QUADRANGLE: U.S. GEOL. SURVEY FOLIO 217, 24 P., MAPS., P. 24.
- 4) CORNWALL, H.R., AND DRIEGER, M.H., 1975, GEOLOGIC MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOL. SURV., GEOLOGIC QUADRANGLE MAP GQ-1188.
- 5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 205.
- 7) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A MER. MINERAL., V. 19, P. 209-220.

RECORD 00346

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4000483
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
FILE LINK ID..... USDM-0040210232
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 10

NAME AND LOCATION

DEPOSIT NAME..... CHILDS-ALDWINKLE MINE

MINING DISTRICT/AREA/SUBDIST. BUNKER HILL DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL CO.
DRAINAGE AREA..... 15050203
LAND CLASSIFICATION..... 01 49 (1979)

QUAD SCALE QUAD NO OR NAME
1: 0062500 KLONDYKE, ARIZ.

LATITUDE LONGITUDE
32-45-10N 110-28-54W

UTM NORTHING UTM EASTING UTM ZONE NO
3623150. 548550. +12

TWP..... 08S
RANGE..... 18E
SECTION.. 11
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4150 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NW OF COPPER CREEK, 3 1/2 MILES N. OF SOMBRERO BUTTE

LOCATION COMMENTS: WC

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB ZN AG AU AS SB BI

MAIN COMMOD..... CU MO

MINOR COMMOD.... PB ZN

MAIN ORE MINERALS:

MOLYBDENITE, BORNITE, CHALCOPYRITE

MINOR ORE MINERALS:

TENNANTITE PYRITE, FERRIMOLYBDATE, CHALCOCITE, ENARGITE, RARE GALENA AND SPHALERITE, MALACHITE, AZURITE, CUPRITE, COVELLITE, NATIVE COPPER

ANALYTICAL DATA(GENERAL)

MO=1-2%; PHK-17-69: MOLYBDENITE, MAIN HAULAGE LEVEL OF THE CHILDS-ALDWINKLE MINE, COPPER CREEK, GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA. 32 45' 04" N, 110 28' 57" W. ROSETTES OF MOLYBDENITE 5 MM IN DIAMETER ARE INTERGROWN WITH 4 X 2 X 2 MM QUARTZ CRYSTALS IN ALTERED GRANODIORITE OF PALEOCENE AGE. THE GRANODIORITE ALSO CONTAINS 1 MM BLEBS OF CHALCOPYRITE. SE WAS NOT DETERMINED.

MO 58.2%
 MG 0.015
 AL 0.017
 SI 0.82
 CA 0.022
 FE 0.072
 CU 0.048
 W 0.14 & B ND-0.007 & NA ND-0.10 & K ND-0.30 & TI ND-0.022 & V ND-0.004 & CR ND-0.002 & MN ND-0.003 & ZN ND-0.06 & GA ND-0.05 & GE ND-0.01 & SR ND-0.01 & NB ND-0.03 & RU ND-0.02 & HG ND-0.03 & AG ND-0.0002 & SN ND-0.01 & SB ND-0.03 & TE ND-0.10 & TA ND-1.0 & RE ND-0.07 & PT ND-0.01 & TL ND-0.08 & PB ND-0.09 & BE ND-0.002 & U ND-0.30 & MOS2 97.1 & MGO 0.025 & AL2O3 0.032
 SiO2 1.8
 CaO 0.031
 FeS2 0.16
 CuS 0.072
 WS2 0.19

TOTAL 99.4%:

PHK-208-71: MOLYBDENITE, QUARTZ-CEMENTED GRANODIORITE BRECCIA PIPE. MAIN HAULAGE LEVEL OF THE CHILDS-ALDWINKLE MINE, COPPER CREEK, GALIURD MOUNTAINS, PINAL COUNTY, ARIZONA. 32 45' 04" N, 110 28' 57" W. MOLYBDENITE ROSETTES UP TO 8 MM IN DIAMETER ARE INTERGROWN WITH 5 MM TALL X 1.5 MM WIDE QUARTZ CRYSTALS. THIN CRYSTALS OF GYPSUM HAVE FORMED ON TOP OF THE ROSETTES. SE WAS NOT DETERMINED.

MO 58.7%
 MG 0.0079 & AL 0.031 & SI 0.62 & CA 0.019 & TI TR-0.002 & MN 0.022 & FE 0.090 & CU 0.0016 & W TR-0.10 & B ND-0.007 & NA ND-0.10 & K ND-0.30 & V ND-0.004 & CR ND-0.022 & ZN ND-0.05 & GE ND-0.01 & SR ND-0.01 & NB ND-0.03 & RU ND-0.02 & RH ND-0.03 & AG ND-0.0002 & SN ND-0.01 & SB ND-0.03 & TE ND-0.10 & TA ND-1.0 & RE ND-0.07 & PT ND-0.01 & TL ND-0.80 & PB ND-0.08 & BJ ND-0.002 & U ND-0.30 & MOS2 97.0 & MGO 0.013 & AL2O3 0.059 & SiO2 1.3 & CaO 0.027 & TiO2 TR-0.003 & MnS 0.035 & FeS2 0.17 & CuS 0.0024 & WS2 TR-0.13 & TOTAL 99.6% & (KUCK, 1978). & ANALYSES OF THE RHENIUM CONTENT OF MOLYBDENITE OF THE COPPER CREEK REGION, PRESUMABLY FROM THE CHILDS-ALDWINKLE MINE, ARE GIVEN BY HISKEY AND MELOCHE (1940, TABLE 7), WHO REPORT 0, 27.5, AND 40 PPM IN THREE SAMPLES OF MOLYBDENITE CONCENTRATE; AND BY KAISER AND OTHERS (1954, P. 18), WHO REPORT 0, 0, AND 20 PPM IN THREE SAMPLES FROM THE CHILDS-ALDWINKLE MINE. GALBRAITH AND BRENNAN (1959, P. 21) STATE THAT THE RHENIUM CONTENT IN MOLYBDENITE CONCENTRATES FROM THIS MINE, 320-580 PPM, IS THE HIGHEST SO FAR KNOWN. (SIMONS, 1964)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LOCATED IN 1905 BY ALDWINKLE (GRUBSTAKED BY CHILDS)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BRECCIA PIPE

FORM/SHAPE OF DEPOSIT: FUNNEL SHAPED

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

COMMENTS(DESCRIPTION OF DEPOSIT):

NORTHERN BRECCIA MASS (THE ALAMO ORE BODY) 270 FT BY 150 FT BY ABOUT 800 FEET WITH NEARBY VERTICAL SIDES;

SOUTHERN BRECCIA MASS (SOUTH ORE BODY) WAS 220 FT BY 100 FT BY ABOUT 900 FT DIPPING 75 N; THE TWO DOWNWARD
TAPERING, FUNNEL SHAPED OREBODIES JOINED AT A DEPTH OF 450 FT.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 530 FT

LENGTH OF WORKINGS..... 2900 FT

COMMENTS(DESCRIP. OF WORKINGS):

MINE WAS DEVELOPED BY 2 ADIT LEVELS. A 2 COMPARTMENT WINZE EXTENDING DOWN ABOUT 530 LEVELS. TWO LARGE GLORY
HOLES ON SURFACE.

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1 ORE	ACC	87.021	TONS	1936	SIMONS, 1964, P. 154

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 MDS2	ACC	6946.782	LBS	1933-1938	
16 CU	ACC	5859.033	LBS	1933-1938	
17 AG	ACC	26.938	OZ	1933-1938	
18 AU	ACC	.723	OZ	1933-1938	
19 ORE	EST	529	TONS	1933-1938	DENTON, 1967
20 ORE	EST	200	TONS	1933-1965	ABM FILE DATA
21 CU	EST	8356	LBS	1933-1965	
22 AG	EST	36.4	OZ	1933-1965	
23 AU	EST	.945	OZ		
			MO	EST	
			4176		
			LBS		
			1933-1957		

SOURCE OF INFORMATION (PRODUCTION).. KUHN, 1941, P. 529.

PRODUCTION COMMENTS.... ANDERSON, 1968, P. 1181 ARIZONA MOLYBDENUM CORPORATION FROM 1933-1938 PRODUCED 7,000,000
LBS MO, 6,000,000 LBS CU, 700 OZ AU, 27,000 OZ AG FROM THE CHILDS-ALDWINKLE PIPE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET.
 HOST ROCK TYPES..... COPPER CREEK GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y., CREASEY AND KISTLER, 1902)
 IGNEOUS ROCK TYPES..... COPPER CREEK GRANODIORITE

AGE OF MINERALIZATION..... LCRET-TERT

PERTINENT MINERALOGY..... CHLORITE AND QUARTZ MATRIX; SOME APATITE ON LOWER LEVELS; CALCITE AND GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. BRECCIA PIPES AT FAULT AND FRACTURE INTERSECTIONS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIA PIPE IN ZONE OF STRONG EAST-WEST FRACTURES AND FAULTS WITH N60E AND N70W SYSTEMS

SIGNIFICANT ALTERATION:

SERICITE, CHLORITE, TOURMALINE, SILICIFICATION; OXIDATION TO IRON OXIDES IN OUTCROP

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE INTERSECTION OF THE EAST-WEST, N. 60 E., N. 10 W., AND N. 70 W. SYSTEMS OF FAULTS, FRACTURES, AND JOINTS HAS BROKEN, WITHOUT MARKED ROTATION, MASSES OF ROCK INTO SMALL BLOCKS SUFFICIENTLY PERMEABLE TO PERMIT PASSAGE OF ALTERING SOLUTIONS.

2. ALTERING SOLUTIONS WERE LOCALIZED IN A SMALL AREA WITHIN THE BROKEN ZONE BY FISSURES, WHICH IN THE CASE OF THE CHILDS-ALOWINKLE MINE PROBABLY STRIKE N. 10 W.

3. ALTERING SOLUTIONS ASCENDING FRACTURES AND JOINTS WERE GUIDED AND CONTROLLED BY LARGE FAULTS. THESE SOLUTIONS CAUSED REPLACEMENT OF THE ROCK ADJACENT TO THE JOINTS AND FRACTURES BY CHLORITE, SERICITE, QUARTZ, FELDSPAR, AND TOURMALINE, WHICH GRADUALLY DESTROYED THE ROCK, UNTIL, IN PLACES, IT WAS ENTIRELY REPLACED BY SECONDARY MINERALS.

METALIC MINERALS ARE CONSIDERED LATER THAN GANGUE MINERALS.

COMMENTS (GEOLOGY AND MINERALOGY):

THE COPPER CREEK GRANODIORITE INTRUDES PRECAMBRIAN, PALEOZOIC, AND MESOZOIC ROCKS, AND IS overlain BY GALLIARD VOLCANICS OF MIOCENE AGE (ANDERSON, 1968).

GENERAL COMMENTS

SEE RECORD NUMBER MB99993 FOR REFERENCES

RECORD 00347

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030452
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
FILE LINK ID..... USBM-C040210989
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... POWERS GULCH AREA

MINING DISTRICT/AREA/SUBDIST. SUMMIT DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... PINAL CO.

QUAD SCALE QUAD NO OR NAME
1: 0024000 PINAL RANCH, ARIZ.

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR HEAD OF POWERS GULCH NEAR NW CORNER OF QUAD

LOCATION COMMENTS: LOCATION UNCERTAIN

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... QUARTZ

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL SCATTERED KNOTS OF MOLYBDENITE OCCUR IN VEINS OF GLASSY QUARTZ

GENERAL REFERENCES

- 1) PETERSON 1962 - MD.
- 2) 1946 TUNGSTEN MEM. GSA MEM 15

RECORD 00348

CRIM MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030386
RECORD TYPE..... X2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

SYNONYM NAME..... INCLUDES ALTA, AMERICAN, AZTEC, BASIN, BENDER, BLACK EAGLE, BLUE EAGLE, BLUE NOSE,
BUFFALO, CALIFORNIA, CHRISTMAS GIFT OR HORSESHOE, FLUX, HARDSHELL, HERMOSA, HUMBOLDT, JANUARY & NORTON,
SALVADORE, SONOITA CREEK - ALUM CANYON, SUNNYSIDE & VOLCANO, FRENCH, & WORLDS FAIR MINES.

MINING DISTRICT/AREA/SUBDIST. HARSHAW DISTRICT/NE PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO

QUAD SCALE QUAD NO OR NAME
1: 62500 MT WRIGHTSON, ELGIN, NOGALES, AND LOCHIEL, ARIZ. QUADS.

LATITUDE LONGITUDE
31-28-00N U00-42-23W

TWP..... 022S 023S
RANGE.... 015E 016E

ALTITUDE.. 4500-5500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: HARSHAW DISTRICT IS ABOUT 5 MILES WIDE AND EXTENDS FROM SONOITA CREEK AT
PATAGONIA 9 MI. SE TO 3 MI BEYOND HARSHAW. HARSHAW CREEK IS NE BOUNDARY, MEADOW VALLEY FLAT IS E BOUNDARY; E-W
LINE SOUTH OF AMERICAN MINE IS S BOUNDARY, MAIN RIDGE OF PATAGONIA MTS IS W BOUNDARY

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB AG AU CU MN MO F BA AL3

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. ZN PB AG
MINOR PRODUCTS.. CU AU MN

MAIN COMMOD..... ZN PB AG AU CU MN
MINOR COMMOD..... F BA AL3 MO

MAIN ORE MINERALS:
SPHALERITE, GALENA, PYRITE

MINOR ORE MINERALS:
CHALCOPYRITE, SPECULARITE, RUBY SILVER, ARGENTITE, CERARGYRITE, TETRAHEDRITE, CHALCOCITE BORNITE ALABANDITE
SILVER FRALIDES, CERUSSITE, SMITHSONITE FREIBERGITES, PEARCITE SILVER ANTIMONIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

LODES & VEINS, DISSEM;

FORM/SHAPE OF DEPOSIT: IRREGULAR & LENSING

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT, TUNNEL, ADIT, & OPEN PIT OPERATIONS

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		1300.	TONS	1850-1965	
16 PB EST		72	TONS	1850-1965	5.5% PB
17 ZN EST		86	TONS	1850-1965	6.6% ZN
18 AG EST		9,200	OZ	1850-1965	0.24% CU
19 CU EST		3.1	TONS		
20 AU EST		4.3	OZ	1850-1965	0.003 OZ/T AU
21 MN ORE EST		10	LONG TONS	1850-1965	ARGENTIFEROUS SMELTER FLUX

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR, TRI, CRET & TERT

HOST ROCK TYPES..... ANDESITIC & RHYOLITE VOLCANICS. PERMIAN CONCHA LIMESTONE; JURASSIC OR TRIASSIC
SILICIC VOLCANIC ROCKS, INCLUDED SEDIMENTARY ROCKS AND MONZONITE (?) PORPHYRY; CRETACEOUS BISBEE FORMATION;
CRETACEOUS SILICIC VOLCANICS; CRETACEOUS TRACHYANDESITE; AND LARAMIDE RHYOLITE.

AGE OF ASSOC. IGNEOUS ROCKS.. CRET - TERT

IGNEOUS ROCK TYPES..... PROB INTRUDED BELOW BY A LARAMIDE GRANITIC BODY

PERTINENT MINERALOGY..... QUARTZ, FLUORITE, BARITE,

PYROLUSITE, RHODOCHROSITE

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATED & FRACTURE FILLINGS OF CU

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT FISSURES & BRECCIA ZONES

SIGNIFICANT ALTERATION:
SILICIC, ARGILLIC, CHLORITIC, PROPYLITIC

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SOME REPLACEMENT OF LS IN VOLC; AG ENRICHMENT NEAR SURFACE; SPOTTY AU PLACERS DISSEM & FRAC. FILL. OF CU.

GENERAL REFERENCES

- 1) KEITH, S. B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 55-60, 70.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 245-279.
- 3) HARSHAW DISTRICT REFERENCES:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP I-762.
- 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF PAPER 658-E, 23 P.
- 7) KARTCHNER, W.E. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION. 100 P.
- 8) MOORES, R.C., III (1972) THE GEOLOGY AND ORE DEPOSITS OF A PORTION OF THE HARSHAW DISTRICT, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 99 P.
- 9) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 10) DREWES, HARALD, 1970, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
- 11) BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 12) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 13) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 14) BODNAR, R.J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, 70 P.
- 15) CORN, R.M., 1975, ALTERATION-MINERALIZATION ZONING, RED MOUNTAIN, ARIZONA: ECON. GEOL., V. 70, P. 1437-1447.
- 16) DAVIS, S.R. (1975) THE HARDSHELL SILVER DEPOSIT, HARSHAW MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA (ABSTR.) SYMPOS. NEW MEX. GEOL. SOC. AND ARIZ. GEOL. SOC. ABSTR. PROGR. 6.
- 17) VON FAY, S., 1965, "HARDSHELL AREA," ASARCO COMPANY REPORT.
- 18) COURTRIGHT, J.H., 1968, "HARDSHELL PROJECT - SILVER-MANGANESE ORE, PROJECT 3103," REPORT NO. 4327, ASARCO CENTRAL RESEARCH LABORATORIES, SOUTH PLAINFIELD, NEW JERSEY.
- 19) DALLA VISTA, A., 1969, "HARDSHELL PROJECT GEOCHEMICAL SAMPLING," ASARCO COMPANY REPORT.
- 20) DAVIS, S.R., 1970, "HARDSHELL GEOLOGICAL REPORT," ASARCO COMPANY REPORT.

RECORD 00349

CRIO MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030407
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. TYNDALL/W SLOPE S. SANTA RITAS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-44- N 110-55- W

TWP..... 021S 023S
RANGE.... 014E 015E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4800-7200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ELEPHANT HEAD SOUTH TO SONJITA CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG ZN CU AU

MAIN ORE MINERALS:

GALENA, ARGENTITE PYRITE, TETRAHEDRITE, CHALCOPYRITE, CHALCOHITE, SPHALERITE BORNITE

MINOR ORE MINERALS:

CHRYSOCOLLA, AZURITE, COVELLITE, MALACHITE BARITE, URANINITE, CERARGYRITE, SMITHSONITE, PYROMORPHITE,
CERUSSITE, ANGLESITE, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT AND QUARTZ FISSURE VEINS AND DISSE.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SCATTERED MINES AND PROSPECTS (KEITH, 1975)

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		56	TONS	1680-1974	16.79% PB, 5% ZN, 0.93% CU, 8.6 OZ/T AG, 0.02 OZ/T AU
16 PB EST		9.4	TONS	1680-1974	16.79% PB
17 ZN EST		2.8	TONS	1680-1974	5% ZN
18 CU	EST	.52	TONS	1680-1974	0.93% CU
19 AG	EST	480	OZ	1680-1974	8.57 OZ/T AG
20 AU	EST	1.26	OZ	1680-1974	0.02 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... SOME WORKED FROM TIME OF JESUITS TO RECENT TIMES. TOTAL ESTIMATED AND REPORTED PRODUCTION WOULD BE SOME 56,000 TONS OF ORE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT CRET. JUR PAL
 HOST ROCK TYPES..... SQUAM GULCH GRANITE (JUR.); HJQUILLA LIMESTONE (PENN); JOSEPHINE CANYON DIORITE (TERT.)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT CRET JUR.
 IGNEOUS ROCK TYPES..... TERTIARY QUARTZ VEINS; CRETACEOUS VOLCANICS; JOSEPHINE CANYON DIORITE (TERT.); SQUAM GULCH GRANITE (JUR.)

PERTINENT MINERALOGY..... LIMONITE, SILICA

IMPORTANT ORE CONTROL/LOCUS.. TERTIARY QUARTZ VEINS AND RHYOLITE PORPHYRY DIKES; TERTIARY QUARTZ DIORITE; FRACTURED ZONES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

SHALLOW OXIDATION, ALTERATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SUPERGENE ENRICHMENT; REPLACEMENT OF PALEOZOIC LIMESTONE

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 83-88.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY

JAMES M. HILL: USGS BULL. 582, 373 P., P. 180-220.

3) TYNDALL MINING DISTRICT:

SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

4) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.

5) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

9) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HEIVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F.

10) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

11) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

12) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

13) KIRKEND, HAROLD, ANDERSON, C.A. AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.

14) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

15) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-59.

16) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614.

17) DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970).

18) DREWES, H., STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.

20) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

21) DREWES, H., PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.

22) DREWES, H., 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746.

23) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538.

24) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A.

25) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182.

26) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365.

27) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324.

28) OLSON, H. J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY V. 61, NO. 4, P. 731-743.

29) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

30) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

31) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

32) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

- 33)ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 34)WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 35)BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 36)THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 37)POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 38)MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVET 1, ARIZONA: 4- 331 333 2 33 2 233 - C ()
- 39)JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.F., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 40)HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 41)SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 42)SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 43)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 44)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 45)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 46)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1975.
- 47)MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920
- 48)THE MINES HANDBOOK, VOL. XV-SVII, 1922-1925, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.

RECORD 00350

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030391
RECORD TYPE..... 12
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

SYNONYM NAME..... PALMETTO DISTRICT INCLUDES: COLLICELLO & LURAY, DOMINO EUROPEAN (BUENA VISTA),
JARILLAS, NEW HOPE, SONOITA, THREE-2, TRES DE MAYO, & VENTURA MINE GROUPS.

MINING DISTRICT/AREA/SUBDIST. PALMETTO DIST/PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO.

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-26-45N 110-48-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3478825. 518950. +12

TWP..... 022S 023S
RANGE.... 015E 015E
SECTION.. 35 36 01 02 09 10 11 12
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 12 MILES NE OF NOGALES WEST SLOPE OF PATAGONIA MTS BETWEEN SONOITA CREEK
TO THE NORTH & CANADA DE LA PALOMA TO THE SOUTH.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB AG AU ZN MO MN ALZ

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG CU
MINOR PRODUCTS.. PB ZN AU

MAIN COMMOD..... CU PB AG AU
 MINOR COMMOD.... ZN MN MB ALZ

MAIN ORE MINERALS:
 GALENA, CERUSSITE, NATIVE SILVER

MINOR ORE MINERALS:
 WULFENITE, CHALCOPYRITE, GOLD, MALACHITE AZURITE, PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 FISSURE VEIN, DISSEM.
 FORM/SHAPE OF DEPOSIT: IRREGULAR, TABULAR, LENSING

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
 (KEITH, 1975) NUMEROUS BUT MOSTLY SHALLOWS SMALL OPERATIONS

PRODUCTION
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CU ACC		5.5	TONS	1850-1974	4.16%
16 AG ACC		75	OZ	1850-1974	0.57 OZ/T
17 PB ACC		.225	TONS	1850-1974	0.17%
18 AU ACC		.240	OZ	1850-1974	0.002 OZ/T
19 ZN ACC		.001	TON	1850-1974	TRACE
20 ORE ACC		132	TONS	1850-1974	4.16% CU, 3.57 OZ/T AG, 0.17% PB, AU ZN

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... PROSPECTED AND MINED SINCE MID 1800'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC., JUR., TRI
 HOST ROCK TYPES..... PRECAMBRIAN BIOTITE OR BIOTITE HORNBLende QUARTZ MONZONITE, PRECAMBRIAN
 HORNBLende-RICH METAMORPHIC & IGNEOUS ROCKS; JURASSIC GRANITE OF COMORO CANYON (MOSTLY EQUIGRANULAR); TRIASSIC MT
 WRIGHTSON FORMATION.

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. (160 +/- 20 M.Y.)
 IGNEOUS ROCK TYPES..... GRANITE OF COMORO-CANYON QUARTZ MONZONITE

PERTINENT MINERALOGY..... BANDED QUARTZ VEINS WITH LIMONITE & PSILOMELANE

IMPORTANT ORE CONTROL/LOCUS.. FAULT ZONE; SHEAR ZONES; GOLD PLACERS QUARTZ FISSURE VEINS OF AG GALENA IN CONTACT ZONE OF GRAN & PC METAM.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE, SHEAR ZONES, CONTACT ZONES

SIGNIFICANT ALTERATION:

OXIDIZED COPPER MINERALIZATION; ALTERED JUR. GRAN.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

DISSEM.; VEINS, FAULTS ETC, CONTACT ZONES

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE AS BEAUTIFULLY CRYSTALLIZED SPECIMENS ASSOCIATED WITH GALENA, CERUSSITE & NATIVE SILVER

GENERAL REFERENCES

1) GENERAL REFERENCES:

KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 73.

2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 279-292.

3) PALMETTO DISTRICT GEOLOGY:

SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

4)ELSGING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

5)BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)

6)ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

7)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 207.

8)CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.

9)SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.

10)SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762

11)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.

12)HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS, OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.

13)HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANEEL HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.

14)GRAYBEAL, F. T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

15)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO CDO-689-50, UNIV. ARIZ. GEOPHYSICS LABS., P.

16)TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. -1-8

16)KUCK, P. H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND ARIZ., P 51.

17)DAVIS, H.E., 1916, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)

18)BIRD, A. T., 1916-17 RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.

19)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

- 20)DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 21)FETH, J.H., GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH Mimeo. REP., 12 P. (1954)
- 22)PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 174-176.
- 13)SCHRADER, F.C., 1913, ALUNITE IN PATAGONIA, ARIZONA, AND BOYARD, NEVADA: ECON. GEOL., V. 8, NO. 8, P. 752-767.
- 24)SCHRADER, F.C., 1914, ALUNITE IN GRANITE PORPHYRY NEAR PATAGONIA, ARIZONA: U.S. GEOL. SURVEY BULL. 540, P. 347-350.
- 25)HANDVERGER, P.A. GEOLOGY OF THE THREE R MINE, PALMETTO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1963)
- 26)MOGER, S.R. (1969) THE GEOLOGY OF THE WEST CENTRAL PORTION OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA, UNIV. ARIZONA M.S. THESIS. 60 P.
- 27)KING, R. B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 4) GEOLOGY OF SANTA RITA MTS (SURROUNDING AREA):
 - DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
 - 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
 - 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
 - 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
 - 12)DREWES, HARALD B. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLOR., 6 P. (1966)

RECORD 00351

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030419
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE (NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... ?

MINING DISTRICT/AREA/SUBDIST. PAJARITO DISTRICT/PAJARITO MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

TWP..... 023S 024S

RANGE.... 012E 012E

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB AU CU ZN U MO AS F V HG MN

MAIN COMMOD..... AG PB AU

MINOR COMMOD..... CU ZN U MO AS F HG MN V

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA PYRITE, MARCASITE

MINOR ORE MINERALS:

TRACES OF CHALCOPYRITE, SPHALERITE, ARSENOPYRITE CINNABAR WULFENITE, VANADINITE, FLUORITE PITCHBLLENDE;
ANGLESITE, CERUSSITE, ARGENTITE, NATIVE AG AND AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA
 SIZE OF DEPOSIT..... IRREGULAR

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
 RELATIVELY SHALLOW SHAFTS, ADITS AND OPEN CUTS

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		1	TONS	1850-1972	41 OZ/T AG, 0.22 OZ/T AU, 15.9% PB, 0.25% CU, TRACE U, TRACE ZN
16 AG EST		41	OZ	1850-1972	41 OZ/T AG
17 AU EST		.216	OZ	1850-1972	.22 OZ/T AU
18 PB EST		.159	T1972	1850-1972	15.9% PB
19 CU EST		.0025	TONS	1850-1972	0.25% CU
20 U EST				1950-1972	SMALL AMOUNT
21 ZN EST		200	LB	1850-1972	TRACE ZN

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... WORKED SINCE MID-1800'S WHEN HIGH GRADE AG POCKETS MINED

GEOLOGY AND MINERALUGY

AGE OF HOST ROCKS..... CRETACEOUS
 HOST ROCK TYPES..... QUARTZ LATITE VOLCANICS

IMPORTANT ORE CONTROL/LOCUS.. REPLACES GAUGE AND ALTERED WALL ROCK OR FILLS FRACTURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
 ALTERED WALL ROCK

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 72
- 2) ROBISON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN. REPORT A-P-287, 1 P.
- 3) WEBB, B.P. AND CORYELL, K.C., 1954, PRELIMINARY REGIONAL MAPPING IN THE RUBY QUADRANGLE, ARIZONA: U.S. ATOMIC ENERGY COMM., TECH. REPT. RME-2009.
- 4) NELSON, F.J., 1963, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREAS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) NELSON, F.J., 1968, VOLCANIC STRATIGRAPHY AND STRUCTURE OF THE PENA BLANCA AND WALKER CANYON AREAS, SANTA CRUZ COUNTY, ARIZONA: ARIZ. GEOL. SOC., SO. ARIZ. GUIDEBOOK III, P. 171-182.
- 6) CUNNINGHAM, JOHN E., 1964, GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 139 P. (ABS.): DISSERT. ABS., V. 25, NO. 12, PT. 1, P. 7202 (1956)
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) GEOLOGY OF NEARBY AREAS:
 - SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
 - 4) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538

- 5) REED, R.K., 1966, STRUCTURE AND PETROGRAPHY OF THE FRAQUITA PEAK AREA, SANTA CRUZ COUNTY, ARIZONA; UNIV. ARIZ., M.S. THESIS, 64 P.
- 6) KNIGHT, L.M., 1970, STRUCTURE AND MINERALIZATION OF THE ORD BLANCO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA; UNIV. ARIZ., PH.D. THESIS, 172 P.
- 7) DREWES, H., 1979, TECTONIC MAP OF SOUTHEAST ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT 79-775.
- 8) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA; UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 9) PLOUFF, D., 1961, GRAVITY SURVEY NEAR TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. 259, FIG. 384.2.
- 10) KEITH, W.J., AND THEODORE, T.G., 1975, RECONNAISSANCE GEOLOGIC MAP OF THE ARIVACA QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY MF-679.
- 11) 77-809. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR SELLS, ARIZONA. LAT 31 30' TO 32 , LONG 111 TO 112 . THIS DATA SET CONSISTS OF FOUR MAPS KEYED TO THE USGS TOPOGRAPHIC MAP SELLS, 1:100,000 (1 INCH = ABOUT 1.6 MILES). THESE MAPS ARE CODED FOR STATISTICAL DATA DEVELOPMENT. THE MAPS ARE (1) LAND USE AND LAND COVER, (2) POLITICAL UNITS, (3) HYDROLOGIC UNITS, AND (4) CENSUS COUNTY SUBDIVISION. ALSO INCLUDED IS ONE POSITIVE OF THE CULTURAL BASE FOR SELLS AT 1:100,000. (USGS, WESTERN MAPPING CTR. (NCIC-W), 345 MIDDLEFIELD RD., MENLO PARK, CA 94025.)
- 12) 77-807. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR ATASCOSA MOUNTAINS, ARIZONA. LAT 31 TO 31 30', LONG 111 TO 112 . THIS DATA SET CONSISTS OF FOUR MAPS KEYED TO THE USGS TOPOGRAPHIC MAP ATASCOSA MOUNTAINS, 1:100,000 (1 INCH = ABOUT 1.6 MILES). THESE MAPS ARE CODED FOR STATISTICAL DATA DEVELOPMENT. THE MAPS ARE (1) LAND USE AND LAND COVER, (2) POLITICAL UNITS, (3) HYDROLOGIC UNITS, AND (4) CENSUS COUNTY SUBDIVISION. ALSO INCLUDED IS ONE POSITIVE OF THE CULTURAL BASE FOR ATASCOSA MOUNTAINS AT 1:100,000. (USGS, WESTERN MAPPING CTR. (NCIC-W), 345 MIDDLEFIELD RD., MENLO PARK, CA 94025.)

RECORD 00352

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030417
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... ?
SYNONYM NAME..... INCLUDES: AMERICAN BOY MINE GROUP, ANACONDA MINE GROUP (DOUBLE HEADER, ULTIMA,
COPPER MOUNTAIN OR ARMADA, PHILADELPHIA, LITTLE JOKER, ST. LOUIS, SILVER CAVE), CASTLE BUTTE MINE, DIXIE MINE,
GRINGO MINE GROUP, HAPPY JACK MINE, HOSEY MINE GROUP, LAST CHANCE MINE, LEAD KING MINE, MANSFIELD MINE GROUP
(SWEET, BLACK CAP, RUBY, RUPERT, LEE) (KEITH, 1975)

MINING DISTRICT/AREA/SUBDIST. WRIGHTSON/SE SANTA RITAS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-31D 31 42'N 110-45D 50'W

UTM NORTHING UTM EASTING UTM ZONE NO
3490000. TO 3507000 515000. TO 523000

TWP..... 020S 22S
RANGE.... 015E 16E
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: FROM JOSEPHINE PEAK AND MT. WRIGHTSON TO PATAGONIA

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG CU ZN AU BA MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB AU CU AG

MAIN COMMOD..... CU PB AG AUU

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
TETRAHEDRITE, BORNITE, SPHALERITE, FREE GOLD

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ FISSURE VEINS AND REPLACEMENT
FORM/SHAPE OF DEPOSIT: PARALLEL BANDS, SWARMS, LENSES

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
NUMEROUS SCATTERED PROSPECTS AND SMALL MINES (KEITH, 1975)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		4	TONS	1870-1972	
16 PB EST	.475	TONS		1870-1972	11.8% PB
17 AG EST	5.1	OZ		1870-1972	12.75 OZ/T AG
18 CU EST	.119	TONS		1870-1972	2.98% CU
19 AU EST	.386	OZ		1870-1972	0.097 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... WORKED SINCE THE LATE 1870'S AND UP THROUGH THE 1900'S.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MFS AND TERT.
HOST ROCK TYPES..... BANDED BELT OF FOLDED AND FAULTED VOLCANICS AND INTERBEDDED SEDIMENTARY TUFFACEOUS MEMBERS

AGE OF ASSOC. IGNEOUS ROCKS.. CRET AND JUR AND TERT
IGNEOUS ROCK TYPES..... GRANITE AND QUARTZ MONZONITE; GRANODIORITE STOCKS WITH RHYOLITE AND QUARTZ LATITE DIKES

PERTINENT MINERALOGY..... BARITE AND CALCITE ARE COMMON GANGUE MINERALS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
OXIDIZED AND ENRICHED NEAR SURFACE

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 88.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 220-239.
- 3) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 4) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 5) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 6) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614
- 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100.
- 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 206.
- 9) KING, K.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236.
- 10) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 3) GEOLOGY OF SANTA RITA MTS.:
 - CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
 - 4) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 6) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 7) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
 - 8) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 9) DREWES, HAROLD H., GEOLOGIC MAP OF THE SAMUARTIA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
 - 10) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 11) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 12) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 13) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 14) DREWES, H., 1972A, CONDZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 15) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 16) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 17) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
 - 18) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
 - 19) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 20) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL.

- SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 21) OLSON, H.J., 1966, OXIDATION OF THE SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 22) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 23) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 24) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 25) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 26) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 27) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 28) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 29) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 30) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 31) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 32) HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 33) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 34) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 35) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 36) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 37) GRAYREAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 38) DRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 39) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920

RECORD 00353

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030414
RECORD TYPE..... 12
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... ?
SYNONYM NAME..... FORMERLY A PART OF THE TYNDALL DISTRICT; INCLUDES FOLLOWING CAMPS: FOSTER-TREMAIN
PROSPECTS, JACK MOUNTAIN, MCCLEARY CAMP, ROBINSON CAMP, LITTLESNOT CAMP (MADERA CANYON), CURRY CAMP, OLD MADERA
MINING CO. CAMP AND THE FOLLOWING PROPERTIES AND MINES: CARRIE NATION, CENTRAL, COPPER KING, COPPER QUEEN,
FLORIDA, GREAT WESTERN, HELEN GOULD, IRON CLIFF, IRON MASK (MCCLEARY), IRON MASK (LITTLESNOT), JACKSON, LEAD,
LONE STAR, LUCKY LEDGE, MIDST, HOLYBONITE, OLD BALDY, SAWMILL, SPEAR, STAR POINTER, TUCSON, UPPER AND VELVET.

MINING DISTRICT/AREA/SUBDIST. OLD BALDY DIST/WEST SLOPE SANTA RITA MTS IN MADERA CANYON

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-42-21N 110-51-32W

TWP..... 020S
RANGE.... 014F
SECTION.. 01 12
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5200-7000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IS ABOUT 3 1/2 MILES WIDE AND EXTENDS FROM THE MCCLEARY RANCH AND
SAWMILL CANYON 6 MILES SOUTHWARD ACROSS THE PIMA - SANTA CRUZ COUNTY LINE TO MT. HOPKINS AND OLD BALDY PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN AG AU MO

MAIN COMMOD.....

MINOR COMMOD..... CU PB ZN MO AG AU

MAIN ORE MINERALS:
CHALCOPYRITE CHALCOHITE BORNITE PYRITE

MINOR ORE MINERALS:
AZURITE, MALACHITE CUPRITE, LIMONITE HEMATITE MAGNETITE, SOME GALENA AND SPHALERITE, CERUSSITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
YEAR OF DISCOVERY..... 1870'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS, ENRICHMENT, DISSEMINATED
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SPOTTY AND WEAK

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SCATTERED, SMALL AND GENERALLY SHALLOW OPERATIONS. MOSTLY PROSPECTS WITH NO RECORDED PRODUCTION.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI (MORE THAN 220 M.Y. PB (DREWES, 1971))
HOST ROCK TYPES..... LOWER MEMBER OF MOUNT WRIGHTSON FORMATION (LARGELY DACITIC AND LATITIC FLOWS) IN
CONTACT METAMORPHOSED ZONE (DREWES, 1971))

AGE OF ASSOC. IGNEOUS ROCKS.. CRET. (68 M.Y. K-AR)
IGNEOUS ROCK TYPES..... MADERA CANYON GRANODIORITE COARSE GRAINED PHASE

PERTINENT MINERALOGY..... SILICEOUS, IRON STAINING, A LITTLE BARITE

IMPORTANT ORE CONTROL/LOCUS.. FRACTURES AND JOINTS IN DIORITE NEAR APLITE DIKES OR RHYOLITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEAR ZONES

SIGNIFICANT ALTERATION:
PARTIALLY OXIDIZED

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 61.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 166-180.
- 3) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 4) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA

MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.

5)WHITACKER, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS

6)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

7)ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

3) GEOLOGY OF SANTA RITA MTS:

DREWES, HARALD G. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

4)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.

5)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

6)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

7)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.

8)DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746

9)DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538

10)DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A

11)DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365

12)DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182

13)DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324

14)HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-55.

15)OLSON, H.J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.

16)OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

17)SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

18)ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

19)SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS

20)BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES

21)THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)

22)POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)

23)MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)

24)JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)

25)HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)

26)ELSGING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

27)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

- 28) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 29) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 30) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 31) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 73 P.
- 32) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOPHYSICS LABS. P. A11-1-89
- 33) SIMONS, F.S., 1974, GEOLOGIC MAP OF NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-752.
- 34) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 35) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 36) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 37) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920
- 38) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
- 39) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 40) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 41) KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 42) HESS, F.L., 1924, MOLYBDENUM DEPOSITS - A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

RECORD 00354

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030411
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... ALTO VEIN SHARM
SYNONYM NAME..... GOLD TREE MINE, EL PLOMO MINE, B&R, LONG CONTACT MINERAL, MINERAL NO 2, ALBERT,
ALTO, EXCELSIOR, AND HILLSIDE VEINS.

MINING DISTRICT/AREA/SUBDIST. TYNDALL AND WRIGHTSON DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT WRIGHTSON

LATITUDE LONGITUDE
31-36-41N 110-51-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3497150. 513050. 12

TWP..... 021S
RANGE..... 014E
SECTION.. 12 13
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 1/2 MILES N OF SALERO

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB ZN CU MO AU SB BI AS BA W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG
MINOR PRODUCTS.. CU ZN AU

MAIN COMMOD..... PB AG CU ZN
 MINOR COMMOD..... AU MO SB BI AS PA U

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... MO
 OCCURRENCE..... U BA BI SB AS

MAIN ORE MINERALS:

GALENA SPHALERITE, CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:

ARGENTITE MOLYBDENITE BARITE, TETRAHEDRITE, CERUSSITE SPECULAR HEMATITE, MALACHITE, AZURITE, CHALCOCITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1697

BY WHOM..... DISCOVERED BY JESUIT PRIESTS OF TUMACACORI MISSION

PRESENT/LAST OWNER..... LULLY, A. STEINFELD AND CO., ALTO CONSOLIDATED MINES, SMLTG. AND TRANSPORTATION CO.,
 ALTO COPPER CO., SOUTHWEST DEVELOPMENT CO., HENDERSON, BRADFORD, BOND, LAGUNA, MORENO, LONG CONTACT MG. CO., B&R
 MINES, FORTUNA MG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEINS

FORM/SHAPE OF DEPOSIT: TABULAR

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 2000 FT

MAX WIDTH..... 7 FT

STRIKE OF OREBODY.... E-W

DIP OF OREBODY..... 70

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 220 FT

LENGTH OF WORKINGS..... 10,000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE TUNNEL AND SHAFT OPERATIONS; ALTO TUNNEL IS 1632 FT LONG; MOST SHAFTS ARE WATER FILLED.

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		3.5 TONS		1680-1972	12% PB, 14 OZ/T AG, 3% CU, MINOR ZN AND AU.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 83

PRODUCTION COMMENTS.... WORKED ORIGINALLY BY JESUITS AND LATER BY OTHERS INTERMITTENTLY SINCE 1680'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES CRET TERT JUR

HOST ROCK TYPES..... ARKOSE MEMBER OF RHYODACITE WELDED TUFF AND ARKOSE MEMBERS OF SALERS FORMATION WHICH GRADES INTO Laterally AND Locally UNDERLIES TUFF MEMBER (DREWES, 1971). Intruding SALERS FORMATION IS JOSEPHINE CANYON DIORITE MODERATELY COARSE-GRAINED QUARTZ DIORITE PHASE (67 M.Y. KAR, 62 & 63 M.Y. PB) (DREWES, 1971). ALSO NEARBY TO SOUTH IS JURASSIC SQUAW PEAK GRANITE. QUARTZ LATITE PORPHYRY, GRANITE PORPHYRY; DIORITE AND MONZONITE; DARK RED BROWN ANDESITE DIKE (SCHRADER)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. CRET JUR.

IGNEOUS ROCK TYPES..... TERTIARY QUARTZ VEIN, CRET-TERT. JOSEPHINE CANYON DIORITE, JURASSIC SQUAW PEAK GRANITE

AGE OF MINERALIZATION..... EOC

PERTINENT MINERALOGY..... IRON AND MANGANESE OXIDES; QUARTZ-BARITE FISSURES; SPARSE FINE GRAINED URANINITE CRYSTALS IN ACROSS FRACTURE

IMPORTANT ORE CONTROL/LOCUS.. TENSION FRACTURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
KAOLINIZATION IN FAULT GAUGE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SUPERGENE ENRICHED AND OXIDIZED NEAR SURFACE

COMMENTS (GEOLOGY AND MINERALOGY):

NW TO SE ZONATION OF SULFIDES (GALENA) TO BARITE WITH DEEPER EROSION TO NW

GENERAL REFERENCES

1) GENERAL REFERENCES:

KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 83.

2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 197-203.

3) DREWES, H., 1973, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365, P. 12-14.

4) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.

5) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746

6) COPPER HANDBOOK, V. III, 1903.

3) GEOLOGY OF SANTA RITA MTS:

HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.

4) DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.

6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.

9) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-53B

- 10) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
- 11) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
- 12) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64 TH ANN. MEET., TUCSON, P. 315-324
- 13) OLSON, H.J., 1966, OXIDATION OF SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 14) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 15) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 16) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 17) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 18) KUHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 19) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 20) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 21) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA-CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 22) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 23) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 24) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 25) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 26) HEATHWOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 27) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOPHYSICS LABS. P. A11-1-8.
- 28) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 29) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163
- 30) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 31) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 32) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
- 33) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 34) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 35) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 36) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 37) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F

- 38)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 39)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 40)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 41)BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 42)KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 43)THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
- 44)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

RECORD 00355

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M001447
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 08
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BENTON MINE

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL

LATITUDE LONGITUDE
31-20-26N 110-41-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3467200. 529075. +12

TWP..... 024S
RANGE..... 016E
SECTION.. 15
MERIDIAN. G&SR

ALTITUDE.. 5200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SAN ANTONIO CANYON, PATAGONIA MTS. DUQUESNE AREA

LOCATION COMMENTS: EAST CENTER OF SEC 15 PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU

MAIN COMMOD..... CU MO AU

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, MOLYBDENITE

MINOR ORE MINERALS:
AZURITE, MALACHITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
14% CU, \$6-\$8/T AU (SCHRADER, 1915, P. 347)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... LOCATED IN JANUARY 1908, ALTHOUGH KNOWN IN EARLY 1880'S.
PRESENT/LAST OWNER..... DENNIS COUGHLIN AND PARTNERS (1909)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM.

DESCRIPTION OF WORKINGS

UNDERGROUND
LENGTH OF WORKINGS..... 165 FT

COMMENTS(DESCRIP. OF WORKINGS):
165 FT TUNNEL (SCHRADER, 1915, P. 347)

PRODUCTION

NO PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, AZ. BUR. MINES FILE DATA

PRODUCTION COMMENTS.... NO KNOWN PRODUCTION; KNOWN IN EARLY 1930'S; NOT LOCATED OR WORKED UNTIL JANUARY 1908

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. KEITH, Z. BUR. MINES FILE DATA

COMMENTS (RESERVES/POT RESOURCES).. LOW GRADE ORE BODY, AVERAGES 2% CU ON EAST SIDE OF DIKE; OXIDIZED OUTCROP OF
DIKE SHOWS MALACHITE, AZURITE AVERAGING 14% CU, \$6-\$8 AU/T

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
HOST ROCK TYPES..... BIOTITE HORNBLENDE GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)
IGNEOUS ROCK TYPES..... BIOTITE HORNBLENDE GRANODIORITE AND APLITE

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... IRON STAINED

LOCAL GEOLOGY

**SIGNIFICANT ALTERATION:
SERICITIC ZONE AT CONTACT OF QUARTZ MONZONITE AND GRANITE PORPHYRY**

**COMMENTS (GEOLOGY AND MINERALOGY):
MOLYBDENITE ALONG 60 FT GRANITE PORPHYRY DIKE**

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 346-347.
- 3) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 161.
- 4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 5) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 6) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 3) GENERAL GEOLOGY OF PATAGONIA MTS:
 - KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
 - 6) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 9) SCHRADER, R.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 10) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
 - 11) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 12) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 13) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 14) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 15) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
 - 16) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
 - 17) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
 - 18) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WOOD, 1912-1914; HOUGHTON, MICHIGAN
 - 19) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
 - 20) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
 - 21) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
 - 22) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
 - 23) BLANCHARD, K. AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.

RECORD 00356

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030399
RECORD TYPE..... T1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... BONANZA MINE
SYNONYM NAME..... DUQUESNE HG. & REDUCTION CO. SYNONYMS CALLAHAN ZINC LEAD CO., BYRD, ELAYER AND
CO., SAM KNIGHT MINING LEASE, NASH MINES

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, ARIZ.

LATITUDE LONGITUDE
31-22-23N 110-41-11W

UTM NORTHING UTM EASTING UTM ZONE NO
3470820. 529830. +12

TWP..... 024S
RANGE.... 016E
SECTION.. NW 02 PROTRACTED
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5350 FT

POSITION FROM NEAREST PROMINENT LOCALITY: CLOSE TO NORTH OF DUQUESNE ALONG ROAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN CU PB AG AU MN

MAIN COMMOD..... ZN CU PB AG
MINOR COMMOD.... AU MN

MAIN ORE MINERALS:

SPHALERITE, CHALCOPYRITE, GALENA, AND PYRITE

MINOR ORE MINERALS:
MOLYBDENITE

ANALYTICAL DATA(GENERAL)

ZN: CU=2.3; ZN:PB=7.0; AG:CU=1.3; PB:CU=0.3; AG:PB=4.0; ZN:AG=1.3 (LEHMAN, 1978, P. 139). THE AVERAGE ORE ASSAYS 18% ZN, 6% CU, 1% PB, 5 OZ/T AG (SCHRADER, 1915, P. 338)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SKARN

FORM/SHAPE OF DEPOSIT: LARGE CLUSTER OF LENSING BODIES AND BUNCHES

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 635

FT

LENGTH OF WORKINGS..... 7000

FT (SCHRADER 1915)

COMMENTS(DESCRIP. OF WORKINGS):

(KEITH, 1975) EXTENSIVE SHAFT OPERATIONS; WORK COMPRISES ABOUT 1,000 FT OF SHAFTS, 3700 FT OF TUNNELS, 1000 FT OF CROSS CUTS, OVER 100 FT OF WINZES, AND 600 FT OF RAISES (SCHRADER, 1915, P. 385.)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE ACC		9.58	TONS	1945-1957	6.60% CU, 6.10% ZN, 0.80% PB, 4.40 OZ/T AG (LEHMAN, 1978, P. 127)
16 ORE EST		55	TONS	1880-1957	7% ZN, 3% CU, 1% PB, 4 OZ/T AG, MINOR AU (KEITH, 1975, P. 76)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... LOCATED IN 1890'S AND WORKED MAINLY IN EARLY 1900'S TO 1921, AND IN 1941 THROUGH 1944, AND IN 1951 THROUGH 1957

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERMIAN
HOST ROCK TYPES..... NACO GROUP LIMESTONE CHERTY LIMESTONE MBR OF EPITAPH DOLOMITE AND LOWER QUARTZITE
MBR. OF SCHERRER QUARTZITE

AGE OF ASSOC. IGNEOUS ROCKS.. JUR TRI
IGNEOUS ROCK TYPES..... VOLCANICS; RHYOLITE AND TRACHYTE TUFFS OF DUQUESNE VOLCANICS

PERTINENT MINERALOGY..... IN A GARNET-QUARTZ GANGUE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT CONTACT OF PERMIAN NACO LIMESTONE AND JURASSIC-TRIASSIC VOLCANICS

SIGNIFICANT ALTERATION:
OXIDIZED TO DEPTH OF 100 FEET; MANGANESE STAINED GOSSAN

GENERAL REFERENCES

- 1) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 235, P., P. 127, 139.
- 2) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 76.
- 3) GEOLOGY OF PATAGONIA DISTRICT:
SCHRAMER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
5) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
7) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
9) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
10) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

11) SCHRAMER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
12) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
13) SCHRAMER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
14) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
15) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
16) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
17) HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
18) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
19) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA, UNIV. ARIZONA M.S. THESIS, 44 P.
20) PROUT, J.W., THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
21) BRINSHADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
22) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
23) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
24) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE

SOUTHWEST, IN DAMON, P.F., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHEMISTRY LABS., P. A11-1-8.

25)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

26)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.

27)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

28)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

29)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

30)DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)

31)DALE, V.B., L.A., STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.

32)BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.

33)THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY J.H. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN

34)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148

35)PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.

36)FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.

37)WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127

38)BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.

39)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

40)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1930: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16

41)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

42)HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.

43)MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.

44)HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.

45)HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.

46)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.

47)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.

48)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)

4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):

DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

- 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00357

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M001429
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 08
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BUENA VISTA MINE
SYNONYM NAME..... GOODVIEW

MINING DISTRICT/AREA/SUBDIST. PATAGONA/S. PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-22-51N 110-46-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3471650. 522100. +12

TWP..... 023S
RANGE.... 015E
SECTION.. 36

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 1/2 MILES N OF ARIZ-MEXICO BORDER, S OF PROVIDENCIA CANYON, 1/2 MI ESE
OF BENNETT MINE, 1/8 MI SW OF KING MINE

LOCATION COMMENTS: SW 1/4, SEC 36, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU PB MO

MAIN COMMOD..... CU AG
MINOR COMMOD.... AU PB MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, BORNITE

MINOR ORE MINERALS:
MOLYBDENITE, AZURITE, MALACHITE, COVELLITE, AND GALENA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

YEAR OF DISCOVERY..... PROPERTY IS INACTIVE
LOCATED IN 1895

BY WHOM..... LOCATED BY MICHAEL MALONEY

PRESENT/LAST OWNER..... MALONEY, BLACK MOUNTAIN MG CO.

BANCO DEL ORO MG CO. IN 1910, GOODVIEW MG AND MLLG CO., KING COPPER CO., CORDONADO MINES INC., GAYBILL AND
JARNAGIN, DUNHAM AND NANEZ, JARNAGIN AND BOPP.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... NARROW, IRREGULAR

MAX WIDTH..... 6 FT

DIP OF OREBODY..... 60SSE

DESCRIPTION OF WORKINGS

UNDERGROUND

LENGTH OF WORKINGS..... 4000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE TUNNEL OPERATIONS AND WINZES. (KEITH, 1975). THREE TUNNELS BETWEEN 4700 AND 5000 FT IN ELEVATION, 2 OF
WHICH ARE DRIFTS ON MAIN VEIN AND OTHER IS CROSSCUT ON A PARALLEL VEIN (SCHRADER AND HILL, 1910, P. 160-1.)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	.85	TONS	1895-1958	3% CU, 1 OZ/T AG, MINOR AU AND PB
16 ORE	EST	.5	TONS	1997-1898	28% CU, 20 OZ /T AG, \$2 AU/T (1898) (SCHRADER, 1915, P. 314)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975 AND KEITH, ABM FILE DATA

PRODUCTION COMMENTS.... LOCATED IN 1895 WITH PRODUCTION INTERMITTENTLY THROUGH 1958.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.

HOST ROCK TYPES..... HORNBLENDE-BIOTITE GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)

IGNEOUS ROCK TYPES..... INTRUSIVE QUARTZ DIORITE OUTCROPPING, JURASSIC GRANITE PORPHYRY NEARBY (SCHRADER AND HILL 1910)

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... QUARTZ-CALCITE VEINS

IMPORTANT ORE CONTROL/LOCUS.. FISSURE FILLING ALONG WALLS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

NORTHEAST FAULT OR SHEAR ZONE; CRUSHED MINERALIZED ROCK IN FAULT SHEAR ZONE

SIGNIFICANT ALTERATION:

MINOR OXIDATION

GENERAL REFERENCES

- 1) GENERAL REFERENCES:
 - KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 75
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 314-315.
 - 3) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
 - 4) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 160-161.
 - 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 6) THE COPPER HANDBOOK; 1903, VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. NEED, 1912-1914; HOUGHTON, MICHIGAN
 - 7) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
 - 8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 9) BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 3) GEOLOGY OF PATAGONIA DISTRICT:
 - ELSLING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 4) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 5) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 6) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
 - 7) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 8) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 9) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 10) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 11) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 12) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

- 13) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 14) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 15) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 16) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 17) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 18) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 19) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 20) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 21) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 22) SURLES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 23) CRUSBY, W.O., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 24) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 25) PROUT, J.W., THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 26) BRINSHADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 27) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 28) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 29) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CDD-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. 411-1-8.
- 30) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 31) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS.):
 CREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
- 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10) DREWES, HAROLD. 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP 1-614.
- 11) KOHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12) DREWES, HAROLD B. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE RCP., DENVER, COLO., 6 P. (1966)

RECORD 00359

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030416
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... CARRIE NATION MINE
MINING DISTRICT/AREA/SUBDIST. OLD BALDY DIST/NW. SANTA RITAS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-41-53N 110-52-32W

UTM NORTHING UTM EASTING UTM ZONE NO
3506800. 511800. +12

TWP..... 020S
RANGE.... 014E
SECTION.. 14
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6450 FT

POSITION FROM NEAREST PROMINENT LOCALITY: WEST SIDE OF WEST FORK OF MADERA CANYON NEAR ITS HEAD.

LOCATION COMMENTS: NE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB ZN MO

MAIN COMMOD..... CU PB ZN MO

MAIN ORE MINERALS:

PYRITE, CHALCOPYRITE, MALACHITE, BORNITE, GALENA

MINOR ORE MINERALS:
SPHALERITE, MOLYBDENITE SPECULARITE

ANALYTICAL DATA(GENERAL)
COPPER SAID TO AVERAGE 3%

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PRESENT/LAST OWNER..... PROPERTY IS INACTIVE
TRES ESTADOS MINING CO. SQUARE DEAL PROSPECT, C.W. CURRY (1915)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS
FORM/SHAPE OF DEPOSIT: LENSING ORE SHOOTS. CARRIE NATION LEDGE IS SAID TO EXTEND EAST TO TOP OF JACK MOUNTAIN WHERE
SQUARE DEAL MINE IS LOCATED ON SAME LEDGE.

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... WNW
DIP OF OREBODY..... 90

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 30 FT
LENGTH OF WORKINGS..... 350 FT

COMMENTS(DESCRIP. OF WORKINGS):
ADIT, SHALLOW SHAFT; LESSES REPORTED TO HAVE OPENED MINE IN 1964 (WHITACRE P. 35) (KEITH, NOTE CARDS.); IN 1915 A
240 FT CROSS CUT TUNNEL, 110 FT OF DRIFT, AND 30 FT SHAFT EXISTED (SCHRADER).

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. SCHRADER, 1915, P. 179

COMMENTS (RESERVES/POT RESOURCES).. ABOUT 124 TONS OF ORE LIES ON THE DUMP (IN 1915)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS
HOST ROCK TYPES..... QUARTZ DIORITE (MONZONITE?) IN JOSEPHINE CANYON DIORITE AT CONTACT OF MODERATELY
COARSE GRAINED QUARTZ DIORITE PHASE (67 M.Y. KAR. 63, 62 M.Y. PB) WITH FINE GRAINED QUARTZ MONZONITE PHASE (61
M.Y. KAR); ALSO AT CONTACT OF THESE WITH MADERA CANYON GRANODIORITE COARSE GRAINED GRANODIORITE PHASE (68 M.Y.
PB) (GREWES, 1971).

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.-TERT. (67, 63, 62, 61 M.Y. OLD)
IGNEOUS ROCK TYPES..... SAME AS KIA

PERTINENT MINERALOGY..... IRON STAINED QUARTZ, LIMONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
IN FAULT/SHEAR ZONE

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 61.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 178-179.
- 3) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
- 4) WHITTAKER, H.F., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS, P. 35
- 3) GEOLOGY OF SANTA RITA MTS:
 - DREWES, HAROLD B. GEOLOGIC MAP OF THE SAMUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 4) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 5) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 6) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 7) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 8) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 9) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 10) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 11) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
 - 12) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
 - 13) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 14) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
 - 15) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY V. 12, P. 237-269.
 - 16) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 17) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 18) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 19) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 20) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 21) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 22) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 23) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 24) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 25) KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.

- 26) HESS, F.L., 1924. MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 27) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 28) FRUNDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. 11. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 29) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920
- 30) OLSON, H.J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 31) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 32) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 33) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 34) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS
- 35) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 36) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 37) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 38) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 39) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 40) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 41) HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 42) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 43) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 44) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 45) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,

RECORD 00359

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030415
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... DANIELS MINE
SYNONYM NAME..... SEE ELEPHANT HEAD GROUP IN TYNDALL DIST.

MINING DISTRICT/AREA/SUBDIST. OLD BALDY DIST/W. SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO.

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON, ARIZ.

LATITUDE LONGITUDE
31-43-32N 110-52-13W

UTM NORTHING UTM EASTING UTM ZONE NO
3509800. 512330. +12

TWP..... 020S
RANGE.... 014E
SECTION.. NW 01
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5280 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE E OF SANTA RITA LODGE IN MADERA CANYON

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI. CRET.
HOST ROCK TYPES..... LOWER MEMBER OF MT. WRIGHTSON FORMATION, LARGELY DACITIC AND LATITIC FLOWS, CONTACT
METAMORPHOSED BY INTRUSION OF MADERA CANYON GRANODIORITE (COARSE GRAINED PHASE) (DREWES)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET (68 M.Y. K-AR)
 IGNEOUS ROCK TYPES..... MADERA CANYON GRANODIORITE (COARSE GRAINED PHASE) COVERED BY QUATERNARY ALLUVIUM.

GENERAL REFERENCES

- 1) ARIZ. BUR. MINES FILE DATA
- 2) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614.
- 3) GEOLOGY OF SANTA RITA MTS:
 - HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 4) DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
 - 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 8) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 9) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746.
 - 10) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-53B
 - 11) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 12) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
 - 13) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
 - 14) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
 - 15) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 16) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
 - 17) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 18) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 19) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 20) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 21) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 22) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 23) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
 - 24) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 25) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 26) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27

P.

- 27) KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTIGUOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 28) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 1314.
- 29) OLSON, H.J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY V. 61, NO. 4, P. 731-743.
- 30) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 31) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 32) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 33) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 34) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 91 P.
- 35) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 36) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ., SCHOOL OF MINES
- 37) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 38) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 39) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 40) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 41) HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 42) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
- 43) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 44) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 45) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 46) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 47) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 48) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920
- 49) THE MINES HANDBOOK VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.

RECORD 00360

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... US04110
 RECORD TYPE..... X2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER
 UPDATED..... 79 06
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... DATAGONIA DIST (DUGUESNE, MOWRY MINES)
 SYNONYM NAME..... PATAGONIA DISTRICT INCLUDES: AUGUSTA, BUENA VISTA, EDNA, DUQUESNE-WASHINGTON
 (ANNIE, BELMONT, BONANZA, CALIFORNIA-GRASSHOPPER, DAVE ALLEN, DOUBLE STANDARD, DUQUESNE, EMPIRE, ESTELLE AND
 LOWISE, HOLLAND, ILLINOIS, INDIANA, INDIANAPOLIS, KANSAS, MAINE, MANZANITA, MARY JANE, NEW YORK, SAN ANTONIO,
 SILVER BELL, SMUGGLER AND TEXAS), ENDLESS CHAIN, FOUR METALS, GLADSTONE, GOLDEN GATE, GUAJOLOTE, HAPPY THOUGHTS,
 MORNING GLORY, MOWRY, NATIONAL, PAYMASTER, POCAHONTAS, PRIDE OF THE WEST, PRUTO, ROY, AND SANTO MIND MINES OR
 MINE GROUPS.

MINING DISTRICT/AREA/SUBDIST. PATAGONIA (MT. WASHINGTON)/S. PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
 1: 0062500 NOGALES AND LOCHIEL, ARIZ.

LATITUDE LONGITUDE
 31-25- N 110-45- W

TWP..... 023S 024S
 RANGE.... 015E 016E

ALTITUDE.. 4500-6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10-15 MILES ENE OF NOGALES

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB CU AG AU MO MN V W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB ZN CU
 MINOR PRODUCTS.. AU MO W

MAIN COMMOD..... ZN PB CU

MINOR COMMOD.... W MO AU AG V MN

MAIN ORE MINERALS:

GALENA, SPHALERITE, PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:

SILVER CHLORIDES, BORNITE, MOLYBDENITE, COVELLITE, SCHEELITE, CERUSSITE, MALACHITE AZURITE, TETRAHEDRITE
CHALCOCITE WULFENITE, VANADINITE, PYRRHOTITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PYROMETASOMATIC

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

(KEITH, 1975) MANY SHAFT, OPEN CUT AND TUNNEL OPERATIONS. SEVERAL LARGE MINING OPERATIONS.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	691	TONS	1800-1971	
16 ZN	EST	26.9	TONS	1800-1971	3.89% ZN
17 PB	EST	21.5	TONS	1800-1971	3.1% PB
18 CU	EST	18.3	TONS	1800-1971	2.65% CU
19 AG	EST	3300	OZ	1800-1971	4.78 OZ/T AG
20 AU	EST	.730	OZ	1800-1971	0.001 OZ/T AU
21 MO	EST	.2	TONS	1800-1971	
22 W03	EST	.65	LBS	1800-1971	
23 PLACER AU	EST.]		OZ	1800-1971	

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET., TRI-JUR, PAL., TERT.

HOST ROCK TYPES..... PALEOZOIC LIMESTONES (MISSISSIPPIAN ESCABROSA LIMESTONE, PENNSYLVANIAN-PERMIAN EARP FORMATION, PERMIAN COLINA LIMESTONE, EPITAPH DOLOMITE, SCHERRER FORMATION AND CONCHA LIMESTONE), TRIASSIC-JURASSIC VOLCANICS, JURASSIC GRANITE OF COMODO CANYON, CRETACEOUS BISREE FORMATION, TERTIARY BIOTITE-HORNBLende GRANODIORITE AND SYENODIORITE.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... QUARTZ, CALCITE, SKARNS (GARNET, SILICATED LIMESTONE, CALCIUM SILICATES), IRON OXIDES, MANGANESE OXIDES

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ-FISSURE VEINS, QTZ VEINLETS; DISSEMINATED CU AND MO MINERALIZATION IN LARAMIDE GRANDIORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEAR ZONES; COMPLEX FAULTS AND FOLDS

SIGNIFICANT ALTERATION:
ZONES OF STRONG SILICIFICATION

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 75.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 292-348.
- 3) GEOLOGY OF PATAGONIA DISTRICT AND INCLUDED MINES:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY JISC. INV. MAP 1-762.
- 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 58-E, 23 P.
- 5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) BAKER, R.C., 1962, THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS
- 8) JELSON, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100.
- 9) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 10) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 11) SCHRADER, F.C. 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 12) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 13) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 14) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 15) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. HILLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 16) GUILD, F.N. (1907) THE COMPOSITION OF MOLYBDITE FROM ARIZONA. AMER. JOUR. SCI. 23: 455-456.
- 17) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 18) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 19) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 20) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 21) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS

THESIS, 18 P., MAPS (1907)

22)BRINSMAD, R.B., 1907, LEAD-SILVER DEPOSITS OF MOHRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.

24)YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS,

25)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ., P. 51.

26)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. 411-1-8.

27)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

28)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.

29)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

30)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

31)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

32)DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. , NO. 23, P. 15-16 (1926)

34)DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.

35)BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.

36)THE COPPER HANDBOOK: VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN

37)WILSON, F.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148

38)PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.

39)FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR MINES INF. CIRC. 7990.

40)WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127

41)BLANCHARD, K AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.

42)FRONDEL, W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. 11. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

43)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E

44)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

45)HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.

46)HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.

47)HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.

48)HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.

49)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.

50)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.

51)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MINED. REP., 12 P. (1954)

4) GENERAL GEOLOGY OF NEARBY AREAS (SANTA RITA MTS.):

DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

- 6)DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. USGS PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1970, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP 1-614
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00361

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030392
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... DOMINO MINE GROUP
SYNONYM NAME..... OLD CHIEF, SAN LOU, BROWNEE

MINING DISTRICT/AREA/SUBDIST. PALMETTO/W PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES

LATITUDE LONGITUDE
31-28-23N 110-47-14W

UTM NORTHING UTM EASTING UTM ZONE NO
3481875. 520300. +12

TWP..... 022S
RANGE..... 015E
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4240 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 14 MILES NE NOGALES IN COX GULCH

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB CU AU ZN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB
MINOR PRODUCTS.. AU CU

MAIN COMMOD..... AG PB CU
MINOR COMMOD..... AU ZN MO

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, CERUSSITE

MINOR ORE MINERALS:
OXIDIZED COPPER MINERALS, WULFENITE SOME NATIVE SILVER

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... LOCATED IN 1881 BY AJ STOCKTON & PARTNERS
PRESENT/LAST OWNER..... STOCKTON, GRAY BROWN

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN
FORM/SHAPE OF DEPOSIT: POCKETY, SEAMS

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... E-W
DIP OF OREBODY..... STEEP S

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 83 FT
LENGTH OF WORKINGS..... 75 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT & PIT OPERATIONS (KEITH, 1975); 83 FT VERTICAL SHAFT, DRIFTS, & STOPES (SCHRADER 1915)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		.35 TONS		1800'S-1937	AVE. 56 OZ AG/TON; 39% PB, 1% CU, MINOR AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PRECAMBRIAN
HOST ROCK TYPES..... METAMORPHIC ROCKS (HORNBLende RICH) PEB

AGE OF ASSOC. IGNEOUS ROCKS.. JURASSIC (160 +/- M.Y.)
IGNEOUS ROCK TYPES..... INTRUDED BY GRANITIC INTRUSIVE OF CONCORD CANYON

PERTINENT MINERALOGY..... QUARTZ & GAUGE GANGUE

IMPORTANT ORE CONTROL/LOCUS.. CONTACT ZONE OF GRANITE WITH ALTERED DIORITE IN SHEAR ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
STRONG SHEAR ZONE

SIGNIFICANT ALTERATION:
ALTERED AND LEACHED PE METAMORPHIC ROCKS

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 73
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 287-288.
- 3) GEOLOGY OF AREA AROUND DOMINO MINE AREA:
SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 4) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 5) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 8) CARPENTER, M.H., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, 3-6.
- 9) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 10) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LUCHEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
- 11) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 12) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 13) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 14) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 15) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO COO-699-50, UNIV. ARIZ. GEOCHRONOLOGY LABS.
- 16) MOGER, R. S.R. (1969) THE GEOLOGY OF THE WEST CENTRAL PORTION OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA UNIV. ARIZONA M.S. THESIS, 60 P.
- 17) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 18) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.
- 19) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 20) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 21) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 22) FETH, J.H., 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 23) PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 174-176.
- 24) SCHRADER, F.C., 1913, ALUNITE IN PATAGONIA, ARIZONA, AND BOVARD, NEVADA: ECON. GEOL., V. 8, NO. 6, P. 752-767.
- 25) SCHRADER, F.C., 1914, ALUNITE IN GRANITE PORPHYRY NEAR PATAGONIA, ARIZONA: U.S. GEOL. SURVEY BULL. 540, P.

347-350.

26)HARDVERGER, P.A. GEOLOGY OF THE THREE R MINE, PALMETTO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1963)

4) GEOLOGY OF AREAS NEAR PALMETTO DISTRICT:

DREWES, HAROLD B. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, E., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.

11)ROHKBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HAROLD, 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. NU.11)

RECORD 00362

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030396
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... DUQUESNE-WASHINGTON CAMP GROUP
SYNONYM NAME..... DUQUESNE-WASHINGTON GROUP INCLUDES: ANNIE, BELMONT, BONANZA, CALIFORNIA-GRASSHOPPER,
DAVE ALLEN, DOUBLE STANDARD, DUQUESNE, EMPIRE, ESTELLE & LOUISE, HOLLAND, ILLINOIS, INDIANA, INDIANAPOLIS,
KANSAS, MAINE (POOLE), MANZANITA, MARY JANE, NEW YORK, SAN ANTONIO, SILVER BELL, AND SMUGGLER AND TEXAS MINES AND
MINE GROUPS.

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DIST./PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL

LATITUDE LONGITUDE
31-22-12N 110-41-21W

UTM NORTHING UTM EASTING UTM ZONE NO
3470550. 529550. 412

TWP..... 023S 024S
RANGE.... 016E 016E
SECTION.. 34 02 03
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES NORTH OF MEXICO

LOCATION COMMENTS: PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... 7N PB CU AG AU W MO FE

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. ZN PB CU AG
MINOR PRODUCTS.. AU

MAIN COMMOD..... ZN PB CU AG
MINOR COMMOD..... AU W MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... W MO

MAIN ORE MINERALS:
CHALCOPYRITE, AND CUPREFEROUS, PYRITE, SPHALERITE, GALENA

MINOR ORE MINERALS:
MAGNETITE ARGENTITE GOLD, PYRHOTITE, SPECULARITE ALMENITE, MALACHITE, AZURITE CHALCANTHITE MOLYBDENITE,
ARSENOPYRITE; OXIDES AND CARBONATES OF CU MN AND FE; CHALCOCITE, BORNITE SILVER CHLORIDE, CHRYSOCOLLA

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT SKARN, PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: TABULAR TO LENSING

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 500 FT

COMMENTS(DESCRIP. OF WORKINGS):
EXTENSIVE SHAFT, TUNNEL AND OPEN CUT OPERATIONS BUT GENERALLY SHALLOW TO NOT OVER 300-500 FT DEPTH

PRODUCTION
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		350 TONS	1900-1966	6% ZN, 3% PB, 3% CU, 6 OZ AG/T, AND MINOR AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 76-79

PRODUCTION COMMENTS.... SPORADIC LARGE SCALE MINING 1900-1966; HIGH GRADE PB-AG OXIDIZED ORE PROSPECTED AND MINED
OUT BY SPANIARDS, MEXICANS, AND EARLY AMERICANS PRIOR TO 1880

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM.
HOST ROCK TYPES..... NACO GROUP LIMESTONES, MOSTLY CONTACT METAMORPHOSED

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)

IGNEOUS ROCK TYPES..... BIOTITE-HORNBLende GRANODIORITE INTRUSIVE

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... GARNET, PYROXINE, AMPHIBOLE, CALCITE, DOLOMITE, QUARTZ EPIDOTE, TOURMALINE

IMPORTANT ORE CONTROL/LOCUS.. CONTACT ZONES OF PALEOZOIC LIMESTONES & MESOZOIC GRANITES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
EXTENSIVE FAULTING

SIGNIFICANT ALTERATION:
OXIDIZED TO VARIOUS DEPTHS

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 76-79.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 321-343.
- 3) GEOLOGY OF DUQUESNE-WASHINGTON CAMP:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
- 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 7) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 8) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 9) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 10) KING, R.B., 1969, MOLYBDENUM AND RHEINIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 11) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 12) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 13) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 14) HAYES, P.T., SIMONS, F.S., AND RAUP, R.P., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 15) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 16) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 17) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 18) CROSBY, W.O., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 19) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 20) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 21) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P.

529-531.

- 22) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 23) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 24) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
- 25) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 26) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 27) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 28) ANTHONY, J.W., WILLIAMS, S. A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 29) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 30) GUILD, F.N., 1907, THE COMPOSITION OF MOLYBDITE FROM ARIZONA. AMER. JOUR. SCI. 23: 455-456.
- 31) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 32) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 33) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 34) THE COPPER HANDBOOK; 1903, 1918, VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 35) WILSON, E.O., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 36) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 37) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 38) WILSON, E.O. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 39) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 40) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 41) KUPFEK, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16
- 42) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 43) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 44) HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.
- 45) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 46) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 47) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 48) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 49) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 4) GENERAL GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
DREWES, HARALD 8. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613,, SCALE 1:48,000 (1970)
- 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL.

SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

11)ROHRBACHER, ROBERT G., GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00363

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030401
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... EDNA MINE GROUP
SYNONYM NAME..... MARTHA WASHINGTON

MINING DISTRICT/AREA/SUBDIST. PATAGONIA/S. PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-21-43N 110-45-47W

UTM NORTHING UTM EASTING UTM ZONE NO
3469550. 522550. +12

TWP..... 024S
RANGE.... 015E
SECTION.. NE 12
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES N OF ARIZ. - MEXICO BORDER, S OF ITALIAN CANYON

COMMODITY INFORMATION

COMMODITIES PRESENT..... W MO CU

MAIN COMMOD..... W
MINOR COMMOD.... MO CU

MAIN ORE MINERALS:
SPORADIC SCHEELITE

MINOR ORE MINERALS:
MINOR MOLYBDENITE AND COPPER CARBONATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... JULIO, CORONADO MINES INC., DISCOVERY PROCESS INC., RANDALL

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

(KEITH, 1975) ADIT AND OPEN CUT OPERATIONS

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		.24	TONS	1968-1971	1.3% WO3

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... KNOWN AND DEVELOPED PRIOR TO 1914 BUT PRODUCED MAINLY IN 1968 THROUGH 1971 WHEN SOME 240 TONS OF ABOUT 1.3% WO3 WERE SHIPPED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT., JUR

HOST ROCK TYPES..... BIOTITE QUARTZ MONZONITE AND JURASSIC GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT., JUR

IGNEOUS ROCK TYPES..... TERT. BIOTITE QUARTZ MONZONITE AND JURASSIC GRANITE

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... QUARTZ AND GANGUE POCKETS

IMPORTANT ORE CONTROL/LOCUS.. SHEAR ZONE CUTTING JURASSIC GRANITE AT CONTACT OF TERTIARY QUARTZ MONZONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHEAR ZONE CUTTING JURASSIC GRANITE.

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 76
- 2) DALE, V.B. L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA, U.S. BUR. MINES REPT. INV. 5650, P. 120-122.
- 3) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 3) GEOLOGY PATAGONIA MTS:
SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY

- JAMES M. HILL: USGS BULL. 582, 373 P.
- 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 6) BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 8) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 9) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 10) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 11) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 12) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 13) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 14) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 15) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 16) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAU, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 17) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 18) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 19) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 20) THE COPPER HANDBOOK: VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WOOD, 1912-1914; HOUGHTON, MICHIGAN
- 21) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 22) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 23) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 24) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 25) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 26) LEHAMN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 27) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 28) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
- 29) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 30) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 31) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 18 P., MAPS (1907)
- 32) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 33) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS,
- 34) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 35) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC

ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHROLOGY LABS., P. A11-1-8.

36)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

37)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.

38)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

39)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16

40)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

41)HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.

42)MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.

43)HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.

44)HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.

45)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.

46)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.

47)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MINED. REP., 12 P. (1954)

4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):

DREWES, HAROLD J. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HAROLD J. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00364

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030457
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... EDWARDS GROUP
SYNONYM NAME..... ST. MARYS GROUP

MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO.

POSITION FROM NEAREST PROMINENT LOCALITY: 8 MI. E OF AMADO IN AGUA CALIENTE CANYON

LOCATION COMMENTS: IS NOT SHOWN ON SCHRADER'S MAP

COMMODITY INFORMATION

COMMODITIES PRESENT..... NO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... NO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

GENERAL REFERENCES

1) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

RECORD 00365

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030413
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... ELEPHANT HEAD GROUP
SYNONYM NAME..... QUANTRELL, EUREKA MINES; PETE MOUNTAIN AREA; TREMAINE-DANIELS GROUP

MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-42-36N 110-55-26W

UTM NORTHING UTM EASTING UTM ZONE NO
3508100. 507170. +12

TWP..... 020S
RANGE.... 014E
SECTION.. 04 05 08

ALTITUDE.. 5300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/4 MILES SE OF ELEPHANT HEAD (PETE MOUNTAIN)

LOCATION COMMENTS: SW 1/4 OF 4, NE 1/4 OF 8 (QUANTRELL MINE), SE 1/4 OF 5

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB MO AG ZN AU

MAIN COMMOD..... PB AG
MINOR COMMOD.... CU ZN AU MO

MAIN ORE MINERALS:

CHALCOPYRITE, GALENA, MOLYBDENITE

MINOR ORE MINERALS:

SPHALERITE, MALACHITE, AZURITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... POWERS AND STOCKTON, GARRETT AND PARKS, NEW STATE MG. CO.; ELEPHANT HEAD MINING COMPANY.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEINS, DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 18 IN

DIP OF OREBODY..... 80N

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 1500 FT

COMMENTS(DESCRIP. OF WORKINGS):

ADIT AND SHAFT: 1500 FT TUNNEL

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		.95 TONS		1900-1914	8% PB, 3 OZ/T AG, MINOR CU, ZN, AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 85

PRODUCTION COMMENTS.... WORKED IN EARLY 1900'S AND IN 1913 AND 1914

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT - CRET

HOST ROCK TYPES..... QUARTZ MONZONITE OF THE QUANTRELL STOCK (COARSE PHASE) OF THE ELEPHANT HEAD QUARTZ MONZONITE (68, 69 M.Y. K-AR, 180?, 190 M.Y. PB) (DREWES, MAP I-614).

AGE OF ASSOC. IGNEOUS ROCKS.. TERT - CRET

IGNEOUS ROCK TYPES..... DIKES OF FINE GRAINED PHASE OF QUARTZ MONZONITE OF QUANTRELL STOCK OF ELEPHANT HEAD
 QUARTZ MONZONITE; QUARTZ VEIN AND DIKE OF TERT. RHYOLITE PORPHYRY OF GARDNER CANYON AND BOX CANYON DIKE SWARMS
 AND PLUTON (26 M.Y. K-AR, 40 M.Y. PB) (DREWES, MAP I-614)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHEARED; FAULT OFFSETS TERTIARY RHYOLITE DIKE

SIGNIFICANT ALTERATION:

ALTERED, SERICITIZED

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 85.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 182-183.
- 3) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269, P. 256.
- 4) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614.
- 5) MINES HANDBOOK AND COPPER HANDBOOK, V. XIII, 1918, BY W.H. WEED: PUBLISHED BY W.H. WEED, 1918.
- 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 3) GEOLOGY OF SANTA RITA MTS:
 - DREWES, HARALD B. GEOLOGIC MAP OF THE SANJUANITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
 - 4) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 5) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 6) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 7) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 8) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 9) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 10) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 11) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
 - 12) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
 - 13) OLSON, H.J., 1966, OXIDATION OF SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY V. 61, NO. 4, P. 731-743.
 - 14) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 15) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 16) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 17) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
 - 18) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
 - 19) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
 - 20) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
 - 21) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
 - 22) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
 - 23) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P., (1959)
 - 24) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
 - 25) HEATWOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ.,

MS THESIS 70 P. (1966)

- 26) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 27) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 28) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762.
- 29) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 30) MAUGEK, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 31) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 32) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 33) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 34) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
- 35) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 36) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 37) ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 38) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 39) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 40) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 41) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 42) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 43) KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTINUOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 44) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

RECORD 00366

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030400
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... FOUR METALS MINE
SYNONYM NAME..... GUAJOLOTE LODE, RED HILL CROSSCUT

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, AZ.

LATITUDE LONGITUDE
31-23-54N 110-44-14W

UTM NORTHING UTM EASTING UTM ZONE NO
3473550. 525000. +12

TWP..... 023S
RANGE.... 016E
SECTION.. 29 WC
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES NW OF WASHINGTON, 1 1/2 MILES SW OF MOWRY, NEAR PROVIDENCIA
CANYON, ON SOUTH FLANK OF RED HILL

LOCATION COMMENTS: WEST CENTER, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU PB AN MO

MAIN COMMOD..... CU AG AU
MINOR COMMOD..... PB ZN MO

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, CHALCOITE MOLYBDENITE

MINOR ORE MINERALS:
GALENA, SPHALERITE ARGENTITE GOLD MAGNETITE; BROWNISH TUNGSTEN MINERAL, FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... DISCOVERED BY PIONEERS IN 1860'S OR BEFORE
PRESENT/LAST OWNER..... GROSS, FOUR METALS MG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM., BRECCIA PIPES, QUARTZ STOCKWORK; FISSURE FILLINGS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH..... 6 FT
COMMENTS(DESCRIPTION OF DEPOSIT):
BRECCIA PIPE IS 1200 FT BY 900 FT PLUNGING 55 DEGREES WEST

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):
EXTENSIVE TUNNEL OPERATIONS; 1907 DROVE RED HILL 712-FT LOWER CROSSCUT TUNNEL

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 80

PRODUCTION COMMENTS.... ONLY A FEW TONS OF PICKED ORE SHIPPED, WHICH RAN ABOUT 7% CU, 40 OZ AG/T AND 0.1 OZ AU/T

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 ORE ACC		3,000 TONS		1969	0.82%

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. GRAYBEAL, 1972, P. 40, FROM CANADIAN MINES JOURNAL, 1959

COMMENTS (RESERVES/POT RESOURCES).. BRECCIA PIPE HAS BEEN DEVELOPED ON THREE LEVELS AND WAS DRILLED BY THE WEST RANGE COMPANY WHO PROVED 3 MILLION TONS OF 0.82% CU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (58 +/- 5 M.Y.)
HOST ROCK TYPES..... BIOTITE HORNBLENDE GRANODIORITE, DIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.) 63.9 M.Y. +/- 2.0 (MAUGER AND DAMON 1965) (DAMON, 1964);
SIMONS 1974 = 58 +/- 3 M.Y.
IGNEOUS ROCK TYPES..... EQUIGRANULAR AND PORPHYRITIC GRANODIORITE, DIORITE, APLITE DIKES

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... LARGE AMOUNTS OF QUARTZ IN VUGS AND IRON STAINING

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION IN ELONGATED ZONE ALONG THE SOUTH CONTACT OF THE BRECCIA PIPE AND GRANDIORITY CENTRAL PORTION OF PORPHYRITIC GRANDIORITY WAS THE SOURCE OF THE MINERALIZATION (GRAYBEAL, 1972, P. 41)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHEETED SHATTERED, CRUSHED GRANDIORITY; FAULT SHEAR ZONE 1200 FT WIDE (SCHRADER 1917)

SIGNIFICANT ALTERATION:

STRONG POTASSIC ALTERATION (BIOTITE, ORTHOCLASE, QUARTZ AND APATITE, ALSO CHLORITE, ANHYDRITE - GYPSUM, POLYGORSKITE) PHYLIC AND ARGILLIC INWARD IN LARGE FRAGMENTS AND ALSO IN UNMINERALIZED ZONES.

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE IS IN VUGS AND DISSEMINATED IN THE ALTERED ROCK

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 80.
- 2) FOUR METALS MINE:
 SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 317-320.
- 3) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762.
- 4) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 5) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 6) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON, P. 36-43.
- 7) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 8) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269, P. 261.
- 9) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 10) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8, P. A11-3.
- 11) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, # 39.
- 12) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 102.
- 13) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 14) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 50.
- 15) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156, 171.
- 16) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 3) GEOLOGY PATAGONIA DISTRICT:
 CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.

- 4) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 5) BIRD, A.I. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 6) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 7) ELSTING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 8) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 9) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 10) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 11) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 12) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MEMO. REP., 12 P. (1954)
- 13) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 14) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 15) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1132-E, P. 14-15.
- 16) NESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 17) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 18) HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.
- 19) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 20) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 21) SURLES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 22) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 23) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 24) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 25) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 26) BRINSHADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 27) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 28) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 29) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 30) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 31) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-339.
- 32) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 33) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 34) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS.):
DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS

MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971, MESOZOIC STRATIGRAAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00367

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030408
RECORD TYPE..... A1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... GLOVE MINE GROUP
SYNONYM NAME..... SUNRISE MINING CO., SHEEHY-D'DONNELL MINE, ROVER CLAIM, ZOMBIE AND ZECO CLAIMS AT
SOUTH END, BLACKSMITH ADIT, D.K. MINE.

MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST./S.W. SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-39-35N 110-56-47W

UTM NORTHING UTM EASTING UTM ZONE NO
3502500. 505100. +12

TWP..... 020S
RANGE.... 014E
SECTION.. 30
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4240-4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE N. OF COTTONWOOD CANYON; L 1/2 MILES SE OF MT. WRIGHTSON

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG CU AU MO MU

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB ZN AG
MINOR PRODUCTS.. CU

MAIN COMMOD..... PB ZN AG CU
 MINOR COMMOD..... AU MO MN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... MO MN

MAIN ORE MINERALS:
 ARGENTIFEROUS GALENA, SPHALERITE, WULFENITE

MINOR ORE MINERALS:
 PYRITE, CHALCOPYRITE, CERUSSITE, ANGLESITE, SMITHSONITE, COVELLITE, RARE VANADINITE-MIMETITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1923
 ORIGINALLY LOCATED BETWEEN MARCH, 1907, AND JAN. 1911; FINAL FRACTION LOCATED APRIL,

BY WHOM..... A. O'DONNELL
 ORIGINALLY LOCATED BY DAN J. SHEEHY, EDWARD T. SHEEHY, JERRY SHEEHY, PAT J. SHEEHY, AND

PRESENT/LAST OWNER..... IRAN STEEL CORP.,
 SUNRISE MINING CO., SANTA CRUZ SILVER-LEAD CO., ARIVAIA MINING CORP., COLORADO FUEL AND

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE FILLING; LIMESTONE REPLACEMENT

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 360 FT

LENGTH OF WORKINGS..... 5000 FT

COMMENTS(DESCRIP. OF WORKINGS):

5 SHAFT AND ADIT OPERATIONS (KEITH, 1975); MAIN SHAFT 360 FT DEEP, 2 OLD SHAFTS 75' DEEP, 500 FT AND 600 FT
 TUNNELS, 66 FT WINZE BELOW 240 FT LEVEL (DEPT. MIN. RES.); DEEPENED IN 1970'S. FOR DETAILS OF MINE OPERATION AND
 OWNERSHIP SEE ANTHONY, 1951, AND OLSON, 1961.

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE	ACC	.064	TONS	1911	7.4 OZ/T AG, 34.7% PB, 12.0% ZN
2 ORE	ACC	.0269	TONS	1912	6.0 OZ/T AG, 28.5% PB, 13.3% ZN
3 ORE	ACC	.0433	TONS	1912	10.6% PB 34.7% ZN SHIPPED TO U.S. ZINC COLD.
4 ORE	ACC	.1673	TONS	1914	8.2 OZ/T AG, 28.8% PB, 14.2% ZN
5 ORE	ACC	.2188	TONS	1914	21.6% PB, 17.0% ZN SHIPPED TO OZARK S AND M CO, COFFEYVILLE, KANSAS
7 ORE	ACC	.0623		1917	4.9 OZ/T AG, 25.9% PB, 9.4% ZN

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	29.26	TONS	1911-1972	6-11.2 OZ/T AG, 10.6-43.1% PB, 7.8-34.7% ZN, 0.0-4% CU (OLSON, 1961)
16 ORE	ACC	.6823	TONS	1911-1949	
17 ORE	ACC	.8847	TONS	1951-1952	3.9-8.4 OZ/T AG, 14.7-34.5% PB, 10.3-18.1% ZN, (OLSON, 1961)
18 ORE	ACC	21.091	TONS	1956-1960	7.7 OZ/T AG, 25.7% PB 4.1% ZN, 0.1% CU (OLSON, 1961)
PRODUCTION YEARS.....	ORE	ACC	.0315	TONS	1925 7.3 OZ/T AG, 31.2% PB, - ZN
ORE	ACC	.039	TONS	1949	5.0 OZ/T AG, 29.4% PB, - ZN, 0.4% CU
	ORE	ACC	.9967	TONS	1953 3.1-6.9
					OZ/T AG, 17.1-27.9% PB, 6.0-18.7% ZN
	ORE	ACC	.9215	TONS	1954 4.1-5.9 OZ/T AG,
					17.9-28.5% PB, 6.8-10.5% ZN
	ORE	ACC	2.0860	TONS	1955 3.5-10.2 OZ/T AG,
					27.1-36.3% PB, 4.0-12.0% ZN
	ORE	ACC	3.0729	TONS	1956 4.2 OZ/T AG, 22.0%
					PB, 2.6 % ZN, 0.1% CU
	ORE	ACC	4.8285	TONS	1957 4.9 OZ/T AG,
					22.8% PB, 1.9% ZN, 0.1% CU
	ORE	ACC	4.1710	TONS	1958 9.2 OZ/T AG,
					31.5% PB, 3.8% ZN, 0.1% CU
	ORE	ACC	3.2447	TONS	1959 13.3 OZ/T AG,
					26.3% PB, 8.1% ZN, 0.2% CU
	ORE	ACC	.2027	TONS	1960 8.2 OZ/T AG,
					20.0% PB, 20.5% ZN, 0.27 CU

SOURCE OF INFORMATION (PRODUCTION).. OLSON, 1961, P. 12-13

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PENN. JUR.
 HOST ROCK TYPES..... PENNSYLVANIAN HORQUILLA LIMESTONE, JURASSIC QUARTZ MONZONITE CORRELATED WITH SQUAM GULCH GRANITE.

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. CRET. TERT.
 IGNEOUS ROCK TYPES..... JURASSIC GRANITE AND QUARTZ MONZONITE CORRELATED WITH SQUAM GULCH GRANITE; TERTIARY QUARTZ LATITE DIKES (DREWE) AND LATITE PORPHYRY AND DACITE PORPHYRY SILLS (OLSON); 1/2 MILE TO EAST IS CRETACEOUS RHYODACITE WELDED TUFF MEMBER OF SALERO FORMATION

PERTINENT MINERALOGY..... QUARTZ, CHLORITE, LIMONITE, SPECULAR HEMATITE; LATER DEPOSITS OF MAD (MANGANITE, PYROLUSITE, HAUSMANNITE, RARE PSILOMELANE), CALCITE, GYPSUM, AND SILICA.

IMPORTANT ORE CONTROL/LOCUS.. ORE ALONG PERMEABLE ZONES CAUSED BY FAULTS (BEDDING PLANE FAULTS, INTENSE

BRECCIATION AT FAULT INTERSECTIONS, AND FAULT HORSETAILS) PARTICULARLY THOSE WITHIN THE FAVORABLE LIMESONTE HORIZON (HORQUILLA) IN THE PENNSYLVANIAN-PERMIAN NACO GROUP. SOME ORE IN VEINS IN QUARTZ MONZONITE. MAIN ORE BODY (1959) LIES ALONG SOUTH CONTACT OF LATITE PORPHYRY WILL AND LIMESTONE WHERE SILL WAS EMPLACED ALONG THE FAULT AND ACTED AS A DEFLECTING BARRIER FOR ORE SOLUTIONS INTO THE LIMESTONE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BEDDING PLANE FAULTS ABUNDANT. MAJOR FAULTS ARE N75-60W, DIP 60 NE; N60E, 60 S FAULT INTERSECTS WITH NW FAULTS IN INTENSELY BRECCIATED ZONE FOR BEST ORE STOPES. GLOVE FAULT STRIKING NW BRINGS JURASSIC QUARTZ MONZONITE AGAINST HORQUILLA LIMESTONE.

SIGNIFICANT ALTERATION:

SILICIFICATION (GREATEST WHERE GREATER PERMEABILITY), SERICITIZATION, AND KADLINIZATION IN QUARTZ MONZONITE. LIMESTONE IS RECRYSTALLIZED TO MARBLE NEAR QUARTZ MONZONITE.

COMMENTS (GEOLOGY AND MINERALOGY):

IT WAS A WULFENITE COLLECTORS DREAM OF A LIFETIME BUT MUCH OF IT WENT INTO THE CRUSHERS AS LEAD ORE. WULFENITE OCCURRED AS CRYSTALLINE AGGREGATES RANGING IN COLOR FROM DULL BROWN, TO BRIGHT ORANGE, TO LIGHT TRANSPARENT YELLOW, TO PRACTICALLY COLORLESS, TO NEARLY BLACK WITH MANGANESE OXIDES AND INCLUDED PLATY, PSEUDO-CUBIC, AND DOUBLY TERMINATED PRISM CRYSTAL HABITS. SOME LARGE PLATY CRYSTALS MEASURED 4 INCHES OR MORE ALONG THE EDGE. (ANTHONY, ETAL, 1977). SPECIMENS EXIST IN THE UNIVERSITY OF ARIZONA MINERAL MUSEUM, THE BRITISH MUSEUM, NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY AT SOCORRO, AND MANY OTHER MUSEUMS THROUGHOUT THE WORLD.

GENERAL COMMENTS

SEE RECORD NUMBER M899994 FOR REFERENCES

RECORD 00368

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M001445
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 08
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... GOLDEN ROSE MINE
MINING DISTRICT/AREA/SUBDIST. PROVIDENCIA CANYON/PATAGONIA DIST
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES

LATITUDE LONGITUDE
31-23-21N 110-46-34W

UTM NORTHING UTM EASTING UTM ZONE NO
3472575. 521300. +12

TWP..... 024S
RANGE.... 016E
SECTION.. 36
MERIDIAN. GCSR

ALTITUDE.. 4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: PROVIDENCE CANYON IN PATAGONIA MTS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MD PB

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE, GALENA STEPHANITE

MINOR ORE MINERALS:
GOLD, SILVER, LEAD AND COPPER MINERALS SPECULARITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

SAID TO AVERAGE \$12.50 TO TON (1915)

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... OWNED IN 1915 BY GREENWILL-ARIZONA MG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 20 FT

MAX WIDTH..... 12 FT

STRIKE OF OREBODY.... N70E

DIP OF OREBODY..... 80 S

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 100 FT

LENGTH OF WORKINGS..... 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFTS AND TUNNELS 10-80 FT DEEP A 100 FT SHAFT AND A FEW HUNDRED FEET OF DRIFTS AND CROSSCUTS

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	.025	TONS	1915-1920	27% PB, 1.87% CU, 23 OZ/T AG, 0.02 OZ/T AU

SOURCE OF INFORMATION (PRODUCTION).. AZ. BUR. MINES FILE DATA.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. JUR

HOST ROCK TYPES..... JURASSIC GRANITE OF COMODO CANYON; FN GN, DK GY, QUARTZ DIORITE (SCHRADER); SYENODIORITE (SIMONS)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)

IGNEOUS ROCK TYPES..... GRANITE; DIKES AND MASSES OF QUARTZ DIORITE; GRANITE PORPHYRY NEARBY.

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... QUARTZ VEIN

IMPORTANT ORE CONTROL/LOCUS.. NEAR CONTACT OF TERTIARY SYENODIORITE INTRUDING JURASSIC GRANITE OF COMODO CANYON

GENERAL REFERENCES

- 1) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 159-160.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 312-313.
- 3) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762.
- 3) GEOLOGY OF PATAGONIA DISTRICT:
 - KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 656-E, 23 P.
 - 5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
 - 6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 7) BAKER R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 8) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 140.
 - 9) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 10) SCHRADER, F.C., 1917, THE GEOLOGIC-DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 11) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
 - 12) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 13) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 14) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 15) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 16) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 17) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 18) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
 - 19) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
 - 20) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
 - 21) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
 - 22) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
 - 23) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
 - 24) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
 - 25) WILSON, E.D. AND BUTLER G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
 - 26) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
 - 27) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUBUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
 - 28) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
 - 29) CROSBY, W.O., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
 - 30) CROSBY, W.O., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
 - 31) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV.

- ARIZONA M.S. THESIS, 44 P.
- 32)PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 33)BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 34)YUONG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS,
- 35)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 36)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. 411-1-8.
- 37)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 38)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 39)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 40)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-F, P. 14-16
- 41)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 42)HUTTL, J.B., 1941, MAKING A THREE METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 43)HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R-1. 6828.
- 44)HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 45)HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 46)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908 PT. 1, P. 286-313.
- 47)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 48)FETH, J.H. 12. GEOLOGIC AND GROUND WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
- DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)
- 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1970, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00369

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030419
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... GRINGO MINE
SYNONYM NAME..... FRANCIS GROUP, TEMPORAL GROUP

MINING DISTRICT/AREA/SUBDIST. WRIGHTSON DIST/SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO.

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON

LATITUDE LONGITUDE
31-34-18N 110-46-11W

UTM NORTHING UTM EASTING UTM ZONE NO
3492750. 521850. +12

TWP..... 021S
RANGE.... 015E
SECTION.. 36
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4250-4400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH SIDE OF GRINGO GULCH 2 1/4 MILES NNW OF PATAGONIA

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB CU ZN MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AU
MINOR PRODUCTS.. AG PB CU

MAIN COMMOD..... AU AG PB CU
 MINOR COMMOD..... ZN

MAIN ORE MINERALS:
 NATIVE GOLD, MINOR SILVER.

MINOR ORE MINERALS:
 WULFENITE, SPARSE COPPER AND LEAD SULFIDES MALACHITE STAINS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... 1893

PRESENT/LAST OWNER..... ARIZONA GOLD MINES AND MILLING CO., ALTAMIRANO, RICHMOND

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 20 FT

STRIKE OF OREBODY.... E-W

DIP OF OREBODY..... 80S

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 250 FT

LENGTH OF WORKINGS..... 3000 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1975) SEE MAP OF WORKINGS IN SCHRADER, 1915

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		0.1	TONS	1890-1937	0.43 OZ/T AU AND 0.5 OZ/T AG
16 ORE EST		0.04	TONS	1890-1937	6% PB, 4% CU, 12 OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 89

PRODUCTION COMMENTS.... DISCOVERED IN 1890'S BUT WORKED MAINLY FOR GOLD IN 1907-1908. MINOR LEAD-COPPER PRODUCTION IN 1929-1930 AND 1937.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT CRET

HOST ROCK TYPES..... MIDDLE MEMBER OF BATHTUB FORMATION, ANDESITIC FLOWS AND INTERCALATED ANDESITIC BRECCIA WITH MARKER BEDS OF BASES OF LAVA FLOWS. TERTIARY QUARTZ VEINS.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
 IGNEOUS ROCK TYPES..... TERTIARY QUARTZ VEINS PROBABLY RELATED TO NEARBY TERTIARY GRINGO GULCH PLUTON,
 DOMINANT DACITE PROPHYRY PHASE (60 M.Y. KAR) (DREWES, 1971) WHICH INTRUDES LOWER CRETACEOUS BATHTUB FORMATION
 ANDESITES.

PERTINENT MINERALOGY..... IRREGULAR LENSING QUARTZ - CALCITE VEINS; FLUORITE BANDS; IRON AND MANGANESE
 STAINING

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
 DEEPLY OXIDIZED, EPIDOTIZED; PROPYLIT ALTERATION

COMMENTS (GEOLOGY AND MINERALOGY):
 WULFENITE WITH NATIVE GOLD

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 89.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 222-226.
- 3) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 206.
- 4) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
- 5) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 6) GEOLOGY OF SANTA RITA MTS:
 SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 7) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 8) HAYES, P. T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 9) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 10) DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 11) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746, 35 P.
- 12) DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 13) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 14) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
- 15) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
- 16) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
- 17) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
- 18) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
- 19) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
- 20) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY,

ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762

32)SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.

33)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOPHYSICS LABS. P. A11-1-8.

34)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,

35)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

36)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

37)MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920

38)CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F

39)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.

40)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

41)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

42)BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

43)KIRKEMO, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.

44)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

RECORD 00370

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030402
RECORD TYPE..... A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... GROSS COPPER PROSPECT
SYNONYM NAME..... GROSS BELT CONSISTS OF SERIES OF MINES FROM NATIONAL MINE (1 3/4 MILE S.W. OF D'MORA
MINE), PALOMA CANYON, WILD HOG (JABALINA) CANYON, AND PROVIDENCIA CANYON FOR 2 1/2 MILES). INCLUDES GROSS AND
GOLDEN ROSE CAMPS.

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DIST/PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES

LATITUDE LONGITUDE
31-25-08N 110-46-17W

UTM NORTHING UTM EASTING UTM ZONE NO
3472200. 521750. +12

TWP..... 023S
RANGE.... 016E
SECTION.. 36
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4560 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ACROSS FROM GOLDEN ROSE MINE; AT MOUTH OF GNAJOLOTE CANYON ABOUT 1 1/4
MILES NE OF GOLDEN ROSE MINE

LOCATION COMMENTS: NW 1/4, SEC 36, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE
YEAR OF DISCOVERY..... DISCOVERED AND LOCATED ABOUT 1899-1900.
PRESENT/LAST OWNER..... OPERATOR IN 1915 WAS GEORGE GROSS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 80 FT

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT 80 FT DEEP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
HOST ROCK TYPES..... QUARTZ MONZONITE, GENERAL AREA HAS GRANITE PORPHYRY AND UNDERLYING DIORITE
(SCHRADER)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)
IGNEOUS ROCK TYPES..... BIOTITE HORNBLENE GRANODIORITE (SIMONS 1974)

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

GENERAL REFERENCES

- 1) GENERAL REFERENCES:
SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 310-11, 313-314.
- 2) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762.
- 3) GEOLOGY OF PATAGONIA MTS:
KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
5) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
7) BAKER, R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
8) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
9) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
10) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
11) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA

MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.

12)DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.

13)BIRD, A.T., (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

14)HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.

15)HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.

16)LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ. 285 P.

17)SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.

18)CROSBY, W.O., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.

19)CROSBY, W.O., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.

20)SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.

21)PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)

22)BRINSMAD, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.

23)YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS,

24)KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,

25)HAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-11-8.

26)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

27)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.

28)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

29)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1930: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16.

30)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.

31)HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.

32)HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.

33)HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.

34)HEIKES V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.

35)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.

36)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.

37)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)

38)ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

39)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.

40)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA

- (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 41) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 42) DALE, B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 43) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 44) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 45) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 46) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 47) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 48) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 49) BLANCHARD, K., AND ROSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS).
- DREWES, HARALD B. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
- 11) KOHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12) DREWES, HARALD B. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00371

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030387
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... HARDSHELL MINE
SYNONYM NAME..... RICHARDSON, EMPIRE MG & MLLG CO., HARDSHELL MG. CO., GARDNER & YOUNG, BENDER, BIG
JIM MINES INC., VALENZUELA, AM. SMELTING & REFINING CO., MCFARLAND

MINING DISTRICT/AREA/SUBDIST. HARSHAW

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 24000 HARSHAW, ARIZ.

LATITUDE LONGITUDE
31-27-34N 110-42-59W

TWP..... 023S
RANGE.... 016E
SECTION.. C 04 PROTRACTED
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5125 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MI SW OF HARSHAW

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MN CU AZN AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. PB AG CU
MINOR PRODUCTS.. ZN AU MN

MAIN COMMOD..... PB AG MN
MINOR COMMOD..... CU AN AU MO

MAIN ORE MINERALS:

ARGENTIFEROUS CERUSSITE, ANGLESITE, CERCARGYRITE & SILVER FRALIDES

MINOR ORE MINERALS:

COPPER & GOLD, ARAUNITE, PSILOMELANE, SMITHSONITE, HYDROZINCITE PYROLUSITE, MANGANITE, PYROMORPHITE, WULFENITE, NIMETITE, NEMEMORPHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LOCATED BY DAVID HARSHAW & JOSE ANDRADE IN 1879 BECAUSE OF SILVER FLOAT, BUT VEIN NOT DISCOVERED UNTIL 1895

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: IRREGULAR, LENSING

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	300	FT
MAX WIDTH.....	600	FT
MAX THICKNESS.....	60	FT
DIP OF OREBODY.....	35N	

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 450 FT

LENGTH OF WORKINGS..... 3,000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE SHAFT & ADIT OPERATIONS, KEITH, 1975. 40 FT. VERTICAL SHAFT; 500 FT INCLINED 30 DEG; 3,000 FT WORKINGS DOWN SOME 450 FT.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		35 TONS		1896-1964	6% PB, 8 OZ/T AG, 0.5% CU, MINOR ZN, AU
16 MN ORE EST		1 TON			40% MN
17 PB EST		5,000 LBS		1880-1920	ELSING & HEINEMAN, 1936, P. 100

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS

HOST ROCK TYPES..... ANDESITE WITH THIN INTERBEDDED LIMESTONE, SHALE, AND CONGLOMERATE

AGE OF ASSOC. IGNEOUS ROCKS.. JURASSIC TRIASSIC

IGNEOUS ROCK TYPES..... VOLCANICS

AGE OF MINERALIZATION..... CRETACEOUS

PERTINENT MINERALOGY..... QUARTZ, CLAY, LIMONITE

IMPORTANT ORE CONTROL/LOCUS.. FAULT GAUGE & SILICIFIED FAULT BRECCIA IN A STRONG FAULT ZONE; PORPHYRY/QUARTZITE CONTACT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT GAUGE & SILICIFIED FAULT BRECCIA IN A STRONG FAULT ZONE; BEDDING PLANE FAULT IN TERT.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

REPLACEMENT OF FAULT GANGE & SILICIFIED FAULT BRECCIA

COMMENTS (GEOLOGY AND MINERALOGY):

SULFIDES INCREASED WITH DEPTH; ZINC INCREASED WITH DEPTH (MOORES 1972 P. 82)

GENERAL REFERENCES

- 1) KEITH, S. H., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 58.
- 2) SCHRADER, F. C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 265-271.
- 3) HARDSHELL GEOLOGY:
 - SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. GEOL. INV. MAP I-762.
 - 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF PAPER 658-E, 23 P.
 - 5) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100
 - 6) DAVIS, S.R. (1975) THE HARDSHELL SILVER DEPOSIT, HARSHAW MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA (ABSTR.) SYMPOS. NEW MEX. GEOL. SOC. AND ARIZ. GEOL. SOC. ABSTR. PROGR. 6.
 - 7) VON FAY, S., 1965, "HARDSHELL AREA," ASARCO COMPANY UNPUBLISHED REPORT.
 - 8) COURTRIGHT, J.H., 1966, "HARDSHELL PROJECT - SILVER-MANGANESE ORE, PROJECT 3103," REPORT NO. 4327, ASARCO CENTRAL RESEARCH LABORATORIES, SOUTH PLAINFIELD, NEW JERSEY.
 - 9) DALLA VISTA, A., 1969, "HARDSHELL PROJECT GEOCHEMICAL SHAPLING," ASARCO COMPANY UNPUBLISHED REPORT
 - 10) DAVIS, S.R., 1970, "HARDSHELL GEOLOGICAL REPORT," ASARCO COMPANY UNPUBLISHED REPORT.
 - 11) KOUTZ, FLEETWOOD, JR., 1979-80?, GENESIS OF THE HARDSHELL SILVER BASE METAL MANGANESE DEPOSIT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, IN PROGRESS.
 - 12) JONES, E. L., JR. AND RANSOME, F. L. 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 174-177.
 - 13) WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 91-94.
 - 14) FARNHAM, L. L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990
 - 15) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 4) HARSHAW GEOLOGY:
 - BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 5) BODNAR, R.J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, 70 P.
 - 6) CORN, R.M., 1975, ALTERATION-MINERALIZATION ZONING, RED MOUNTAIN, ARIZONA: ECON. GEOL., V. 70, P. 1437-1447.
 - 7) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
 - 8) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

- 9) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 10) KARTCHNER, W.E. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION. 100 P.
- 11) MOORES, R. C., III (1972) THE GEOLOGY AND ORE DEPOSITS OF A PORTION OF THE HARSHAW DISTRICT, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 99 P.
- 12) SIMONS, F.S., RAUP, R.B., HAYES, P.T., AND DREWES, HARALD, 1966, EXOTIC BLOCKS AND COARSE BRECCIAS IN MESOZOIC VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN GEOLOGICAL SURVEY RESEARCH 1966: U.S. GEOL. SURVEY PROF. PAPER 550-D, P. D12-D22.

RECORD 00372

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030389
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... HERMOSA MONE

MINING DISTRICT/AREA/SUBDIST. HARSHAW DIST

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL ARIZ.

LATITUDE LONGITUDE
31-27-22N 110-42-33W

UTM NORTHING UTM EASTING UTM ZONE NO
3480000. 527650. +12

TWP..... 023S
RANGE.... 016E
SECTION.. 04
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON AMERICAN PEAK 3/4 MI. S OF HARSHAW

LOCATION COMMENTS: LOCATED WRONG ON TOPOGRAPHIC MAP; SHOULD BE ABOUT 650 FT SOUTH AND 350 FT EAST OF WHERE SHOWN SE
1/4, SEC 4, PROTRACTED.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG MN PB CU AU MO

MAIN COMMOD..... AG MN
MINOR COMMOD..... PB CU AU MO

MAIN ORE MINERALS:
CERARGYRITE, OTHER SILVER CHLORIDES

MINOR ORE MINERALS:
MINOR MOLYBDENUM STAINING

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... FIRST LOCATED IN 1877

PRESENT/LAST OWNER..... HERMOSA MINING CO. PRIETUS MINES CO. FINLEY HERMOSA MG. & MLLG. CO. MARSTELLER

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

WEAK OXIDIZED BASE METAL QUARTZ - LODE
FORM/SHAPE OF DEPOSIT: IRREGULAR, TABULAR

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 20 FT

DIP OF OREBODY..... 33 DEG N

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 500 FT

LENGTH OF WORKINGS..... 7,000 FT

COMMENTS(DESCRIP. OF WORKINGS):

EXTENSIVE INCLINE SHAFT & TUNNEL WORKING INCLINE - MORE THAN 7,000 FT WORKINGS, DOWN 500 FT; 5 LEVELS, 50 FT
APART VERTICALLY

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		70 TONS		1870-1950	20 OZ/T AG MANGANESE SILVER ORE LARGELY USED AS SMELTER FLUX.
16 EST				1880-1930	\$1,000,000 OF AG (ELSING & HEINEMAN, U.D.G., P. 100)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974

PRODUCTION COMMENTS.... FROM 1870'S - 1900 AND IN 1908 & 1949-1950

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI - JUR

HOST ROCK TYPES..... RHYOLITE & LATITE PORPHYRY BRECCIA

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.

IGNEOUS ROCK TYPES..... PYROXENE MONZONITE

PERTINENT MINERALOGY..... IRON & MANGANESE OXIDES (LIMONITE, HEMATITE, PSILOMELANE)

IMPORTANT ORE CONTROL/LOCUS.. HIGH GRADE AG U POCKETS IN FRACTURE FILLINGS & REPLACEMENTS OF JURASSIC RHYOLITE
LATITE PORPHYRY BRECCIA ALONG A FAULT ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
OXIDIZED

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 58.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: U.S. GEOL. SURVEY BULL. 582, 373 P., P. 272-274.
- 3) HERMOSA MINE AREA GEOLOGY:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 4) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 5) MOORES, R.C., III (1972) THE GEOLOGY AND ORE DEPOSITS OF A PORTION OF THE HARSHAW DISTRICT, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 98 P.
- 6) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 7) BAKER R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 8) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 4) GEOLOGY OF HARSHAW DISTRICT & NEARBY AREAS:
KARTCHNER, W.E. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION. 100 P.
- 5) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 6) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 7) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 8) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 9) HAYFS, P. T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S. R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 10) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 11) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. PROF. PAPER 658-C, 81 P.
- 12) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 13) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 14) DREWES, HAROLD R., GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 15) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP, I-614
- 16) GRAYBEAL, F. T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE

ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

17)HAYES, P. I., SIMONS, F. S., AND RAUP, R. B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U. S. GEOL. SURVEY BULL. 1194-M.

18)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CCOD-689-50, UNIV. ARIZ GEOCHROLOGY LABS., P. A11-1-8.

19)DAVIS, H.E., U.I.L, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)

20)DAVIS, S.R., (1975) THE HARSELL SILVER DEPOSIT, HARSHAW MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA (ABSTR.) SYMPOS. NEW MEX. GEOL. SOC. AND ARIZ. GEOL. SOC. ABSTR. PROGR. 6.

21)KOUTZ, FLEETWOOD, JR., 1979-80?, GENESIS OF THE HARSHAW SILVER BASE METAL, MANGANESE DEPOSIT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, IN PROGRESS.

22)WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.

23)JONES, E. L., JR. AND RANSOME, F. L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 93-184.

24)FARNHAM, L. L., STEWART, L. A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990

25)SCHMITT, H. A., 1966, THE PORPHYRY COPPER DEPOSITS IN THEIR REGIONAL SETTING, IN S. R. TITLEY AND C. L. HICKS (EDS.), GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: THE UNIVERSITY OF ARIZONA PRESS, TUCSON, P. 17-33.

26)BIRD, A. T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

27)SCHRADER, F. C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.

28)DINSMORE, C. A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.

29)FETH, J.H., 1954, GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED.REP., 12 P.

RECORD 00373

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030397
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... HOLLAND MINE

MINING DISTRICT/AREA/SUBDIST. DUQUESNE-WASHINGTON GROUP/PATAGONIA DIST/PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, ARIZ.

LATITUDE LONGITUDE
31-22-14N 110-41-44W

UTM NORTHING UTM EASTING UTM ZONE NO
3470550. 528050. 412

TWP..... 024S
RANGE.... 016E
SECTION.. 03
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MI. SW OF WASHINGTON CAMP; 2 1/2 N. MEXICO

LOCATION COMMENTS: CENTER, SEC 3, PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB CU AG AU MO W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. ZN PB AG

MINOR PRODUCTS.. CU AU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....
 OCCURRENCE..... MO W

MAIN ORE MINERALS:
 CHALCOPYRITE GALENA SPHALERITE PYRITE

MINOR ORE MINERALS:
 MOLYBDENITE POWELLITE SCHEELITE, IRON OXIDES, CU, PB, ZN CARBONATES, MANGANESE OXIDES

ANALYTICAL DATA(GENERAL)
 ZN: CU=8.0; ZN:PB=2.1; AG: CU=5.9; PB: CU=3.8; AG: PB=1.6; ZN:AG=1.4 (LEHMAN, 1878 P. 139)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LOCATED ABOUT 1880

BY WHOM..... LOCATED BY HENRY HOLLAND

PRESENT/LAST OWNER..... HOLLAND SMLTG. AND MG. CO., COUGHLIN, BARTLETT, DUQUESNE MG. AND REDUCTION CO., CALLAHAN
 ZINC LEAD CO., BYRD, NASH MINES

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SKARN

FORM/SHAPE OF DEPOSIT: IRREG, TABULAR

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 700 FT

MAX WIDTH..... 50 FT

DIP OF OREBODY..... 60W

COMMENTS(DESCRIPTION OF DEPOSIT):

THE ORE ZONES DIP 45-65 W BETWEEN THE SURFACE AND 100 FT. LEVEL, THEN ABRUPTLY STEEPENS AND BECOMES NEARLY VERTICAL BETWEEN 100 & 200 FT LEVELS, WHEN THE SULFIDE ZONES THIN.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE, OVER 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT AND OPEN CUT OPERATIONS; 4 INCLINED SHAFTS OPEN CUT 100 FT BY 40 FT IN 1915

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		80 TONS		18% ZN, 10% PB, 2% CU, 12 OZ/T AG, MINOR AU (KEITH, 1975)
16 ORE ACC		24.18 TONS	1945-1957	10.49% ZN, 4.98% PB, 1.32% CU, 7.77 OZ/T AG (LEHMAN, 1978)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 77

PRODUCTION COMMENTS.... WORKED EXTENSIVELY PRIOR TO 1900 FOR HIGH GRADE OXIDIZED PB AG ORE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM
HOST ROCK TYPES..... NACO GROUP LIMESTONES (CHERTY MARBLE MBR. OF EPITAPH DOLOMITE)

AGE OF ASSOC. IGNEOUS ROCKS.. 58 +/- 3 M.Y. (SIMONS 1974); 63.9 +/- 2 (HAUGER AND DAMON, 1975)
IGNEOUS ROCK TYPES..... GRANODIORITE DIKES AND SILLS; NEARBY MASS OF LTGY-GY, MB-C GN; EQUIGRANULAR TO PORPHYRITIC GRANODIORITE

PERTINENT MINERALOGY..... SKARNS ARE PRIMARILY MASSIVE GROSSULARITE GARNET WITH LESSER PYROXINE, QUARTZ, HEMATITE, AND CHLORITE (SILICATED LIMESTONES AND QUARTZITES). SOME TALC SURROUNDS RARE BENT BLADES OF MOLYBDENITE. TREMULITE AND OTHER METAMORPHIC MINERALS

IMPORTANT ORE CONTROL/LOCUS.. MINERALIZATION IS AT THE FOOTWALL OF THE SKARNS REPLACING THE CHERTY LIMESTONE MEMBER OF THE EPITAPH DOLOMITE ADJACENT TO ITS CONTACT WITH SCHERRES QUARTZITE. THICKEST SULFIDE BODIES OCCUR AT IRREGULARITIES ALONG THE SKARN-MARBLE CONTACT. SULFIDE BANDING CONFORMS TO BEDDING. LEAD ORE (WITH SILVER) ON FOOTWALL, ZINC ORE WITH COPPER TOWARD HANGING WALL.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

POST ORE FAULTING CUTS OFF SULFIDES AGAINST A WEST TRENDING, STEEPLY NORTH DIPPING, REVERSE FAULT LOCATED BELOW THE 200 FT LEVEL AND ABOUT 350 FT SOUTH OF THE INCLINE SHAFT. COARSE SHEETING OR JOINTING DIPS 25 E.

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE APPEARS TO REPLACE CHALCOPYRITE AND GALENA IN ISOLATED OCCURRENCE IN POLISHED SECTION, (LEHMAN 1978 P. 245) MOLYBDENITE ON 300 LEVEL AT FRINGES OF MASSIVE SULFIDE REPLACEMENT ZONE

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 77
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 339-340.
- 3) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 295 P., P. 244, 245.
- 4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE MCGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 6) CARPENTER, H.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6, P. 4.
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 9) ELSTING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 10) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 11) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 12) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 13) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 14) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.

- 15) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 16) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK 111: ARIZ. GEOL. SOC., P. 49-58.
- 17) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 18) CROSBY, W.O., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 19) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 20) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 21) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 22) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 23) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 24) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-669-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
- 25) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 26) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 27) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 28) ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 29) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 30) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 31) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA, U.S. BUR. MINES REPT. INV. 5650.
- 32) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 33) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 34) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 35) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 36) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 37) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 38) BLANCHARD, K. AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 39) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 40) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16
- 41) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 42) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 43) MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.1. 6828.
- 44) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 45) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.

- 46) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 47) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 48) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
 - DREWES, HARALD 8. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613,, SCALE 1:48,000 (1970)
 - 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
 - 6) DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 8) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
 - 9) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
 - 10) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 11) ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
 - 12) DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00374

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030409
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... I,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... IVANHOE MINF
SYNONYM NAME..... COMMERICAL TUNNEL & SHAFT
MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST/SW SANTA RITAS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON, ARIZ.

LATITUDE LONGITUDE
31-33-42N 110-48-03W

UTM NORTHING UTM EASTING UTM ZONE NO
3491620. 518900. 12

TWP..... 11S
RANGE.... 015E
SECTION.. 34
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4640 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES NW OF PATAGONIA, WEST OF SMITH GULCH

LOCATION COMMENTS: CENTER OF S 1/2 OF SEC 34

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG CU PB AU MO SB ZN

MAIN COMMOD..... AG CU AU
MINOR COMMOD..... PB MO SB

MAIN ORE MINERALS:

CHALCOHITE, TETRAHEDRITE AND CHLORIDES CHALCOPYRITE AND PYRITE, GALENA

MINOR ORE MINERALS:

COPPER CARBONATES, CERUSSITE, WULFENITE SILVER HALIDES (HORN SILVER AND EMBOLITE)

ANALYTICAL DATA(GENERAL)

SOME SAMPLES IN THE ALTERED AREA SE OF THE IVANHOE MINE CONTAIN AS MUCH AS 50 PPM AG, 0.9 PPM AU, 150 PPM MD, 300 PPM SB, 30 PPM BE, 200 PPM BI ESPECIALLY NEAR THE N AND E MARGINS OF THE ALTERED AREA (DREWES, 1967, P. 191).

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... IVANHOE MG. CO., (1915), JOHNSON, TOBIN AND BEASLEY, HOPKINS, IVES, MURD

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEIN

FORM/SHAPE OF DEPOSIT: SPOTTY ORE SHOTS

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 5 FT

STRIKE OF OREBODY.... E-W

DIP OF OREBODY..... 80SE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 250 FT

LENGTH OF WORKINGS..... 2700 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH 1975); EXTENSIVE UNDERGROUND WORKING FROM SHAFT (KEITH ABM FILE DATA

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE EST		.42 TONS	1905-1942	51 OZ/T AG, 2%

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR (145 M.Y. KAR) (161 M.Y. PB)

HOST ROCK TYPES..... SQUAM GULCH GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT CRET

IGNEOUS ROCK TYPES..... TERT. QUARTZ VEIN; LOWER CRETACEOUS LOWER MEMBER OF TEMPORAL FORMATION RHYOLITE TUFF
AND TUFF BRECCIA MBR IS NEAR BY (DREWES); GRAY ANDESITE OVERLIES GRANITE WITH DIORITE IN THE TUNNEL ALSO
(SCHRADER).

AGE OF MINERALIZATION..... TERT (LATE PALEOCENE)

PERTINENT MINERALOGY..... SILICIC GANGUE, EPIDOTE, IRON AND MANGANESE OXIDES; ALUNITE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR, CRUDELY BANDED, IRON AND MANGANESE STAINED QUARTZ-FISSURE VEIN ALTERED AREA TO SE OCCURS IN THE MORE FRACTURED AREA NEAR THE INTERSECTION OF THE INFERRED PRE-PALEOCENE FAULT AND TWO BRACHES OF THE PALEOCENE FAULT SYSTEM (DREWES)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MINERALIZED BRECCIA AND QUARTZ; ALTERED AREA IS NEAR INTERSECTION OF NNW PRE-PALEOCENE FAULT AND 2 PALEOCENE FAULTS

SIGNIFICANT ALTERATION:

ALTERED AREA TO SOUTHEAST IS SERICITIZED AND KAOLINIZED AND SILICIFIED; VEIN IS SILICIFIED

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

SUPERGENE ENRICHMENT AND OXIDATION OF SULFIDES

GENERAL REFERENCES

1) GENERAL REFERENCES:

- KEITH, S.H., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 85.
- 2) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182
- 3) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 216-218.
- 4) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100.
- 3) GEOLOGY OF SANTA RITA MTS:
 - HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 4) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 5) DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 6) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 7) DREWES, H. 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 8) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 9) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 10) DREWES, H., 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 11) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 12) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 13) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
 - 14) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
 - 15) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 16) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA

- MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 17) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 18) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 19) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 20) CREASEY, S.C., AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 21) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 22) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN THE ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 23) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.
- 24) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 25) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 26) OLSON, H. J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 27) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 28) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 29) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 30) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 31) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 32) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 33) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 34) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 35) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 36) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 37) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 38) HEATWOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 4) GEOLOGY OF SURROUNDING AREAS IN SANTA CRUZ CO:
 SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 6) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT (AT(11-1-689), ANN. PROGRESS REPORT NO. COO-699-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 7) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENCIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 8) GRAYBEAL, F.L., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 9) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. K5: 1857-1875.
- 10) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER

HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920 (1918, P. 500=IVANHOE).

11)THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.

12)WEBB, B.P. AND CORYELL, K.C., 1954, PRELIMINARY REGIONAL MAPPING IN THE RUBY QUADRANGLE, ARIZONA: U.S. ATOMIC ENERGY COMM., TECH. REPT. RME-2009

13)NELSON, F.J., 1963, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS

14)NELSON, F.J., 1968, VOLCANIC STRATIGRAPHY AND STRUCTURE OF THE PENA BLANCA AND WALKER CANYON AREAS, SANTA CRUZ COUNTY, ARIZONA: ARIZ. GEOL. SOC., SO. ARIZ.

15)CUNNINGHAM, JOHN E. GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 109 P. (1964); (ABS.): DISSERT. ABS., V. 25, NO. 12, PT. 1, P. 7202 (1965)

16)ROBISON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN. REPORT A-P-287.

RECORD 00375

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030421
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... J. C. HOLMES CLAIMS
MINING DISTRICT/AREA/SUBDIST. SANTA RITA MTS. GROUP OF PATAGONIA DISTRICT
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ
POSITION FROM NEAREST PROMINENT LOCALITY: NEAR PATAGONIA

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE, VANADINITE ETC.

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. WULFENITE ON FRACTURE PLANES IN QUARTZ VEIN FILLING

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE WITH VANADINITE, DESCLOIZITE AND CERUSSITE

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 206-207.
- 2) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD, V. 34, P. 450.

RECORD 00376

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030393
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... JARILLAS MINE GROUP
SYNONYM NAME..... BULLION ETC.
MINING DISTRICT/AREA/SUBDIST. PALMETTO/W. PATAGONIAS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-26-21N 110-48-32W

TWP..... 023S
RANGE.... 015E
SECTION.. SE 09
MERIDIAN. GILA & SALT R.

ALTITUDE.. 4240 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3500 FT SW OF TRES DE MAYO GP

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB AU CU MO MN

MAIN COMMOD..... AG PB
MINOR COMMOD..... AU CU MO MN

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA

MINOR ORE MINERALS:
MINOR CHALCOPYRITE WULFENITE, PSILOMELANE, LEAD AND CU CARBONATES, HORN SILICIC POCKETS, AGURITE AND MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... STOCKTON, , GUSTILLER & CURTIS, LAS JARILLAS MC. CO., GROSS.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT

STRIKE OF OREBODY.... N65E

DIP OF OREBODY..... STEEP S 85 NW

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 125 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1975); 5 VERTICAL SHAFTS 40, 40, 75, 70, 125 FT DEEP IN 1915

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE	REMARKS
15 ORE EST		.1 TONS		18??-1924	190 OZ AG/TON, MINOR CU, 37% PB, 0.1 OZ AU/TON	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... MINED BY MEXICANS PRIOR TO 1880 AND SPORADICALLY TO 1924 (KEITH 1975). 1904-1905 SHIPPED \$5000 WORTH OF ARGENTIFEROUS GALENA AVERAGING 40% PB, 175 OZ AG/T AND 1 OZ AU/T, AND MINOR CU.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... JUR AND PRECAMBRIAN

HOST ROCK TYPES..... PRECAMBRIAN HORNBLENDE-RICH METAMORPHIC AND IGNEOUS ROCKS AND JURASSIC GRANITE OF COMORO CANYON.

AGE OF ASSOC. IGNEOUS ROCKS.. JUR (160 +/- 20 M.Y.)

IGNEOUS ROCK TYPES..... GRANITE OF COMORO CANYON INTRUSIVE DIORITE DIKE CUTTING QUARTZ MONZONITE

PERTINENT MINERALOGY..... WELL BANDED QUARTZ; OXIDIZED TO QUARTZ NEAR SURFACE; LIMONITE PSILOMELANE

IMPORTANT ORE CONTROL/LOCUS.. LENSING FISSURE VEINS; VEIN PARALLIES AN INTRUSIVE DIORITE DIKE IN QTZ MONZONITE (MOGER 1969 P. 5)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

GAUGE BORDERS; N60 E FAULT, FAULT ZONE PARALLEL TO JUR. GRAN/PT. MET. CONTACT

SIGNIFICANT ALTERATION:

OXIDIZED NEAR SURFACE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

LEAD MINERALIZATION INCREASED WITH DEPTH

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL POCKETS OF WULFENITE WERE FOUND WITH GALENA ON THE 65 FT LEVEL(SCHRADER 1915)

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 73
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 288-290
- 3) JARILLAS MINE GROUP AND SURROUNDING PALMETTO DISTRICT:
MOGER, S.R. (1969) THE GEOLOGY OF THE WEST CENTRAL PORTION OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA., UNIV. ARIZONA M.S. THESIS, 60 P., P. 57
- 4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
- 5) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 7) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 8) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 9) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 10) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 11) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 12) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 13) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 14) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M
- 16) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 17) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8
- 18) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 19) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 20) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 21) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 22) FETH, J.H., 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 23) PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 174-176.

- 24) SCHRADER, F.C., 1913, ALUNITE IN PATAGONIA, ARIZONA, AND BOVARD, NEVADA: ECON. GEOL., V. 8, NO. 8, P. 752-767.
- 25) SCHRADER, F.C., 1914, ALUNITE IN GRANITE PORPHYRY NEAR PATAGONIA, ARIZONA: U.S. GEOL. SURVEY BULL. 540, P. 347-350.
- 26) HANDVERGER, P.A. GEOLOGY OF THE THREE R MINE, PALMETTO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1963)
- 4) GEOLOGY OF SANTA RITA MTS (SURROUNDING AREA):
 - DREWES, HAROLD. 8. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
 - 6) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 8) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
 - 9) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
 - 10) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
 - 11) ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
 - 12) DREWES, HAROLD. 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO, 6 P. (1966)

RECORD 00377

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M001446
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 08
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... LINE 90Y MINE
SYNONYM NAME..... CONTAINS SOME LAST CHANCE AND MONTANA CLAIMS

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 0062500 LOCHIEL

LATITUDE LONGITUDE
31-20-07N 110-41-27W

UTM NORTHING UTM EASTING UTM ZONE NO
3466625. 529425. +12

TWP..... 024S
RANGE.... 016E
SECTION.. 22
MERIDIAN. G&SR

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: MOUTH OF DUQUESNE AND JUST NORTH OF POST NO. 113 OF THE INTERNATIONAL
BOUNDARY ABOUT 3/4 MI SW OF BENTON MINE SAN ANTONIO CANYON, PATAGONIA MOUNTAINS, JUST N OF INTERANATIONAL
BOUNDARY POST 113

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG FE MO AU

MAIN COMMOD..... CU AG
MINOR COMMOD..... AU FE MO

MAIN ORE MINERALS:
PYRITE CHALCOPYRITE AND MOLYBDENITE HORNITE

MINOR ORE MINERALS:
MOLYBDENITE SPECULARITE FILMS OF CHALCOHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED BY CAPTAIN O'CONNOR (1910), DDN HAMERLY, HAVERLY

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 80 FT

COMMENTS(DESCRIP. OF WORKINGS):

3 SHAFTS AND 65 FT LONG AND 120 FT. LONG) MINE TO DEPTH OF 90 FT (SCHRADER AND HILL, 1910, P. 162)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	.081	TONS	1942-1945	4.7% CU, 1.02 OZ/T AG, 0.01 OZ/T AU.

SOURCE OF INFORMATION (PRODUCTION).. AZ. BUR. MINES FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT. (58 +/- 5 M.Y.)
 HOST ROCK TYPES..... GRAY QUARTZ MONZONITE (SCHRADER)
 IGNEOUS ROCK TYPES..... BIOTITE HORNBLende GRANODIORITE (SIMONS); GRANITE PORPHYRY INTRUDES QUARTZ MONZONITE (SCHRADER)

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... CALCITE AND QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. ORE ALONG CONTACT OF PORPHYRY DIKE INTO QUARTZ MONZONITE AND CONCENTRATED IN JOINT PLANES AND FISSURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICEOUS, SERICITE

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE CRYSTALS 1/8 INCH THICK AND 1/2 INCH IN DIAMETER OCCUR IN SILICEOUS, SERICITIC GRANITE; ALSO IN MICROSCOPIC VEINLETS

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 592, 373 P., P. 347-348.
- 3) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269, P. 258.
- 4) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 161-162.
- 5) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-752.
- 6) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) U.S. BUR. MINES INF. CIRC. 8236.
- 3) PATAGONIA DISTRICT:
 - KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 4) BAKER, R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 5) ELSTING, M.J., AND HEINEMAN, R.E.S. 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 7) CARPENTER, M.H., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
 - 8) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
 - 9) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 10) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 11) HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-59 RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 100, P. 230-238.
 - 13) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
 - 14) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
 - 15) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
 - 16) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
 - 17) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
 - 18) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
 - 19) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
 - 20) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE RUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
 - 21) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
 - 22) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
 - 23) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

- 24)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 25)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 26)KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1192-E, P. 14-16
- 27)HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 28)HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 29)HEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.
- 30)HEIKES, V.C. 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 31)HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 32)HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908 PT. 1, P. 286-313.
- 33)HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 34)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MINED. REP., 12 P. (1954)
- 35)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 36)DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 37)DALE, V.R., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 38)BROWN, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 39)THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 40)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 41)F. LEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 42)FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 43)WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 44)BLANCHARD, K., AND BOSWELL, P.F. (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):
- DREWES, HARALD 8. GEOLOGIC MAP OF THE SANUARITE QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP -613, SCALE 1:48,000 (1970)
- 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1974, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614.
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00378

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030404
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... MONRY MINE
SYNONYM NAME..... PATAGONIA, ENTERPRISE

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ CO.

QUAD SCALE QUAD NO OR NAME
1: 0062500 LOCHIEL AR17.

LATITUDE LONGITUDE
31-25-42N 110-42-12W

UTM NORTHING UTM EASTING UTM ZONE NO
3476920. 528200. +12

TWP..... 023S
RANGE.... 016F
SECTION.. 15
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 9 MILES S OF PATAGONIA

LOCATION COMMENTS: NW 1/4; PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG ZN CU AU MN BE MO V SB

MAIN COMMOD..... PB AG
MINOR COMMOD..... ZN CU AU MN BE MO V SB

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
MINOR COPPER MINERALS, BINOHEIMITE, WULFENITE, VANADINITE PSILOMELANE, PYROLUSITE, WAD, MANGANITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

YEAR OF DISCOVERY..... LOCATED IN EARLY 1850'S BY MEXICANS. RELOCATED IN 1858 AND PURCHASED IN 1859 BY LT. SYLVESTER MOWRY

PRESENT/LAST OWNER..... MOWRY, FISH, AND SILVERBERG, STEINFELD AND SHAIN, MOWRY MINES CO., SANTA CRUZ MG. AND SMLTG. CO., MITCHELL, STONE, LOGAN, PETERSON GRANT AND WOODRUFF, METTER

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

REPLACEMENT: FISSURE DEPOSITS

FORM/SHAPE OF DEPOSIT: TABULAR, PIPE, AND MANTOS

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 600

MAX WIDTH..... 20 FT

STRIKE OF OREBODY.... N75E

DIP OF OREBODY..... 90N

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 500 FT

LENGTH OF WORKINGS..... 15,000 FT

COMMENTS(DESCRIP. OF WORKINGS):

PROBABLY WORKED BY JESUITS AND MEXICANS PRIOR TO 1850 AND LATER MINED THROUGH 1952; DIAMOND DRILLING IN 1954-55 BY VENTURES LTD OF CANADA

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		200 TONS		1800-1952	4% PB, 3 OZ/T AG, MINOR CU, ZN, AU
16 MN ORE EST		7.5 LONG TONS		1917-1946	25% MN

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 81

PRODUCTION COMMENTS.... 1 1/2 MILLION DOLLARS WORTH OF LEAD AND SILVER IN EARLY 60'S (SCHWADER, 1917, P. 250)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS.

HOST ROCK TYPES..... LESCABROSA LIMESTONE

IGNEOUS ROCK TYPES..... QUARTZ MONZONITE; UNDERLAIN BY ALTERED BASIC (GABBRO) INTRUSIVE AT 235 FT LEVEL

PERTINENT MINERALOGY..... FERRUGINOUS AND MANGENIFEROUS GANGUE SIDERITE, JAROSITE, HEMATITE, PSILOMELANE AND

PYROLUSITE, NO CONTACT METAMORPHIC MINERALS

IMPORTANT ORE CONTROL/LOCUS.. REPLACEMENT OF LIMESTONE ALONG STRONG FAULT ZONE AND ASSOCIATED FISSURES AND AS MANTOS ALONG BEDDING PLANES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

IN THE LIMESTONE HANGING WALL 100 FEET, NORTH OF N75E AND 28 N DIPPING. MOWRY FAULT BETWEEN WEST END AND MILL FAULTS

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

DEEP OXIDATION TO 300 FT LEVEL AND SUPERGENE, ENRICHMENT; MAXIMUM ORE GRADE IS WHERE OXIDATION IS MOST INTENSE

COMMENTS (GEOLOGY AND MINERALOGY):

LACK OF QUARTZ AND ZINC ARE NOTEWORTHY (SMITH, 1956); SULFIDES OF IRON AND COPPER BELOW 400 FT LEVEL. A LITTLE WULFENITE BEGINS ON 300 FT LEVEL

GENERAL REFERENCES

1) GENERAL REFERENCES:

- KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 81.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 296-306.
- 3) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269, P. 250-252.
- 4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 5) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 6) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 7) ELSTING, M.J., AND HEINEMAN, R.E.S., 1936, 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 100
- 8) BRINSMADE, R.B., U.O7, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 9) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 10) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 11) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 12) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990, P. 159-162.
- 13) WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, P. 94.
- 3) GEOLOGY OF PATAGONIA DISTRICT:
 - SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 4) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 6) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 7) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 8) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 9) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R.

- TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 10) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 11) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 12) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 13) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 14) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 15) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 16) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 17) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 18) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 19) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 20) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 21) SURLES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 22) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
- 23) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 24) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 25) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 26) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NJ. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
- 27) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 28) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 29) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. 11. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 30) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1192-E, P. 14-16
- 31) HESS, F.L., 1974, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 32) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 33) MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.
- 34) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 35) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 36) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 37) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 38) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH Mimeo. REP., 12 P. (1954)
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
DREWES, HAROLD B. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS

MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971., MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PR/F. PAPER 915.

10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614

11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HARALD Z. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00379

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030406
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAINT CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... O'CONNOR PROSPECT

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DIST./PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, ARIZ.

LATITUDE LONGITUDE
31-22- N 110-41-45W

TWP..... 024S
RANGE.... 016E
SECTION.. 03
MERIDIAN. GILA AND SALT R.,

ALTITUDE.. 5700 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/4 MILE WEST OF BELMONT TINE

LOCATION COMMENTS: PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB

MAIN ORE MINERALS:

GALENA, CHALCOPYRITE, PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SEVERAL SHAFTS (WATER FILLED)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
HOST ROCK TYPES..... GRANITE INTRUDED BY GRANITE PORPHYRY (SCHRADER)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)
IGNEOUS ROCK TYPES..... BIOTITE-MORBLENDE GRANODIORITE (SIMONS)

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY..... DRUSY QUARTZ

GENERAL REFERENCES

- 1) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 340-1, 346.
- 2) O'CONNOR OR BELMONT:
SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 161.
- 3) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-752
- 4) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 5) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 3) PATAGONIA DISTRICT:
KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
- 4) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 5) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 7) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 9) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 10) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 11) BIRD, A.I. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 12) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 13) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 14) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 15) SCHRADER, F.C. 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 16) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 17) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. K650.
- 18) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P.

449.

- 19) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. NEED, 1912-1914; HOUGHTON, MICHIGAN
- 20) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 21) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 22) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 23) WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 24) BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 25) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 26) SURLES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 27) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
- 28) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 29) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 30) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 31) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 32) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 33) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 34) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. 411-1-8.
- 35) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 36) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 37) FRONDEL, W., AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 38) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-F, P. 14-16.
- 39) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 40) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 41) MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.1. 6828.
- 42) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 43) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 44) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 45) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 46) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MINED. REP., 12 P. (1954)
- 47) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
 DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-613, SCALE 1:48,000 (1970)

- 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)

RECORD 00380

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030557
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 03

NAME AND LOCATION

DEPOSIT NAME..... OLD BALDY COPPER MINE

MINING DISTRICT/AREA/SUBDIST. OLD BALDY?

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. WRIGHTSON, ARIZ.

LATITUDE LONGITUDE
31-42-58N 110-51-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3508850.0 513300.0 +12

TWP..... 19S
RANGE.... 1 E
SECTION.. 19 SW
MERIDIAN. GILA SALT RIVER

ALTITUDE.. 6375 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MILES N OF LITTLESNOT CAMP AND 1/4 MILE N OF LUCKY LEDGE MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU FE PB

MAIN COMMOD..... CU
MINOR COMMOD.... AU AG MO PB

MAIN ORE MINERALS:
GALENA, CHALCOPYRITE

MINOR ORE MINERALS:
SOME SILVER AND GOLD VALUES, MALACHITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 2 FT

DIP OF OREBODY..... 60SE

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

65 FT DRIFT

GEOLOGY AND MINERALOGY

IGNEOUS ROCK TYPES..... LAMPORPHYRIC "SPOTTED PORPHYRY" INTRUDED INTO MICACEOUS QUARTZ SCHIST

PERTINENT MINERALOGY..... IRON STAINED QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS AND STRINGERS CUTTING QUARTZ MONZONITE

GENERAL REFERENCES

- 1) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 176-177, #9 ON MAP.
- 2) SCHRADER, F.C. 4. (AND HILL, J.M., 1910 SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163 (1910); P. 66.
- 3) ARTZ, BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 4) HILL, J.M., 1912, THE MINING DISTRICTS OF THE WESTERN UNITED STATES, WITH A GEOLOGIC INTRODUCTION BY WALDEMAR LINDGREN: U.S. GEOL. SURVEY BULL. 507, P. 54-76.

RECORD 00381

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030403
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... PROVIDENCIA CANYON PROVIDENCIA CLAIM (PATENTED)
SYNONYM NAME..... NEAR GOLDEN ROSE GROSS & BUENA VISTA MINES

MINING DISTRICT/AREA/SUBDIST. PATAGONIA DIST./W. PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-23-17N 110-45-52W

UTM NORTHING UTM EASTING UTM ZONE NO
3472400. 522500. 412

TWP..... 023S
SECTION.. 01SE
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4200-5000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10 MI NNE OF NOGALES, 5 MI. W OF WASHINGTON, 5 MI. N OF MEXICO

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN COMMOD..... CU MO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR ORE MINERALS:

BORNITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 800 FT

COMMENTS(DESCRIPTION OF DEPOSIT):

1 SQUARE MILE AREA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.

HOST ROCK TYPES..... GRANITE-QUARTZ MONZONITE (SCHRADER) Biotite Hornblende Granodiorite and Syndiorite (SIMONS)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- 5 M.Y.)

IGNEOUS ROCK TYPES..... INTRUDED BY DIKES AND MASSES OF QUARTZ DIORITE; GRANITE PORPHYRY (SCHRADER)

AGE OF MINERALIZATION..... TERT. (58 +/- 5 M.Y.)

GENERAL REFERENCES

1) GENERAL REFERENCES:

SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163, P. 159.

2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 592, 373 P., P. 310.

3) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269, P. 257.

4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOSALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762.

5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

6) GUILD, F.N. (1907) THE COMPOSITION OF MOLYBDITE FROM ARIZONA. AMER. JOUR. SCI. 23: 455-456.

7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

3) GEOLOGY OF PATAGONIA DISTRICT:

KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.

4) BAKER, R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)

5) ELSTING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.

7) CARPENTER, H.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.

8) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.

9) BIRD, A.I. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.

- 10) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 11) HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 12) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 13) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 14) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 15) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-F.
- 16) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 17) HUTTIL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 18) MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.1. 6828.
- 19) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 20) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 21) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 22) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 23) FETH, J.H., 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MEMO. REP., 12 P. (1954)
- 24) LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 285 P.
- 25) SURLS, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
- 26) CROSBY, W.D., 1906, LIMESTONE-GRANITE CONTACT DEPOSITS OF WASHINGTON CAMP, ARIZONA: AM. INST. MIN. ENG. TRANS., V. 36, P. 626-646.
- 27) CROSBY, W.D., 1906, THE LIMESTONE-GRANITE CONTACT AT WASHINGTON CAMP, ARIZONA: AMER. INST. MINING ENGINEERS, TRANS., V. 36, P. 626-646.
- 28) SMITH, G.E. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 44 P.
- 29) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
- 30) BRINSMADE, R.B., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
- 31) YOUNG, P.C., 1969, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
- 32) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
- 33) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. A11-1-8.
- 34) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 35) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS.):
- DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 5) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

- 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. 1-614.
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD ? ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)
- 13)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 14)DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 15)DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 16)BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 17)THE COPPER HANDBOOK: VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 18)WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 19)PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 20)FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.
- 21)WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 22)BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.

RECORD 00382

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030389
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... RED MOUNTAIN
MINING DISTRICT/AREA/SUBDIST. HARSHAW DIST/PATAGONIA MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 ELGIN ARIZ

LATITUDE LONGITUDE
31-30-13N 110-43-07W

UTM NORTHING UTM264801NG UTM12ONE NO

TWP..... 022S
RANGE.... 016E
SECTION.. 21
MERIDIAN. 3485270.

ALTITUDE.. 5847 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES SOUTHEAST OF PATAGONIA

LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO PB AN

MAIN COMMOD..... CU MO
MINOR COMMOD..... PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... CU MO

MAIN ORE MINERALS:
CHALCOITE, PYRITE, ENARGITE, CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE SPHALERITE, TETRAHEDRITE MAGNETITE

ANALYTICAL DATA(GENERAL)

LEAD EXCEEDING 100 PPM IN HIGH PYRITE ALTERATION ZONES & DIMINISHING WITH DEPTH. MOLYBDENUM EXCEEDING 20 PPM OCCURS THROUGHOUT HOLE IN PHYLIC ALTERATION; IN SOME AREAS OF PHYLIC & POTASSIC ALTERATION ZONES AVERAGE 100 PPM MOLYBDENUM. ZINC 20-100 PPM IN NEAR SURFACE LEACHED INTERVAL BUT HIGHER ELSEWHERE CHALCOPYRITE INCREASES WITH DEPTH IN POTASSIC ALTERATION ZONE AVERAGING MORE THAN 0.1-0.2% CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... EXPLORATION DRILLING BY KERR-MCGEE PRIOR TO 1974

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEM.

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 3500 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
ADITS (KEITH ABM FILE DATA)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... RED MOUNTAIN VOLCANICS (LAVITIC TO TRACHYTIC TUFFACEOUS VOLCANICS) CORRELATED WITH GRINGO GULCH VOLCANICS TO NORTH AND WEST WHICH HAVE BEEN KA DATED AT 60.3 & 60.4 +/- 6.0 M.Y. (DREWES, 1971). THE RED MOUNTAIN VOLCANICS OVERLIE THE TRACHYANDESITE OF MEADOW VALLEY (SIMONS, 1977) DATED AT 72.1 +/- 2.2 M.Y.
IGNEOUS ROCK TYPES..... INTRUSIVE BRECCIA & QUARTZ MONZONITE PORPHYRY

PERTINENT MINERALOGY..... QUARTZ, EPIDOTE, CHLORITE, ANHYDRITE, SERICITE, ALUNITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

HIGH PYRITE PHYLIC ALTERATION SURROUNDED BY PYRITIC-ARGILLIC AND PROPYLLITIC ALTERATION; HIGH PYRITIC PHYLIC ALTERATION SURROUNDED BY PYRITIC-ARGILLIC AND PROPYLLITIC ALTERATION; WITH DEPTH SULFUR DECREASES & CHANGES FROM NEAR SURFACE, SULFUR-RICH PHYLIC ALTERATION, THROUGH WEAK POTASSIC ALTERATION TO LOW SULFUR POTASSIC ALTERATION AT DEPTH.

GENERAL REFERENCES

1) GENERAL REFERENCES:

CORN, R. M., 1975, ALTERATION-MINERALIZATION ZONING, RED MOUNTAIN, ARIZONA: ECON. GEOL., V. 70, P. 1437-1447.

- 2) BODNAR, R.J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, 70 P.
- 3) RED MOUNTAIN GEOLOGY:
 - ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
 - 4) SIMONS, F. S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 5) SCHRADER, F. C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
- 4) HARSHAW DISTRICT GEOLOGY AND NEARBY AREAS:
 - KEITH, S. B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 5) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
 - 6) GRAYREAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
 - 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 8) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 9) KARTCHNER, W.F. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 100 P.
- 10) MOORES, R.C., III (1972) THE GEOLOGY AND ORE DEPOSITS OF A PORTION OF THE HARSHAW DISTRICT, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 98 P.
- 11) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 12) DREWES, HAROLD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 13) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 14) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 15) DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 16) DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
- 17) GRAYREAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 18) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 19) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.

RECORD 00393

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030405
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... RED RACER
MINING DISTRICT/AREA/SUBDIST. PATAGONIA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ
POSITION FROM NEAREST PROMINENT LOCALITY: 15 MILES E OF NOGALES

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO FE
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL.....
OCCURRENCE..... MO

MAIN ORE MINERALS:
TALC

MINOR ORE MINERALS:
FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... FORMER OWNERS, ADDRESS UNKNOWN, REPORTED MO AS THE PRINCIPAL METAL

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 150 FT

COMMENTS(DESCRIP. OF WORKINGS):
150 FT OF DRIFTS AND TUNNELS

SOURCE OF INFORMATION (PRODUCTION).. ARIZ. DEPT. MINERAL RESOURCES FILE DATA

PRODUCTION COMMENTS.... SEVERAL CARS OF PRODUCTION

GENERAL REFERENCES

- 1) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

RECORD 00384

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 1000982
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 79 08
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SANTO NINO MINE
MINING DISTRICT/AREA/SUBDIST. PATAGONIA /S. PATAGONIA MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL

LATITUDE LONGITUDE
31-21-39N 110-43-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3469450. 526825. +12

TWP..... 024S
RANGE..... 016E
SECTION.. 09
MERIDIAN. 66SR

POSITION FROM NEAREST PROMINENT LOCALITY: 2 1/2 MI. SW OF DUQUE SNE

LOCATION COMMENTS: NW 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AG AU PB ZN

MAIN COMMOD..... CU MO AG
MINOR COMMOD..... AU PB ZN

MAIN ORE MINERALS:
CHALCOPYRITE, POCKETS OF MOLYBDENITE, PYRITE

ANALYTICAL DATA(GENERAL)

PHK-118-69: MOLYBDENITE, SANTO NINO MINE, MT. WASHINGTON, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA. 31 21°41' N, 110 43°03' W. MOLYBDENITE AND CHALCOPYRITE ARE DISSEMINATED IN VUGGY, ALTERED PINK GRANODIORITE OF PALEOCENE AGE. SE WAS NOT DETERMINED.

MO 57.0 %

MG 0.016
AL 0.45
SI 1.2
CA 0.026
FE 0.17
CU 0.059

ND-0.002 & V ND-0.004 & CU ND-0.002 & MN B ND-0.007 & NA ND-0.10 & K ND-0.30 & TI
& SR ND-0.01 & NB ND-0.08 & RU ND-0.003 & ZN ND-0.06 & CA ND-0.05 & GE ND-0.01
ND-0.03 & TE ND-0.10 & TA ND-1.0 & W ND-0.02 & RH ND-0.03 & AG ND-0.0002 & SN ND-0.01 & SB
ND-0.08 & RE ND-0.002 & U ND-0.03 ND-0.10 & RE ND-0.07 & PT ND-0.01 & TL ND-0.80 & PB
% MOS2 95.1

MGO 0.027

AL2O3 0.85
SiO2 2.6
CaO 0.036
FeS2 0.37
CuS 0.089

TOTAL 99.1 %

PHK-15-69: MOLYBDENITE, SANTO NINO MINE, MT. WASHINGTON, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA. 31 21°41' N, 110 43°03' W. MOLYBDENITE, CHALCOPYRITE, AND BIOTITE ARE DISSEMINATED IN CALCITE-RICH, ALTERED GRANODIORITE. SERICITE FILLS CRACKS IN SOME OF THE MOLYBDENITE. SE WAS NOT DETERMINED.

MO 57.7 %

MG 0.0036
AL 0.52 & SI 0.95 & CA 0.015 & TI TR-0.002 & CR 0.0030 FE 0.096
CU 0.0016

B ND-0.007 & NA ND-0.10 & K ND-0.30 & V ND-0.004 & MN
ND-0.003 & ZN ND-0.06 & CA ND-0.05 & GE ND-0.01 & SR ND-0.01 & NB ND-0.08 & RU ND-0.02 &
RH ND-0.03 & AG ND-0.0002 & SN ND-0.01 & SB ND-0.03 & TE ND-0.10 & TA ND-1.0 & W
ND-0.10 & RE ND-0.07 & PT ND-0.01 & TL ND-0.80 & PB ND-0.08 & RI ND-0.002 & U ND-0.30 &

MDS2 96.3 %

MGO	0.0060						
AL2O3	0.98						
SiO2	2.0						
CAO	0.021	& TiO2	TR-0.003	& CR2O3	0.0044	& FES2	0.19 CUS 0.0024

TOTAL 99.5 % (KUCK, 1978, P. 187-188.)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... MIAMI COPPER CO., SOUTHERN COPPER MINES CO., BEYERLE, SANTO NINO MG. CO., YOUNG AND GARDNER, SANTO NINO LESSEES, HAVALEVA MINING CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED, SHEAR ZONE

FORM/SHAPE OF DEPOSIT: LENTICULAR

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	20.1	TONS	1900-1955	7% CU, 1 OZ/T AG, MINOR AU, 1% MOS2
16 ORE	ACC	.2	TONS	1930'S	MO ORE
17 MO CONC	ACC	0.16	TONS	1930'S	MOS2

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM EARLY 1900'S THROUGH 1955, PRODUCING SOME 20,100 TONS OF ORE AVERAGING ABOUT 7% CU, 1 OZ AG/TON, AND MINOR AU. SOME 200 TONS OF MO ORE CONCENTRATED TO 16 TONS OF MOS2 CONCENTRATE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.

HOST ROCK TYPES..... QUARTZ MONZONITE (SCHRADER) GRANODIORITE (SIMONS)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (58 +/- M.Y.)

IGNEOUS ROCK TYPES..... BIOTITE-HORNBLende GRANODIORITE (SIMONS)

AGE OF MINERALIZATION..... TERT. (58 +/- M.Y.)

PERTINENT MINERALOGY..... PODS OF QUARTZ; ZONES OF QUARTZ - SULFIDE VEINLETS

IMPORTANT ORE CONTROL/LOCUS.. IN QTZ VEINS WITH PYRITE IN VEINS IN FELDSPATHOID ZONE IN QUARTZ MONZONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VEINLETS ALONG FAULTS, FISSURES, AND JOINTS IN LARAMIDE GRANODIORITE

SIGNIFICANT ALTERATION:

INTENSELY FELDSPATHIZED ZONE RELATED TO NORTH-SOUTH JOINTING AND TO NORTHEAST FRACTURES

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

DISSEMINATED CHALCOPYRITE

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE AS LARGE BODIES OF FN-GN MASSIVE MATERIAL AND MOLYBDENITE AS GOOD CRYSTALS IN QUARTZ VEINS WITH PYRITE

GENERAL COMMENTS

SEE RECORD NUMBER M899989 FOR REFERENCES

RECORD 00385

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030398
RECORD TYPE..... R1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... SIMPLOT MINE

MINING DISTRICT/AREA/SUBDIST. DUQUESNE-WASHINGTON GROUP/PATAGONIA DIST/SE PATAGONIA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, ARIZ.

LATITUDE LONGITUDE
31-23-09N 110-41-55W

UTM NORTHING UTM EASTING UTM ZONE NO
3472225. 528700. +12

TWP..... 023N
RANGE.... 16E
SECTION.. 34 C PROTRACTED
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5620 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 900 FT WSW OF KANSAS SHAFT; 1300 FT NNE OF MAINE MINE 5 MI N OF MEXICO,
NORTH OF WASHINGTON GULCH

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN CU PB AG MO

MAIN ORE MINERALS:

SPHALERITE, CHALCOPYRITE GALENA PYRITE PYRRHOTITE

MINOR ORE MINERALS:

ARGENTITE, BORNITE, DICENITE, MOLYBDENITE

ANALYTICAL DATA(GENERAL)

ZN: CU=4.0; AN: PB=4.8; AG: CU=1.6; PB: CU=0.8; AG: PB=1.9; ZN: AG=2.5 (LEHMAN, 1978, P. 139)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SKARN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	300	FT
MAX WIDTH.....	10	FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	PERM. TRI-JUR
HOST ROCK TYPES.....	CONCHA LIMESTONE; RHYOLITE FLOWS AND TUFFS OF DUQUESNE VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS..	TERT CRET
IGNEOUS ROCK TYPES.....	PORPHYRITIC ANDESITE SILLS

PERTINENT MINERALOGY..... GARNET SKARNS QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. SULFIDE MINERALIZATION OCCURS ADJACENT TO THE CONTACT BETWEEN THE DUQUESNE VOLCANICS AND THE CONCHA LIMESTONE; ALSO OCCURS AT THE CONTACT BETWEEN THE CONCHA LIMESTONE AND A JURASSIC-TRIASSIC (?) DACITE SILL.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FREQUENT POST MINERAL FAULTING HAS DISPLACED ORE HORIZONS TENS OF FEET; NORTHWEST PLUNGING ANTICLINAL FOLD

COMMENTS (GEOLOGY AND MINERALOGY):

MOLYBDENITE REPLACES GARNET; MOLYBDENITE REPLACES CHALCOPYRITE AND GALENA IN POLISHED SECTION

GENERAL REFERENCES

1) GENERAL REFERENCES:

LEHMAN, N.E., 1978, THE GEOLOGY AND PYROMETASOMATIC ORE DEPOSITS OF THE WASHINGTON CAMP-DUQUESNE DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 295 P., P. 132-134, 139, 246.

2) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762

3) DUQUESNE-WASHINGTON CAMP:

KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.

- 4) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
- 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 6) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6.
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 8) BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 9) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 10) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 11) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 12) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 13) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 14) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 15) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 16) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 17) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 18) KUPFER, D.H., 1965, SANTO NINO MINE, IN INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-1960: U.S. GEOL. SURVEY BULL. 1182-E, P. 14-16
- 19) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 20) HUTTL, J.B., 1941, MAKING A THREE-METAL SEPARATION AT THE DUQUESNE GROUP: ENG. MINING JOUR., V. 142, NO. 11, P. 56-58.
- 21) MEEVES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R.I. 6828.
- 22) HEIKES, V.C., 1906, U.S. GEOL. SURVEY MINERAL RESOURCES, 1905, P. 156.
- 23) HEIKES, V.C., 1906 ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY, MIN. RES., 1906, P. 147-177.
- 24) HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES. U.S., 1908, PT. 1, P. 286-313.
- 25) HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES. U.S., 1909, P. 232-259.
- 26) FFTH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 27) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 28) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 29) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 30) DAVIS, H. E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 31) DALE, V.B., L.A. STEWART, AND W.A. MCKINNEY (1960) TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZONA. U.S. BUR. MINES REPT. INV. 5650.
- 32) BROWNE, J.K., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P. 449.
- 33) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1911; EDITED AND PUBLISHED BY W.H. WEED, 1912-1914; HOUGHTON, MICHIGAN
- 34) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
- 35) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD 34: 450.
- 36) FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990.

- 37)WILSON, E.D. AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127
- 38)BLANCHARD, K., AND BOSWELL, P.F., (1935) LIMONITE OF MOLYBDENITE DERIVATION. ECON. GEOL. 30: 313-319.
- 4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):
 - DREWES, HARALD 8. GEOLOGIC MAP OF THE SANUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
 - DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P
 - 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
 - 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 11)KONRACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
 - 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1969)

RECORD 00386

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030420
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... SUNSET MINE GROUP
MINING DISTRICT/AREA/SUBDIST. PAJARITO DISTRICT/PAJARITO MTS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 RUBY

LATITUDE LONGITUDE
31-22-27N 111-05-49W

UTM NORTHING UTM EASTING UTM ZONE NO
3470820. 490850. +12

TWP..... 024S
RANGE.... 012E
SECTION.. 03
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: EAST SIDE OF PENA BLANCA CANYON

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB AU CU ZN U MO

MAIN COMMOD..... AG PB AU
MINOR COMMOD.... CU ZN MO U

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA, PYRITE CERUSSITE

MINOR ORE MINERALS:

MINOR CHALCOPYRITE WULFENITE, VANADINITE, TRACES OF URANUIM

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... KELTZ AND ALLEN, MILLER, BLANKENSHIP, PYEATT, CASON, GRAYHILL

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SPOTTY

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRETACEOUS

HOST ROCK TYPES..... QUARTZ LATITE VOLCANICS

IGNEOUS ROCK TYPES..... BRECCIATED RHYOLITE PORPHYRY

PERTINENT MINERALOGY..... SILICIC GANGUE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR, LENSING AND NARROW FISSURE ZONES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

OXIDIZED PYRITE GASSAN WITH AU AND AG POCKETS

GENERAL REFERENCES

- 1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 72
- 2) ROBISON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN. REPORT A-P-287, 1 P.
- 3) WELB, B.P. AND CORYELL, K.C., 1954, PRELIMINARY REGIONAL MAPPING IN THE RUBY QUADRANGLE, ARIZONA: U.S. ATOMIC ENERGY COMM., TECH. REPT. RME-2009.
- 4) NELSON, F.J., 1963, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREAS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 5) NELSON, F.J., 1968, VOLCANIC STRATIGRAPHY AND STRUCTURE OF THE PENA BLANCA AND WALKER CANYON AREAS, SANTA CRUZ COUNTY, ARIZONA: ARIZ. GEOL. SOC., 50. ARIZ. GUIDEBOOK III, P. 171-182.
- 6) CUNNINGHAM, JOHN E., 1964, GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 139 P. (ABS.): DISSERT. ABS., V. 25, NO. 12, PT. 1, P. 7202 (1956)
- 7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 3) GEOLOGY OF NEARBY AREAS:
 - SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
 - 4) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 5) REED, R.K., 1966, STRUCTURE AND PETROGRAPHY OF THE FRAJITA PEAK AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS, 64 P.
 - 6) KNIGHT, L.H., 1970, STRUCTURE AND MINERALIZATION OF THE ORD BLANCO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PH.D. THESIS, 172 P.

- 7)DREWES, H., 1979, TECTONIC MAP OF SOUTHEAST ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT 79-775.
- 8)BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 9)PLOUFF, D., 1961, GRAVITY SURVEY NEAR TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. 259, FIG. 384.2.
- 10)KEITH, W.J., AND THEODORE, T.G., 1975, RECONNAISSANCE GEOLOGIC MAP OF THE ARIVACA QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY MF-679.
- 11)77-809. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR SELLS, ARIZONA. LAT 31 30' TO 32 , LONG 111 TO 112 . THIS DATA SET CONSISTS OF FOUR MAPS KEYED TO THE USGS TOPOGRAPHIC MAP SELLS, 1:100,000 (1 INCH = ABOUT 1.6 MILES). THESE MAPS ARE CODED FOR STATISTICAL DATA DEVELOPMENT. THE MAPS ARE (1) LAND USE AND LAND COVER, (2) POLITICAL UNITS, (3) HYDROLOGIC UNITS, AND (4) CENSUS COUNTY SUBDIVISION. ALSO INCLUDED IS ONE POSITA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS, 64 P.
- 6)KNIGHT, L.H., 1970, STRUCTURE AND MINERALIZATION OF THE 3RD BLANCO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PH.D. THESIS, 172 P.
- 7)DREWES, H., 1979, TECTONIC MAP OF SOUTHEAST ARIZONA: U.S. GEOL. SURVEY OPEN FILE REPORT 79-775.
- 8)BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 9)PLOUFF, D., 1961, GRAVITY SURVEY NEAR TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 424-D, P. 259, FIG. 384.2.
- 10)KEITH, W.J., AND THEODORE, T.G., 1975, RECONNAISSANCE GEOLOGIC MAP OF THE ARIVACA QUADRANGLE, ARIZONA: U.S. GEOL. SURVEY MF-679.
- 11)77-809. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR SELLS, ARIZONA. LAT 31 30' TO 32 , LONG 111 TO 112 . THIS DATA SET CONSISTS OF FOUR MAPS KEYED TO THE USGS TOPOGRAPHIC MAP SELLS, 1:100,000 (1 INCH = ABOUT 1.6 MILES). THESE MAPS ARE CODED FOR STATISTICAL DATA DEVELOPMENT. THE MAPS ARE (1) LAND USE AND LAND COVER, (2) POLITICAL UNITS, (3) HYDROLOGIC UNITS, AND (4) CENSUS COUNTY SUBDIVISION. ALSO INCLUDED IS ONE POSITIVE OF THE CULTURAL BASE FOR SELLS AT 1:100,000. (USGS, WESTERN MAPPING CTR. (NCIC-W), 345 MIDDLEFIELD RD., MENLO PARK, CA 94025.)
- 12)77-807. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR ATASCOSA MOUNTAINS, ARIZONA. LAT 31 TO 31 30', LONG 111 TO 112 . THIS DATA SET CONSISTS OF FOUR MAPS KEYED TO THE USGS TOPOGRAPHIC MAP ATASCOSA MOUNTAINS, 1:100,000 (1 INCH = ABOUT 1.6 MILES). THESE MAPS ARE CODED FOR STATISTICAL DATA DEVELOPMENT. THE MAPS ARE (1) LAND USE AND LAND COVER, (2) POLITICAL UNITS, (3) HYDROLOGIC UNITS, AND (4) CENSUS COUNTY SUBDIVISION. ALSO INCLUDED IS ONE POSITIVE OF THE CULTURAL BASE FOR ATASCOSA MOUNTAINS AT 1:100,000. (USGS, WESTERN MAPPING CTR. (NCIC-W), 345 MIDDLEFIELD RD., MENLO PARK, CA 94025.)

RECORD 00387

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030390
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... THUNDER MINE
SYNONYM NAME..... STANDARD

MINING DISTRICT/AREA/SUBDIST. HARSHAW

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 LOCHIEL, ARIZ.

LATITUDE LONGITUDE
31-26-41N 110-44-55W

UTM NORTHING UTM EASTING UTM ZONE NO
3478700. 523900. 412

TWP..... 023S
RANGE.... 016E
SECTION.. 07
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2/3 MILE S OF SUNNYSIDE MINE & 1 1/2 MILE WEST OF AMERICAN PEAK IN
EXTREME HEAD OF ALUM GULCH

LOCATION COMMENTS: N 1/2 PROTRACTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU 40

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
TETRAHEDRITE, MOLYBDENITE

ANALYTICAL DATA(GENERAL)
ORE SAID TO AVERAGE 0.6% CU, 2 OZ/T AG, 40 AU/T (1915)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
82 FT TUNNEL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI, TRI - JUR
HOST ROCK TYPES..... MT WRIGHTSON FORMATION (RHYOLITIC TO LYTIC LAVA & TUFF, & TUFFACEOUS SANDSTONE)
(TRIASSIC), INTUDED BY MONZONITE (?) PORPHYRY (JUR & TRI)

AGE OF ASSOC. IGNEOUS ROCKS.. TRI & JUR
IGNEOUS ROCK TYPES..... MONZONITE (?) PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. IN SHEAR OR SHEETING ZONES IN GRANITE PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NW-SE BANDS OR SHEAR ZONES; ALSO AN FNE SYSTEM OF FAULTS & JOINTS WITH FLAT, SOUTHERLY DIP

SIGNIFICANT ALTERATION:
SILICIFIED & ALTERED

GENERAL REFERENCES

- 1) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 256-257.
- 2) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 3) GEOLOGY OF THUNDER MINE AREA:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762.
- 4)SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 5)KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191,
- 6)MOORES, R. C., III (1972) THE GEOLOGY AND ORE DEPOSITS OF A PORTION OF THE HARSHAM DISTRICT, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 98 P.
- 7)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

- 8)BAKER, R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
- 4) GEOLOGY OF HARSHAW DISTRICT:
 - KARTCHNER, W.E. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA. UNIV. ARIZONA PHD DISSERTATION. 100 P.
 - 5)GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
 - 6)SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 7)SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 8)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
 - 9)HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S. R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 10)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
 - 11)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 12)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 13)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
 - 14)DREWES, HAROLD, 8. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-L13, SCALE 1:48,000 (1970)
 - 15)DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 16)GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
 - 17)HAYES, P. T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
 - 18)MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT (11-1-689), ANN. PROGRESS REPORT NO. CDD-689-50, UNIV. ARIZ GEOCHRONOLOGY LABS., P. A11-1-8.
 - 19)DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
 - 20)DAVIS, S.R. 1975, THE HARDSHELL SILVER DEPOSITS, HARSHAW MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA (ABSTR.) SUMPOS. NEW MEX. GEOL. SOC. AND ARIZ. GEOL. SOC. ABSTR. PROGR. 6.
 - 21)KOUTZ, FLEETWOOD, JR., 1979-80?, GENESIS OF THE HARDSHELL SILVER, BASE METAL, MANGANESE DEPOSIT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, IN PROGRESS.
 - 22)WILSON, E.D., AND BUTLER, G.M., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. BUR. MINES BULL. 127, 107 P., P. 71-78.
 - 23)JONES, E.L., JR. AND RANSOME, F.L. 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710-D, P. 93-184.
 - 24)FARNHAM, L.L., STEWART, L.A., AND DELONG, C.W., 1961, MANGANESE DEPOSITS OF EASTERN ARIZONA: U.S. BUR. MINES INF. CIRC. 7990
 - 25)SCHMITT, H.A., 1966, THE PORPHYRY COPPER DEPOSITS IN THEIR REGIONAL SETTING, IN S.R. TITLEY AND C.L. HICKS (EDS.), GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, SOUTHWESTERN NORTH AMERICA: THE UNIVERSITY OF ARIZONA PRESS, TUCSON, P. 17-33.
 - 26)BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.
 - 27)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 28)DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
 - 29)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)

RECORD 00388

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030410
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 79 09
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TIAJUANA
SYNONYM NAME..... TIAJUANA, SANTA MARIA, AND SANTA CRUZ PATENTED CLAIMS

MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST./SANTA RITA MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. WRIGHTSON, ARIZ

LATITUDE LONGITUDE
31-40-07N 110-52-23W

UTM NORTHING UTM EASTING UTM ZONE NO
3503500. 512050. +12

TWP..... 020S
RANGE..... 014E
SECTION.. 26
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6000-6800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE W OF JOSEPHINE CANYON ACROSS RIDGE FROM HEAD OF COTTONWOOD CANYON

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB CU AG AU MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG
MINOR PRODUCTS.. ZN CU

MAIN COMMOD..... AG CU PB ZN
 MINOR COMMOD.... AU MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL.....
 OCCURRENCE..... MO AU PB

MAIN ORE MINERALS:
 CHALCOPYRITE, PYRITE, GALENA, CHALCOCITE

MINOR ORE MINERALS:
 MALACHITE, AZURITE, SPHALERITE, MOLYBDENITE, IRON AND MANGANESE AND COPPER OXIDES, SPECULARITE

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY..... DISCOVERED IN EARLY 1960'S
 PRESENT/LAST OWNER..... TIAJUANA MG. CO., WILSON, BEKINS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
 QUARTZ FISSURE VEIN
 FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
 MAX LENGTH..... 2.5 MI
 MAX WIDTH..... 10-40 FT
 STRIKE OF OREBODY.... N85W

DESCRIPTION OF WORKINGS

UNDERGROUND
 DEPTH OF WORKINGS BELOW SURFACE. 10-70 FT
 LENGTH OF WORKINGS..... 500 FT

COMMENTS(DESCRIP. OF WORKINGS):
 CUTS, DRIFTS, CROSSCUT TUNNELS AND SHAFTS SHOWN IN SCHRADER, 1915, P. 192.

PRODUCTION

YES
 SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	.118	TONS	1970-1968	15 OZ/T AG, 3% ZN, 1% CU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, ASM FILE DATA

PRODUCTION COMMENTS.... WORKED FRO SILVER CHLORIDES IN 1870'S AND SOME SPORADIC MINING THROUGH 1968.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT.
 HOST ROCK TYPES..... JOSEPHINE CANYON DIORITE IN FINE GRAINED QUARTZ MONZONITE PHASE (61 M.Y. PB)
 SURROUNDED BY MODERATELY COARSE-GRAINED QUARTZ DIORITE PHASE (67 M.Y. K-Ar, 62-63 M.Y. PB) (DREWES) ON TREND WITH
 TERTIARY QUARTZ VEIN.

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (61, 62, 63, 67 M.Y.A.)
 IGNEOUS ROCK TYPES..... (SAME AS K1A)

AGE OF MINERALIZATION..... TERT. (61, 62, 63, 67 M.Y.A.)

PERTINENT MINERALOGY..... QUARTZ STAINED BY LIMONITE, MANGANESE, AND COPPER CARBONATE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

VEIN CROSSED BY NEARLY VERTICAL SHEETING AND SLICKENSIDES WITH VERTICAL AND HORIZONTAL MOVEMENT

SIGNIFICANT ALTERATION:

ALTERED

GENERAL REFERENCES

- 1) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
- 2) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 87.
- 3) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 191-193.
- 4) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.
- 3) GEOLOGY OF SANTA RITA MTS:
 - DREWES, HARALD B., GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 4) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 5) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 6) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 7) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 8) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 9) DREWES, H., 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746.
 - 10) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538.
 - 11) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A.
 - 12) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182.
 - 13) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365.
 - 14) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, IN TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324.

- 15) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 16) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
- 17) ELSTING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 18) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 19) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 20) CREASEY, S.C. AND WUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
- 21) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
- 22) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
- 23) BIRD, A.I. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 24) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1192-E, 90 P.
- 25) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
- 26) OLSON, H.J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 27) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 28) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 29) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 30) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURES OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 31) ROHRACKER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 32) WHITACKER, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 33) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 34) THOMAS, WALTER L. GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 35) POPOFF, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 36) MICHEL, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 37) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 38) HEATHOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 4) GEOLOGY OF SANTA CRUZ CO.
 - SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
 - 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
 - 6) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CDO-589-50, UNIV. ARIZ. GEOPHYSICS LABS. P. A11-1-8.
 - 7) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
 - 8) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE

ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.

9)FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. 11. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.

10)MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. WEED, 1918, 1920

11)THE MINES HANDBOOK, VOL. XV-SVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.

12)WEBB, B.P. AND CORYELL, K.C., 1954, PRELIMINARY REGIONAL MAPPING IN THE RUBY QUADRANGLE, ARIZONA: U.S. ATOMIC ENERGY COMM., TECH. REPT. RME-2009

13)NELSON, F.J., 1963, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREAS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS

14)NELSON, F.J., 1968, VOLCANIC STRATIGRAPHY AND STRUCTURE OF THE PENA BLANCA AND WALKER CANYON AREAS, SANTA CRUZ COUNTY, ARIZONA: ARIZ. GEOL. SOC., SO. ARIZ.

15)CUNNINGHAM, JOHN E. GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 139 P. (1964); (AGS.): DISSERT. ARS., V. 25, NO. 12, PT. 1, P. 7202 (1965)

16)ROBISON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN. REPORT A-P-287.

RECORD 00389

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030394
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... TRES DE MAYO MINE GROUP
SYNONYM NAME..... PECK, LA PALMA, PALMETTO, ROBERT E. (BOB) LEE, HASSAYAMPA, HOLLYWOOD

MINING DISTRICT/AREA/SUBDIST. PALMETTO DISTRICT/W. PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-26-45N 110-48-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3478825. 518950. +12

TWP..... 023S
RANGE..... 015E
SECTION.. 03 10
MERIDIAN. GILA & SALT R..

ALTITUDE.. 4400 FT

LOCATION COMMENTS: SW 1/4 OF SEC 3, N 1/2 OF SEC 10

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB AU CU ZN MN MO V

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. AG PB
MINOR PRODUCTS.. CU AU

MAIN COMMOD..... AG PB

MINOR COMMOD.... AU CU ZN MN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... ZN MN

OCCURRENCE..... MO V

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA, CHALCOPYRITE, SPHALERITE

MINOR ORE MINERALS:

WULFENITE, VANADINITE, CERUSSITE, ARGENTITE, CERARGYRITE, LEAD & SILVER IN PSILOMELANE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... FORMER OWNERS INCLUDE STOCKTON, BACKMAN & MERRITT MINES CO., MONARCH MG. & MLLG. CO.,
TAFT MG. & EXPLORATION CO., MELVILLE SYNDICATE, NEWCOMER, CUMMINGS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS. WORKED BY MEXICANS PRIOR TO 1980 BUT MAINLY WORKED FROM 1910-1942(KEITH, 1975, P. 74)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		.2 TONS		1910-1942	70 OZ/T AG, 25% PB, MINOR CU & AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975, P. 74

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES....., HORNBLENDE-RICH METAMORPHIC & IGENIOUS ROCK, & BIODITE OR BIODITE HORNBLENDE QUARTZ
MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. JUR (160 +/- 20 M.Y.)

IGNEOUS ROCK TYPES..... GRANITE OF CONHOD CANYON

PERTINENT MINERALOGY..... GANGUE OF QUARTZ, PSILOMELANE & GAUGE

IMPORTANT ORE CONTROL/LOCUS.. FISSURE VEINS; NORTHEAST STRIKING FRACTURE ZONE CONTAINS WEAK, OXIDIZED SULFIDE
MINERALIZATION

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MAJOR FAULT PASSES THROUGH AREA; NORTHEAST FRACTURE ZONE IS MINERALIZED

COMMENTS (GEOLOGY AND MINERALOGY):

HIGH GRADE VANADINITE & WULFENITE OCCUR IN VEINS ON LA PALMA GROUND (CARPENTER, 1940, P. 6)

GENERAL REFERENCES

1) GENERAL REFERENCES:

- KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 74.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P., P. 290.
- 3) TRES DE MAYO MINE AREA GEOLOGY:
CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6, P. 6.
4) MUGER, S.R. (1969) THE GEOLOGY OF THE WEST CENTRAL PORTION OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THE SIS, 60 P.
5) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP 1-762
6) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
7) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.,
8) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
9) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 140.
10) BAKER R.C., THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH., PHD THESIS (1962)
11) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
12) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
13) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
14) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
15) HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELU HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
16) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
17) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. CDD-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. AII-1-8
18) DAVIS, H.E., 1926, THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
19) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.
20) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
21) DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
22) FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
23) PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 174-176.
24) SCHRADER, F.C., 1913, ALUNITE IN PATAGONIA, ARIZONA, AND BOVARD, NEVADA: ECON. GEOL., V. 8, NO. 8, P.

752-767.

25)SCHRAMER, F.C., 1914, ALUNITE IN GRANITE PORPHYRY NEAR PATAGONIA, ARIZONA: U.S. GEOL. SURVEY BULL. 540, P. 347-350.

26)HANDVERGER, P.A. GEOLOGY OF THE THREE R MINE. PALMETTO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1963)

4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):

DREWES, HAROLD B. GEOLOGIC MAP OF THE SAN RITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)

5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.

6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.

7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.

8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA, U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.

9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.

10)DREWES, HAROLD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614.

11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)

12)DREWES, HAROLD B. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6P. (1966)

RECORD 00390

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030395
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 08

NAME AND LOCATION

DEPOSIT NAME..... VENTURA MINE GROUP
SYNONYM NAME..... MORRIS GROUP

MINING DISTRICT/AREA/SUBDIST. PALMETTO/W. PATAGONIA MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

QUAD SCALE QUAD NO OR NAME
1: 62500 NOGALES, ARIZ.

LATITUDE LONGITUDE
31-27-27N 110-45-53W

UTM NORTHING UTM EASTING UTM ZONE NO
3480200. 522450. +12

TWP..... 023S
RANGE.... 015E
SECTION.. 01
MERIDIAN. GILA & SALT R.

ALTITUDE.. 5300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 13 MILES NE OF NOGALES IN COX GULCH

LOCATION COMMENTS: CENTER

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG PB ZN AU MN

MAIN COMMOD..... CU AG PB
MINOR COMMOD..... ZN AU MN

MAIN ORE MINERALS:
SPOTTY PYRITE, CHALCOPYRITE, CHALCOCITE

MINOR ORE MINERALS:
MOLYBDENITE; MINOR GALENA & SPHALERITE; IRON OXIDE, TENNANTITE & PSTLOMELANE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... HENDERSON, VENTURA MINES, INC., BEYERLE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA PIPE QUARTZ GANGE VEINS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
PLUNGE OF OREBODY.... NW

DESCRIPTION OF WORKINGS

UNDERGROUND
LENGTH OF WORKINGS..... 5000 FT

COMMENTS(DESCRIP. OF WORKINGS):

KEITH, 1975, TUNNEL OPERATIONS. CARPENTER (1940) STATES 3000 FT OF THE 5000 FT OF WORKINGS IS A SERIES OF TUNNELS ON THE EAST SIDE OF THE MOUNTAIN, ONE ABOVE THE OTHER

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE ACC		.440 TONS		1913-1950	AVE 6% CU, 16 OZ AG/TON, 1% PB, 0.2 OZ AU/TON

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1975

PRODUCTION COMMENTS.... SPORADIC PRODUCTION IN 1913 AND FROM 1933-1950

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1 ORE EST		3,600 TONS		1966	0.40% MO S2, 0.22% CU

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. MOGER, 1969, P. 3

COMMENTS (RESERVES/POT RESOURCES).. 1966, ISO MINES, LTD ANNUAL REPORT REPORTED ORE RESERVES OF BRECCIA PIPES IN VENTURA CANYON AT +/- 3.6 MILLION TONS 0.402% MO S2 AND 0.22% CU.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TRI
 HOST ROCK TYPES..... MT WRIGHTSON FORMATION

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. (160 +/- 20 M.Y.), TERT
 IGNEOUS ROCK TYPES..... GRANITE OF COMODO CANYON (EQUIGRANULAR ALKALI SYENITE). 1/4 MILE AWAY FROM TERTIARY
 HORNBLENDE GRANODIORITE.

AGE OF MINERALIZATION..... TERT (58 +/- 3, 63.9 +/- 2 M.Y.)

PERTINENT MINERALOGY..... OXIDATION PRODUCED ABUNDANT IRON OXIDE & PSILOMELANE

IMPORTANT ORE CONTROL/LOCUS.. BRECCIA DEPOSIT (KING, 1969); FISSURES & JOINTS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES: 
 BRECCIA PIPE

SIGNIFICANT ALTERATION:
 STRONGLY SILICIFIED AND WEAKLY MINERALIZED PT META; OXIDATION; INTENSITY ALTERED TO SERICITE, QUARTZ, AND
 TOURMALINE

GENERAL COMMENTS

GRAYBEAL (1972, P. 37) REPORTS FROM CANADIAN MINES HANDBOOK (1969) PUBLISHED RESERVES OF 355 MILLION TONS OF 0.40%
 MOLYBDENITE AND 0.25% COPPER FOR THE HIGHER GRADE PORTION OF THE BRECCIA

GENERAL REFERENCES

- 1) GENERAL REFERENCES:
 KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 74.
- 2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY
 JAMES M. HILL: USGS BULL. 582, 373 P., P. 271-272.
- 3) VENTURA MINE GEOLOGY:
 KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.
 180, P. 230-236, P. 236, \$8.
- 4) CARPENTER, M.M., 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 3-6, P. 6.
- 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY,
 ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 6) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY,
 ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 7) GRAYBEAL, F.T., 1975, MINERAL ZONING IN THE PATAGONIA MOUNTAINS, ARIZONA: TALK GIVEN MAY 22, 1975 AT A
 SYMPOSIUM ON BASE METAL AND PRECIOUS METAL DISTRICTS OF NEW MEXICO AND ARIZONA, SILVER CITY, NEW MEXICO.
- 8) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE
 ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON, P. 36
- 9) MOGER, S.R. (1969) THE GEOLOGY OF THE WEST CENTRAL PORTION OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY,
 ARIZONA. UNIV. ARIZONA M.S. THESIS, 60 P., P. 3.
- 10) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA
 MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
- 11) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
- 12) BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY ARIZONA: UNIV. MICH.,
 PHD THESIS (1962)
- 13) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

- 14)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 15)HAYES, P.T. AND DREWES, H., 1969, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
- 16)HAYES, P.T., SIMONS, F.S., AND RAUP, R.B., 1965, LOWER MESOZOIC EXTRUSIVE ROCKS IN SOUTHEASTERN ARIZONA - THE CANELO HILLS VOLCANICS: U.S. GEOL. SURVEY BULL. 1194-M.
- 17)KUCK, P. H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ..
- 18)DAVIS, H.E., 1926., THE PATAGONIA DISTRICT OF ARIZONA: ARIZ. MIN. JOUR., V. 9, NO. 23, P. 15-16 (1926)
- 19)BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 20)NTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
- 20)SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACADE. SCI. JOUR., V. 5, P. 252-253.
- 21)DINSMORE, C.A., 1909, THE PATAGONIA DISTRICT, ARIZONA: MIN. WORLD, V. 31, P. 224.
- 22)FETH, J.H. 12. GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 12 P. (1954)
- 23)PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 174-176.
- 24)SCHRADER, F.C., 1913, ALUNITE IN PATAGONIA, ARIZONA, AND BOVARD, NEVADA: ECON. GEOL., V. 8, NO. 8, P. 752-767.
- 25)SCHRADER, F.C., 1914, ALUNITE IN GRANITE PORPHYRY NEAR PATAGONIA, ARIZONA: U.S. GEOL. SURVEY BULL. 540, P. 347-350.
- 26)HANDVERGER, P.A. GEOLOGY OF THE THREE R MINE, PALMETTO MINING DISTRICT, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1963)
- 27)MAUGER, R.L., AND DAMON, P.E., 1965, (AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHROLOGY LABS. P. AII-1-8
- 4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS):
- DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
- 5)DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748.
- 6)DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
- 7)DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
- 8)DREWES, H., 1972, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 746, 66 P.
- 9)DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915.
- 10)DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
- 11)ROHRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P. (1964)
- 12)DREWES, HARALD 2. ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLOR., 6 P. (1966)

RECORD 00391

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030412
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C.
DATE..... 79 09

NAME AND LOCATION

DEPOSIT NAME..... 7 CLAIMS, 140 ACRES
SYNONYM NAME..... CASANEGA - DALY MINING AND REDUCTION CO.

MINING DISTRICT/AREA/SUBDIST. TYNDALL

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... SANTA CRUZ

POSITION FROM NEAREST PROMINENT LOCALITY: AMADDOVILLE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AG AU PB MO

MAIN ORE MINERALS:
SULFIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SULFIDE

FORM/SHAPE OF DEPOSIT: ORE SHOTS

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 3408 FT

MAX WIDTH..... 8 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

AD11, 50 TON CONCENTRATOR (KEITH ABM FILE DATA) 600 FT TUNNEL (MINES HANDBOOK)

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... MONZONITE

GENERAL REFERENCES

- 1) KEITH, ABM FILE DATA
- 2) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED; PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 916, AND W.H. WEED, 1918, 1920, (1918, P. 498.)
- 3) GEOLOGY OF SANTA RITA MTS:
 - KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
 - 4) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, 373 P.
 - 5) SCHRADER, F.C., 1917, THE GEOLOGIC DISTRIBUTION AND GENESIS OF THE METALS IN THE SANTA RITA-PATAGONIA MOUNTAINS, ARIZONA: ECON. GEOLOGY, V. 12, P. 237-269.
 - 6) SCHRADER, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.
 - 7) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
 - 8) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
 - 9) KING, R.B., 1969, MOLYBDENUM AND RHEIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 10) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
 - 11) CREASEY, S.C. AND QUICK, G.L., 1955, COPPER DEPOSITS OF PART OF HELVETIA MINING DISTRICT, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 1027-F
 - 12) SCHRADER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA (ABST.): WASH. ACAD. SCI. JOUR., V. 5, P. 252-253.
 - 13) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
 - 14) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
 - 15) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
 - 16) HESS, F.L., 1924, MOLYBDENUM DEPOSITS--A SHORT REVIEW: U.S. GEOL. SURVEY BULL. 761, P. 13-14.
 - 17) HAYES, P.T. AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITLEY (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.
 - 18) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOL. SURVEY, MISC. GEOL. INV. MAP. I-614
 - 19) DREWES, HARALD B. GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-613, SCALE 1:48,000 (1970)
 - 20) DREWES, H., 1972, STRUCTURAL GEOLOGY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 748, 35 P.
 - 21) DREWES, H., 1971, MESOZOIC STRATIGRAPHY OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-C, 81 P.
 - 22) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
 - 23) DREWES, H., 1974, PLUTONIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
 - 24) DREWES, H. 1972A, CENOZOIC ROCKS OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 746
 - 25) DREWES, H. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS, PALO ALTO RANCH QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEOL. SURVEY MF-538
 - 26) DREWES, H., 1970, STRUCTURAL CONTROL OF GEOCHEMICAL ANOMALIES IN THE GREATERVILLE MINING DISTRICT, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1312-A
 - 27) DREWES, H., 1967, A GEOCHEMICAL ANOMALY OF BASE METALS AND SILVER IN THE SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, P. 175-182

- 28) DREWES, H., 1972B, GEOCHEMICAL RECONNAISSANCE OF THE SANTA RITA MOUNTAINS, SOUTHEAST OF TUCSON, ARIZONA: U.S. GEOL. SURVEY BULL. 1365
- 29) DREWES, H. AND FINNELL, T.L., 1968, MESOZOIC STRATIGRAPHY AND LARAMIDE TECTONICS OF PART OF THE SANTA RITA AND EMPIRE MOUNTAINS SOUTHEAST OF TUCSON, ARIZONA, FIELD TRIP 2, TITLEY, S.R., ED., SOUTHERN ARIZONA GEOL. SOC. GUIDEBOOK III: GEOL. SOC. AM. CORDILLERAN SEC., 64TH ANN. MGT., TUCSON, P. 315-324
- 30) OLSON, H.J., 1966, OXIDATION OF A SULFIDE BODY, GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: ECON. GEOLOGY, V. 61, NO. 4, P. 731-743.
- 31) OLSON, H.J., 1961, THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 32) SEE, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 33) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 34) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
- 35) ROHRBACHER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 81 P.
- 36) WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
- 37) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., ARIZ. SCHOOL OF MINES
- 38) THOMAS, WALTER L., GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 54 P., MAPS (1931)
- 39) POPOFF, C., THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
- 40) MITCHEL, FRED A., JR., GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P. (1959)
- 41) JOHNSON, VARD H. (SEE ALSO MCKELVEY, V.E., 1) 1. THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., PHD THESIS, 111 P., MAPS (1941)
- 42) HEATHOLE, DAVID A., GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
- 4) GEOLOGY OF SANTA CRUZ CO:
- SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY MISC. INV. MAP I-762
- 5) SIMONS, F.S., 1972, MESOZOIC STRATIGRAPHY OF THE PATAGONIA MOUNTAINS AND ADJOINING AREAS, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 658-E, 23 P.
- 6) MAUGER, R.L., AND DAMON, P.E., 1965, K-AR AGES OF LARAMIDE MAGMATISM AND COPPER MINERALIZATION IN THE SOUTHWEST, IN DAMON, P.E., COMPILER, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. CONTRACT AT(11-1-689), ANN. PROGRESS REPORT NO. COO-689-50, UNIV. ARIZ. GEOCHRONOLOGY LABS. P. A11-1-8.
- 7) KUCK, P.H., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
- 8) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
- 9) FRONDEL, J.W. AND F.E. WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORY AND OCCURRENCE. II. SOME NATURALLY-OCCURRING POLYTYPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.
- 10) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.
- 11) WEBB, B.P. AND CORYELL, K.C., 1954, PRELIMINARY REGIONAL MAPPING IN THE RUBY QUADRANGLE, ARIZONA: U.S. ATOMIC ENERGY COMM., TECH. REPT. RME-2009
- 12) NELSON, F.J., 1963, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREAS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS
- 13) NELSON, F.J., 1968, VOLCANIC STRATIGRAPHY AND STRUCTURE OF THE PENA BLANCA AND WALKER CANYON AREAS, SANTA CRUZ COUNTY, ARIZONA: ARIZ. GEOL. SOC., SO. ARIZ.
- 14) CUNNINGHAM, JOHN E., GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 139 P. (1964); (ABS.): DISSERT. ABS., V. 25, NO. 12, PT. 1, P. 7202 (1965)
- 15) ROBISON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN. REPORT A-P-287.

RECORD 00395

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030507
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... BEVERING GULCH

MINING DISTRICT/AREA/SUBDIST. EUREKA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAV. CO.

LATITUDE LONGITUDE
34-34- N 113-12-30W

POSITION FROM NEAREST PROMINENT LOCALITY: WEST OF BEVERING GULCH

LOCATION COMMENTS: LOCATION APPROXIMATE

MAIN ORE MINERALS:

MINOR ORE MINERALS:
WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

GENERAL REFERENCES

1) ANDERSON, E.H. SCHOLZ, AND J.D. STROBELL, JR. (1955) GEOLOGY AND ORE DEPOSITS OF THE BAGDAD AREA, YAVAPAI COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 278, 103 P., P. 50.

RECORD 00396

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... MD30505
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... ARIZONA PORTLAND MINE
SYNONYM NAME..... IS INCLUDED IN COPPER BASIN DEPOSIT

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 WILHOIT ARIZ.

LATITUDE LONGITUDE
34-29-27N 112-35-40W

TWP..... 13N
RANGE.... 03W
SECTION.. 20 S
MERIDIAN. GILA AND SALT RIVER.

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ADJOINS LOMA PRIETA 1 MILE AWAY

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MD AU AG

MAIN ORE MINERALS:
CHALCOPYRITE

ANALYTICAL DATA(GENERAL)
6% AT 41 FT DEPTH

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX THICKNESS..... 12 FT

GEOLOGY AND MINERALOGY

IGNEOUS ROCK TYPES..... PORPHYRY DIKE

GENERAL REFERENCES

- 1) ABM FILE DATA (CLIPPING FILES FROM 1916)
- 2) A & C MICROFILM

RECORD 00397

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4003467
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION.. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
 BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BAGDAD COPPER CORP

MINING DISTRICT/AREA/SUBDIST. EUREKA DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
 1: 62500 BAGDAD

LATITUDE LONGITUDE
 34-35-01N 113-12-23W

UTM NORTHING UTM EASTING UTM ZONE NO
 3928875. 297625.

TWP..... 014N
 RANGE.... 009W
 SECTION.. 04
 MERIDIAN. GCSR

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

HYPOGENE ORE MINERALS INCLUDE PYRITE, CHALCOPYRITE, MOLYBDENITE, SPHALERITE, GALENA, TETRAHEDRITE, ARSENOPYRITE, GOLD, ARGENTITE, MAGNETITE, ILMENITE, HEMATITE, WOLFRAMITE, SCHEELITE; SUPERGENE MINERALS INCLUDE CHALCOCITE, COVELLITE, COPPER, CUPRITE, MALACHITE, AZURITE, CHRYSOCOLLA, CHALCANTHITE, ANTLERITE, MELANOCHALCITE, HEMIMORPHITE, SMITHSONITE, GOSLARITE, CONICHALCITE, SILVER, CERARGYRITE, CERUSSITE, ANGLESITE, BAYLEVITE, SWARTZITE, ANDERSONITE, PHARMACOSIDERITE, WULFENITE, PYROMORPHITE, FERRIMOLYBDITE

COMMODITY COMMENTS:

MILL FOR BAGDAD AREA RECOVERED MOLYBDENITE IN 1944-45 AND AGAIN IN LATTER PART OF 1951 AND IN 1952 (ANDERSON

ETAL, 1955, P. 45)

ANALYTICAL DATA(GENERAL)

ORE CONTAINS A SMALL AMOUNT (20 PARTS PER MILLION) OF RHENIUM; THE COPPER HILL MINE CONTAINS 30 PPM (FLEISHER, 1959, P. 1908)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSEMINATED (PORPHYRY COPPER), SUPERGENE ENRICHMENT, MASSIVE SULFIDE, VEINS, FISSURE VEINS.

PRODUCTION
YES

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	54344.43	TONS	1929-1978	
16 CU	ACC	1036179.	LBS		
17 PB	ACC	107.215	LBS		
18 AG	ACC	2437.321	OZS		
19 AU	ACC	2.884	OZS		
20 MO	ACC	7101.786	LBS	1951-1975	

GEOLOGY AND MINERALOGY

PERTINENT MINERALOGY..... GANGUE MINERALS INCLUDE QUARTZ, MUSCOVITE, ORTHOCLASE, ALBITE, BIOTITE, CHLORITE, RUTILE, BARITE, MANGANOSEDERITE, CHALCEDONY, GYPSUM, FRANCOLITE, HISINGERITE, CLAY.

GENERAL REFERENCES

- 3) ANDERSON, C.A., 1948, STRUCTURAL CONTROL OF COPPER MINERALIZATION, BAGDAD, ARIZONA: MINING TECHNOLOGY (AM. INST. MIN. ENG.), V. 12, NO. 2, TECH. PUBL. 2352.
- 4) ANDERSON, C.A., 19508, ALTERATION AND METALLIZATION IN THE BAGDAD PORPHYRY COPPER DEPOSIT, ARIZONA: ECON. GEOL. V. 45, P. 609-628, P. 612, 615
- 5) ANDERSON, C.A., 1951, OLDER PRECAMBRIAN STRUCTURE IN ARIZONA: GEOL. SOC. AMERICA BULL., V. 62, P. 1331-1346.
- 6) ANONYMOUS, 1952, BAGDAD EXPANDS COPPER MILL--RECOVERS BY-PRODUCT MOLYBDENITE--UPS COPPER RECOVERY BY PH CONTROL: MIN. WORLD, V. 14, NO. 3, P. 30-33.
- 7) ANONYMOUS, 1946, BAGDAD MAKES A COMEBACK: MIN. WORLD, V. 8, NO. 6, P. 24-28.
- 8) ANONYMOUS, 1952, BAGDAD EXPANDS COPPER MILL--RECOVERS BY PRODUCT MOLYBDENITE - UPS COPPER RECOVERY BY PH CONTROL: MIN. WORLD, V. 14, NO. 3, P. 30-33.
- 9) ANONYMOUS, 1951, BAGDAD LEARNS TO TRUCK: MIN. WORLD, V. 13, NO. 10, P. 14-19. GOOD DESCRIPTION OF PIT OPERATIONS IN 1951.
- 10) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.
- 11) ALDRICH, L.T., WETHERILL, G.W., AND DAVIS, G.L., 1957, OCCURRENCE OF 1350-MILLION-YEAR-OLD GRANITIC ROCKS IN WESTERN UNITED STATES: GEOL. SOC. AMERICA BULL., V. 68, P. 655-656.
- 12) ALDRICH, L.T., WETHERILL, G.W., DAVIS, G.L., AND TILTON, G.R., 1958, RADIOACTIVE AGES OF MICAS FROM GRANITIC ROCKS BY RB-SR AND K-AR METHODS: AM. GEOPHYS. UNION TRANS., V. 39, P. 1124-1134.

- 13) BUTLER, B.S., AND WILSON, E.D., 1938, BAGDAD MINE, EUREKA DISTRICT: ARIZ. BUR. MINES BULL. 145, P. 98-103.
- 14) DEMPSEY, W.J., AEROMAGNETIC MAP OF BAGDAD AREA, YAVAPAI COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
- 15) DEMPSEY, W.J. (AND FACKLER, W.D.) AEROMAGNETIC MAP OF THE BAGDAD AREA, YAVAPAI COUNTY, ARIZONA: USGS MAP GP-411 (1963)
- 16) DICKIE, E.R., 1947, BAGDAD COPPER ADOPTS OPEN-PIT MINING: MINING AND METALLURGY, V. 28, NO. 481, P. 9.
- 17) DICKIE, E.R., GREEN, GEORGE, HODDUM, OLAF, AND COLVILLE, GEORGE, 1953, NEW IDEAS FOR BAGDAD COPPER: ENG. AND MIN. JOUR., V. 154, P. 88-93.
- 18) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 19) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413, P. 1408.
- 20) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87
- 21) HUTT, J.B., 1943, BAGDAD--ARIZONA'S LATEST PORPHYRY COPPER: ENG. AND MIN. JOUR., V. 144, NO. 6, P. 62-66.
- 22) JACOBSEN, W.L., 1976, ENGINEERING PROPERTIES OF THE GILA CONGLOMERATE AT BAGDAD, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 23) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 24) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 25) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
- 26) NASH, J.T., AND CUNNINGHAM, C.G., 1974, FLUID INCLUSION STUDIES OF THE PORPHYRY COPPER DEPOSIT AT BAGDAD, ARIZONA: U.S. GEOL. SURVEY JOUR. RES., V. 2, NO. 1, P. 31-34.
- 27) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOLOGY, V. 42, P. 319-352, P. 324.
- 28) SILVER, L.T., 1966, U-PB ISOTOPE RELATIONS IN PRECAMBRIAN ZIRCONS FROM BAGDAD, ARIZONA (ABS.): GEOL. SOC. AMERICA, PROGRAM ANN. MEETING ROCKY MOUNTAIN SEC., P. 52.
- 29) THOMAS, G.G., 1934, PILOT MILL FLOTATION WORK AT THE PROPERTY OF THE BAGDAD COPPER CORPORATION, HILLSIDE, ARIZONA: INST. MINING METALLURGY, TRANS. 1933-34, P. 705-748.
- 30) TILTON, G.R., DAVIS, G.L., WETHERILL, G.W., AND ALDRICH, L.T., 1957, ISOTOPIC AGES OF ZIRCON FROM GRANITES AND PEGMATITES: AM. GEOPHYS. UNION TRANS., V. 38, NO. 3, P. 360-371
- 31) U.S.G.S., 1972, AEROMAGNETIC MAP OF THE BRADSHAW MOUNTAINS AND VICINITY, YAVAPAI COUNTY, ARIZONA: U.S.G.S. TEOPHYS. INV. MAP GP-758.
- 32) VACQUIER, V., STEENLAND, N.C., HENDERSON, R.G., AND ZIETZ, ISIDORE, 1951, INTERPRETATION OF AEROMAGNETIC MAPS: GEOL. SOC. AMERICA, MEM. 47, P. 31-34.
- 33) DISCUSSION OF AEROMAGNETIC MAP OF BAGDAD AREA WHICH ACCOMPANIES REPORT PLUS GENERALIZED GEOLOGIC MAP BY C.A. ANDERSON. MINERALIZED STOCK AT BAGDAD SHOWS CONSPICUOUS NEGATIVE ANOMALY; GABBRO AND ASSOCIATED TITANIFEROUS MAGNETITE BODIES SHOW HIGH MAGNETIC INTENSITY.
- 34) YOST, H.W., 1929, PRODUCTION PLANS OF BAGDAD COPPER CORPORATION: MIN. JOUR., V. 13, NO. 6, P. 5.
- 35) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) ANDERSON, C.A., 1950, LEAD-ZINC DEPOSITS, BAGDAD AREA, YAVAPAI COUNTY, ARIZONA, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 122-138.
- 5) AXELROD, J.M.; GRIMALDI, F.S.; MILTON, CHARLES; AND MURATA, K.J., 1951, THE URANIUM MINERALS FROM THE HILLSIDE MINE, YAVAPAI COUNTY, ARIZ.: AM. MINERALOGIST, V. 36, P. 1-22.
- 6) BALL, S.H., AND BRODERICK, T.M., 1919, MAGMATIC IRON ORE IN ARIZONA: ENG. AND MIN. JOUR., V. 107, P. 353-354.
- 7) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.
- 8) HOAGLAND, JACKSON, 1937, CONSTOCK-DEXTER'S PLAN FOR PRODUCTION: MIN. JOUR., V. 21, NO. 8, P. 3-4.
- 9) SINGEWALD, J.T., TITANIFEROUS MAGNETITES--ARIZONA, IN ORE DEPOSITS OF THE WESTERN STATES (LINDGREN VOLUME): AM. INST. MIN. MET. ENG., P. 511-512.
- 10) STORMS, W.H., 1890, ARIZONA'S NEW BONANZA: ENG. AND MIN. JOUR., V. 50, P. 162-163.
- 11) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168

RECORD 00398

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M002767
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... BO 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BLACK HAWK PROSPECT MINE
MINING DISTRICT/AREA/SUBDIST. CHERRY CREEK DIST./BRADSHAW MTS
COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 62500 MINGUS MOUNTAIN

LATITUDE LONGITUDE
34-35-51N 112-01-48W

UTM NORTHING UTM EASTING UTM ZONE NO
3828700. 405560. 12

TWP..... 014N
RANGE.... 003E
SECTION.. 16
MERIDIAN. G&SR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF CHERRY

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO AU

MAIN ORE MINERALS:

MINOR ORE MINERALS:
MOLYBDENITE

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

INCLINED SHAFT 200 FT DEEP FILLED WITH WATER IN 1958 (ANDERSON AND CREASEY, 1958, P. 176)

PRODUCTION

YES

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. ANDERSON AND CREASEY, 1959, P. 176

PRODUCTION COMMENTS.... CLAIMED THAT 30 CARS OF GOLD ORE AVERAGING \$25/TON WERE SHIPPED.

GENERAL REFERENCES

- 2) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.
- 3) ANDERSON, C.A., AND CREASEY, S.C., 1967, GEOLOGIC MAP OF THE MINGUS MOUNTAIN QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-715, SCALE 1:62,500.
- 4) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS, QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
- 5) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
- 6) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00399

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003351
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 01
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... BLACK PEARL MINE

MINING DISTRICT/AREA/SUBDIST. CAMP WOOD

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

LAND CLASSIFICATION..... 00

QUAD SCALE QUAD NO OR NAME
1: 0062500 BAGDAD

LATITUDE LONGITUDE
34-41-15N 113-02-05W

UTM NORTHING UTM EASTING UTM ZONE NO
3840065. 313600. +12

TWP..... 015N 015N
RANGE.... 007W 007W
SECTION.. 07 08 10 12 13
MERIDIAN. G&SR

ALTITUDE.. 5700 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 19 MILES BY ROAD NE OF BAGDAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... W RE BI NO CAF AU AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. W

MAIN COMMOD..... W

MINOR COMMOD.... NO CAF AU AG BI BE

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL..... BI BE

MAIN ORE MINERALS:
WOLFRAMITE

MINOR ORE MINERALS:
PYRITE, SPECULARITE, BISMUTHINITE, SCHEELITE, MOLYBDENITE, GOLD, SILVER, CHALCOPYRITE

ANALYTICAL DATA(GENERAL)
0-12% BI; 0.15-0.5% BEO; 0.922% AND 0.784% WO3 AVERAGE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN
FORM/SHAPE OF DEPOSIT: EN ECHELON

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL
MAX LENGTH..... 1600 FT
MAX WIDTH..... 3 FT
STRIKE OF OREBODY.... N72W
DIP OF OREBODY..... 80S
COMMENTS(DESCRIPTION OF DEPOSIT):
VEIN PINCHES OUT AT BOTH ENDS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 250 FT
LENGTH OF WORKINGS..... 2600 FT

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 CONC	ACC	0062.100	LBS	1915 - 1935	70% WO3
16 WO3	ACC	0126.240	LBS	1951 - 1956	

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... HORNBLENDE GRANITE, ALASKITE
AGE OF ASSOC. IGNEOUS ROCKS.. PREC

IGNEOUS ROCK TYPES..... PEGMATITE

AGE OF MINERALIZATION..... PREC

PERTINENT MINERALOGY..... MUSCOVITE, BERYL, AND FLUORITE ARE ABUNDANT WITHIN THE VEIN

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

OXIDIZED AT LEAST 40 FEET BELOW OUT CROP.

COMMENTS (GEOLOGY AND MINERALOGY):

SPECULARITE IS ABUNDANT AND APPEARS TO BE CONCENTRATED IN OR VERY CLOSE TO BARREN PARTS OF THE VEIN WITH LITTLE OR NO WOLFRAMITE.

GENERAL REFERENCES

- 1) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, MOHAVE COUNTIES, ARIZONA: U.S.B.M. INFORMATION CIRCULAR 8078, P. 43
- 2) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZONA BUREAU OF MINES BULLETIN 148, P. 21

RECORD 00400

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030494
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... BLUE BIRD VEIN MINE
SYNONYM NAME..... GOLD KING GROUP.

MINING DISTRICT/AREA/SUBDIST. PECK DIST/BRADSHAW MITS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0062500 CROWN KING

LATITUDE LONGITUDE
34-14-50N 112-19-40W

TWP..... 11N
RANGE.... 01W
SECTION.. 35
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR GOLD KING GROUP NEAR PINE GROVE DIST.

LOCATION COMMENTS: SE 1/4 PROJECTED

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO AU AG CU PB ZN

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
HOST ROCK TYPES..... YAVAPAI SCHIST (IRON KING VOLCANICS - ANDESITIC AND BASALTIC FLOWS) OF BIG BUG GROUP
OF YAVAPAI SERIES)

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 147.
- 2) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
- 3) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
- 4) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP G2-997.
- 5) BLACET, P.M., 1968, PRECAMBRIAN GEOLOGY OF THE SE 1/4 MOUNT UNION QUADRANGLE, BRADSHAW MOUNTAINS, CENTRAL ARIZONA: STANFORD, CALIF., STANFORD UNIV., PH.D. THESIS, 244 P.
- 6) BLACET, P.M., 1964, GEOLOGIC MAP OF THE SE 1/4 MOUNT UNION QUADRANGLE, YAVAPAI CO., ARIZ.: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 7) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00401

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M003569
COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... BOSTON-ARIZONA

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 62500 IRON SPRING

LATITUDE LONGITUDE
34-31-23N 112-36-43W

UTM NORTHING UTM EASTING UTM ZONE NO
3821125.0 352050. +12

TWP..... 13N
RANGE.... 03W
SECTION.. 07
MERIDIAN. GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 5 MILES E. OF SKULL VALLEY

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN CU AU AG

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PRODUCTION

YES

PRODUCTION COMMENTS.... 77T. ORE PRODUCTION TO 7/1943. UNDERGROUND

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
VEIN IN FAULT ZONE

GENERAL REFERENCES

- 1) JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 916-940.
- 2) JOHNSTON, W.P. 1955, GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH PHD THESIS (1955)
- 3) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND RIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 5) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
- 6) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 8) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 9) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 10) KRIEGER, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-504, SCALE 1:62,500 (1967)
- 11) KRIEGER, MEDORA H. GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)
- 12) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 13) CAMPBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.
- 14) LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.
- 15) BLAKE, W.P., 1889, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.

RECORD 00402

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030497
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... BURNT CANYON PROSPECT
MINING DISTRICT/AREA/SUBDIST. BLACK HILLS DIST/JEROME AREA
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0062500 MINGUS MIN, ARIZ.

LATITUDE LONGITUDE
34-39-10N 112-07-20W

TWP..... 15N
RANGE.... 02E
SECTION.. 28
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 6250

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE NW OF BRINDLE PUP MINE

LOCATION COMMENTS: UNSURVEYED AND APPROXIMATE LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU

MAIN COMMOD..... MO
MINOR COMMOD..... CU

MAIN ORE MINERALS:
MOLYBDENITE

MINOR ORE MINERALS:

FERRIMOLYBDITE, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1 FT

STRIKE OF OREBODY.... N20W

DIP OF OREBODY..... 70E

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SHORT ADIT

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC

HOST ROCK TYPES..... GRANODIORITE PORPHYRY DIKES IN BUZZARD RHYOLITE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC

IGNEOUS ROCK TYPES..... GRANODIORITE PORPHYRY DIKES, QUARTZ PORPHYRY

PERTINENT MINERALOGY..... QUARTZ, LIMONITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

SCATTERED MOLYBDENITE CRYSTALS IN QUARTZ VEIN; COATINGS OF FERRIMOLYBDITE, MALACHITE AND LIMONITE

GENERAL REFERENCES

1) ANDERSON, C.A., AND CREASEY, S.C., 1958, GEOLOGY AND ORE DEPOSITS OF THE JEROME AREA, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 308, 185 P., P. 92, 178.

2) ANDERSON, C.A., AND CREASEY, S.C., 1967, GEOLOGIC MAP OF THE MINGUS MOUNTAIN QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-715, SCALE 1:62,500.

3) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P., P. 97-102.

4) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.

5) ARIZ. FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00403

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M003416
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... CLIMAX CLAIM

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

TWP..... 008N

RANGE.... 003W

SECTION.. 35 26

MERIDIAN. GCSR

ALTITUDE.. 3300-3600 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU AU AG PB BF W

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. W

MINOR PRODUCTS.. CU AU AG PB

MAIN COMMOD.....

MINOR COMMOD.... MO CU AU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

POWELLITE, PYRITE, HEMATITE, LIMONITE, CHALCOPYRITE, AZURITE, MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 220 FT

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	1.708	TONS	1928-1944	
16 CU	ACC	0.333	LBS		
17 PB	ACC	0.045	LBS		
18 AG	ACC	0.120	OZS		
19 AU	ACC	0.486	OZS		

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... HORNBLENDE-BIOTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)

IGNEOUS ROCK TYPES..... APLITE DIKE & MONZONITE (?) PORPHYRY DIKES CUT VEIN

PERTINENT MINERALOGY..... QUARTZ VEINS; EPIDOTE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE, ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS.. ORE ZONES CONFORM TO SCHISTOSITY; SCHEELITE VEINS ARE IN THE EPIDOTE GARNET ZONE
ALONG THE HANGING WALL, IN THE ROOFS, AND ON THE FOOTWALL (BELL, 1947)

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

SILICIFIED; SERICITIC

COMMENTS (GEOLOGY AND MINERALOGY):

SCHEELITE IS DIFFICULT TO DISTINGUISH FROM MILKLY QUARTZ EXCEPT WITH U-V LIGHT.

GENERAL REFERENCES

- 2) WILSON, E.D., (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 24
- 3) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE HITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS
- 4) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00404

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M001107
 COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... COMMERCIAL

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

POSITION FROM NEAREST PROMINENT LOCALITY: 11 MILES WESTERLY FROM PRESCOTT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PRODUCTION

YES

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	233.196	TONS	1942-1968	
16 CU	ACC	15940.44	LBS		
17 AG	ACC	3.356	OZS		
18 AU	ACC	0.067	OZS		

PRODUCTION COMMENTS.... 100,000T. 3% COPPER TO APRIL 1943 SOME SILVER, GOLD, MOLYBDENUM. UNDERGROUND PRODUCTION

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

2 VEINS IN IGNEOUS ROCK

GENERAL REFERENCES

3) CHRISTMAN J.L., 1970, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.

4) JOHNSTON, W.P. GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH PHD THESIS (1955)

- 5)JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 916-940.
- 6)ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 7)THOMSEN, R.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
- 8)ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 9)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 10)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 11)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 12)KRIEGER, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP 1-504, SCALE 1:62,500 (1967)
- 13)KRIEGER, MEDORA H. GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)
- 14)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 15)CAMPBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.
- 16)LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.
- 17)BLAKE, W.P., 1989, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.

RECORD 00405

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003621
RECORD TYPE..... 42
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... RO 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER BASIN DISTRICT
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN/SIERRA PRIETA MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: KIRKLAND-IRON SPRINGS

LATITUDE LONGITUDE
34-29-00N 112-35-00W

TWP..... 13N
RANGE..... 03W
SECTION.. 20 21 29
MERIDIAN. GCSR

ALTITUDE.. 4800-7150 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 7 MI WSW OF PRESCOTT

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO W CU AU AG PB ZN F

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. PB ZN AU AG

MAIN COMMOD..... CU MO AU AG PB
MINOR COMMOD..... ZN F

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL..... MO

MAIN ORE MINERALS:
CHALCOPYRITE PYRITE

MINOR ORE MINERALS:
MOLYBDENITE BORNIITE GOLD SILVER FERRIMOLYBDITE, GALENA SPHALERITE CHALCOCITE, CHRYSOCOLLA, MALACHITE,
CUPRITE, COPPER.

ANALYTICAL DATA(GENERAL)
MINERALIZATION DIFFERS IN GRADE BETWEEN ORE BODIES BOTH AS TO COPPER CONTENT AND COPPER-MOLYBDENUM RATIO.

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
YEAR OF DISCOVERY..... PROPERTY IS ACTIVE
PRESENT/LAST OWNER..... DISTRICT OFFICIALLY RECOGNIZED ABOUT 1890
OWNED BY PHELPS DUDGE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
BRECCIA PIPES: PORPHYR COPPER
FORM/SHAPE OF DEPOSIT: CYLINDRICAL, NEAR VERTICAL

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... MEDIUM (PIPES=50-600 FT DIAMETER)
COMMENTS(DESCRIPTION OF DEPOSIT):
STOCK IS 5 MI. X 1 MI.

SOURCE OF INFORMATION (PRODUCTION).. ANDERSON 1968 P. 1181

PRODUCTION COMMENTS.... DATA TO 1955 INDICATE MORE THAN 50,000 TONS OF HIGH SILICA COPPER OXIDE ORE WAS PRODUCED
FROM UPPER LEVELS OF THE COMMERCIAL MINE, ACCOUNTING FOR MOST OF THE PRODUCTION FROM COPPER BASIN. SMALL SHIPMENTS
OF ZN, PB, AG AND AU HAVE BEEN MADE, MOSTLY FROM BOSTON-ARIZONA AND U.S. NAVY MINES.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	SULFIDE ORE	EST 75000	TONS	1973	0.55% CU AND 0.02% MO

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. JOHNSTON AND LOWELL, 1961, P. 937; GREELEY 1976 P. 86

COMMENTS (RESERVES/POT RESOURCES).. ORE RESERVES PUBLISHED FOR THE RANWICK, INC. GROUND IN 1957 (20) LISTED
4,000,000 TONS AVERAGING 0.913% CU AND 0.124 MOS2.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET.
HOST ROCK TYPES..... BRECCIA PIPES (?) QUARTZ MONZONITE (COPPER BASIC STOCK)

AGE OF ASSOC. IGNEOUS ROCKS.. CRET.
IGNEOUS ROCK TYPES..... COPPER BASIN STOCK=DIORITE, QUARTZ MONZONITE, QTZ MONZ. PORPHYRY

AGE OF MINERALIZATION..... CRET. 75-72 M.Y. (CHRISTMAN, 1978)

IMPORTANT ORE CONTROL/LOCUS.. IN VEINS IN BRECCIA PIPES ASSOCIATED WITH QUARTZ MONZONITE AND QTZ. MONZ. PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

PRECAMBRIAN FOLIATION (N TO N30 DEGREES E WITH STEEP WESTWARD DIPS) AND FAULT FISSURE SYSTEMS (N60-75 DEGREES W AND N55-70 DEGREES E EXPOSED AS STEEPLY DIPPING TOURMALINE-QUARTZ VEINS) WERE IMPORTANT IN CONTROLLING THE EMPLACEMENT OF THE COPPER BASIN. PROMINENT MINOR FAULT TRENDS ARE N10-30W, N10-30E, N70-80E, AND N60-80 W AND ARE IMPORTANT IN CONTROLLING SOME ORE WITHIN THE STOCK. (JOHNSTON AND LOWELL, 1961, P. 924-5)

SIGNIFICANT ALTERATION:

EACH MINERALIZED PIPE IS THE CENTER OF AN AUREOLE OF ALTERATION. THE AUREOLES HAVE DIFFERENT DIAMETERS DEPENDING ON THE INTENSITY OF HYDROTHERMAL ACTIVITY, AND WHERE PIPES ARE CLOSELY SPACED THEY OVERLAP, PRODUCING A COMPLEX ALTERATION PATTERN. FERRIMOLYBDITE OCCURS IN THE OXIDIZED PORTION OF THE COPPER SULFIDE DEPOSITS.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE PIPES ARE THOUGHT TO HAVE BEEN CONDUITS THROUGH WHICH LATE MAGMATIC FLUIDS, COLLECTING NEAR THE RESTRICTED FOOT OF THE STOCK, PASSED UPWARD. AN INDIVIDUAL PIPE WAS INITIATED BY PASSAGE OF FLUID UPWARD ALONG A VERTICAL LINE SUCH AS AN INTERSECTION OF FAULTS OR FRACTURES. FROM THIS CHANNEL FLUID WORKED INTO THE ADJACENT FRACTURED ROCKS AND CORRODED FRAGMENTS THAT WERE EVENTUALLY LOOSENEED AND MOVED IN THE CONDUIT, GRADUALLY ENLARGING THE PIPE. QUARTZ LATER PRECIPITATED FILLING ALL OF THE OPEN SPACE AND CHOKING THE CONDUIT.

SUCCESSIVE FLEXURES OF THE STOCK OR RECURRENT MOVEMENT ON REGIONAL-FAULTS FRACTURED THIS QUARTZ IN SOME OF THE PIPES, AND LATER HYDROTHERMAL SOLUTIONS TENDED TO FOLLOW THESE CONDUITS, BOTH BECAUSE OF THEIR LOCATION ON DEEP-SEATED STRUCTURES AND BECAUSE THE FRACTURED QUARTZ PROVIDED RELATIVELY HIGH PERMEABILITY.

HYDROTHERMAL SOLUTIONS, PRECEDING AND ACCOMPANYING ORE DEPOSITION, SPREAD OUTWARD FROM THE PIPES AND FORMED OVERLAPPING AUREOLES OF ALTERATION. PYRITE, CHALCOPYRITE, AND MOLYBDENITE WERE DEPOSITED ALONG FRACTURE SURFACES THROUGHOUT A LARGE AREA IN COPPER BASIN, BUT HIGHER GRADE MINERALIZATION WAS GENERALLY CONFINED TO FRACTURED PIPE STRUCTURES. (JOHNSTON AND LOWELL, 1961, P. 917)

COMMENTS (GEOLOGY AND MINERALOGY):

A ZONE OF ZINC-LEAD-SILVER DEPOSITS SURROUNDS THE CENTRAL COPPER MOLYBDENUM ZONE. A COMPOSITE PIPE IS COMPOSED OF A CENTRAL CORE OF HETEROGENEOUS, ROTATED, ANGULAR TO ROUNDED ROCK FRAGMENTS SURROUNDED BY A ZONE OF NONE-ROTATED CRACKLE BRECCIA. THE FRAGMENTS ARE CEMENTED BY QUARTZ AND MAY BE MINERALIZED WITH PYRITE, CHALCOPYRITE AND MOLYBDENITE. (JOHNSTON AND LOWELL, 1961 P. 917).

GENERAL REFERENCES

- 1) JOHNSTON, J.P., AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 915-940.
- 2) CHRISTMAN, J.L., 1978, GEOLOGY ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
- 3) JOHNSTON, W.P. GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH, PHD THESIS (1955)
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 5) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
- 6) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 7) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 8) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 9) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER

INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.

10)KRIEGER, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-504, SCALE 1:62,500 (1967)

11)KRIEGER, MEDORA H. GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)

12)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

13)GAMBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.

14)LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.

RECORD 00406

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... W016056
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER BASIN
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN DIST./SIERRA PRIETA RANGE/BRADSHAW MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI
QUAD SCALE QUAD NO OR NAME
1: 0024000 IRON SPRINGS; WILHOIT, AZ
LATITUDE LONGITUDE
34-29- N 112-35- W
TWP..... 13N
RANGE.... 03W
SECTION.. 16 17 20 21
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 8 KM N OF WILHOIT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PORPHYRY COPPER (DISSEMINATED AND VEINLETS)
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... CRET. PREC

HOST ROCK TYPES..... COPPER BASIN STOCK (GRANODIORITE, QUARTZ DIORITE QUARTZ, MONZONITE AND QUARTZ LATITE
PORPHYRY PREC. QUARTZ DIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. CRET

IGNEOUS ROCK TYPES..... COPPER BASIN STOCK (GRANODIORITE, QUARTZ DIORITE, QUARTZ MONZONITE AND QUARTZ LATITE
PORPHYRY).

AGE OF MINERALIZATION..... CRET (75.5 72.8 M.Y., CHRISTMAN, 1978)

IMPORTANT ORE CONTROL/LOCUS.. AREA OF HIGHEST COPPER AND MOLYBDENUM MINERALIZATION ROUGHLY COINCIDES WITH A NE
TRENDING ELLIPSE CENTERED ON THE GRANODIORITE-QUARTZ MONZONITE PHASE OF THE STOCK. THE FRACTURES ARE SHALLOW
DIPPING, CONTAIN 0.5-1.5 WEIGHT % SULFIDES AND MAY HAVE FORMED DURING RELATIVELY LATE STAGES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIA FORMS SHELL AROUND OLDER QUARTZ LATITE PORPHYRY. BRECCIA "PIPES" COALESCE AT DEPTH TO FORM A SINGLE
BODY EMPLACEMENT OF COPPER BASIN STOCK WAS INFLUENCED BY A N 10-20 E REGIONAL FAULT. FRACTURE FREQUENCIES
RANGE FROM 3/M. TO 50/M OF DRILL CORE.

SIGNIFICANT ALTERATION:

ALTERATION AND MINERALIZATION ARE ZONED AROUND THE MOST ABUNDANTLY FRACTURED PART OF THE STOCK. A
POORLY-DEVELOPED CORE OF PHYLIC ALTERATION IS SURROUNDED BY A POTASSIC ZONE WHICH GRADES OUTWARD TO A HALO OF
PROPYLITIC ALTERATION. (CHRISTMAN, 1978, P. 72).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

BRECCIA IN THE COPPER BASIN DEPOSIT IS MUCH MORE PERVASIVE THAN PREVIOUSLY RECOGNIZED. THE BRECCIA APPEARS TO
BE A COLLAPSE STRUCTURE COMPLEXLY RELATED TO INTRUSION OF THE OLDER QUARTZ LATITE PORPHYRY. (CHRISTMAN, 1978,
P. 72)

COMMENTS (GEOLOGY AND MINERALOGY):

SULFIDE ZONING CORRELATES TO THE PATTERN OF ALTERATION ZONING. AS IN MANY DEPOSITS, THE HIGHEST GRADE OF COPPER
IS CONTAINED WITHIN THE POTASSIC ZONE. (CHRISTMAN, 1978, P. 72)

GENERAL REFERENCES

- 1) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT,
YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
- 2) JOHNSTON, W.P., 1955, GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA:
UNIV. UTAH, UTAH, PHD THESIS
- 3) JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA:
ECON. GEOL., V. 56, P. 916-940.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255
P., P. 141.
- 5) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN

YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.

6)ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.

7)KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

8)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

9)GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.

10)KRIEGER, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-504, SCALE 1:62,000 (1967)

11)KRIEGER, MEDORA H. GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)

12)ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

13)MILLER, 1953, COPPER BASIN DISTRICT: U.S. ATOMIC ENERGY COMM. PRELIM. RECONN REPT. A-P-137, 1 P.

14)GAMBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.

15)LAUSEN, C., AND GARDNER, F.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.

16)BLAKE, W.P., 1889, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.

RECORD 00407

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003750
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... COPPER HILL

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN/SIERRA PRIETA RANGE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 24000 WILHOIT

LATITUDE LONGITUDE
34-29-26N 112-35-15W

UTM NORTHING UTM EASTING UTM ZONE NO
3817510. 354245. +12

TWP..... 013N
RANGE..... 003W
SECTION.. 20
MERIDIAN. GCSR

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MD

MAIN ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

DESCRIPTION OF WORKINGS

UNDERGROUND

PRODUCTION
YES

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	0.071	TONS	1955	
16 CU	ACC	6.800	LBS		

SOURCE OF INFORMATION (PRODUCTION).. 1916-1918

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... PREC. QUARTZ DIORITE AT SURFACE AND CRET. GRANODIORITE LOWER

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

THE COPPER HILL ORE BODY ALSO CONTAINS A ZONE OF SECONDARY ENRICHMENT OF MOLYBDENUM WHICH OCCURS JUST ABOVE, AND IN THE UPPER PART OF THE ZONE OF COPPER ENRICHMENT. THE SECONDARY MOLYBDENUM MINERAL IS FERRIMOLYBDITE, A BRIGHT YELLOW OXIDE. JOHNSTON AND LOWELL, 1961

COMMENTS (GEOLOGY AND MINERALOGY):

MINERALIZED BRECCIATED QUARTZ DIORITE

GENERAL REFERENCES

- 3) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 79 P.
- 4) JOHNSTON, W.P., GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH, PHD THESIS (1955)
- 5) JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 916-940.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 7) THOMSEN, R.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
- 8) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
- 9) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 10) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 11) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 12) KRIEGER, MEDORA H., RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-504, SCALE 1:62,500 (1967)
- 13) KRIEGER, MEDORA H., GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)
- 14) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
- 15) GAMBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.
- 16) LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.
- 17) BLAKE, W.P., 1889, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG.

TRANS.. V. 17, P. 479-485.

RECORD 00408

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4004333
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... CORNUCOPIA
MINING DISTRICT/AREA/SUBDIST. BRADSHAW DIST./BRADSHAW MTS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. UNION, ARIZ.

LATITUDE LONGITUDE
34-15-30N 112-22-15W

TWP..... 11N
RANGE..... 01W
SECTION.. 33 NC
MERIDIAN. GCSR

ALTITUDE.. 5750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: W SIDE OF TUSCUMBIA MOUNTAIN

LOCATION COMMENTS: UNSURVEYED, LOCATION APPROXIMATE

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU CU AG MO

MAIN ORE MINERALS:
GOLD, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER..... OWNED BY M. ROLAND (IN 1926)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 18 IN
 STRIKE OF OREBODY.... N-S
 DIP OF OREBODY..... W

DESCRIPTION OF WORKINGS

LENGTH OF WORKINGS..... 350 FT

COMMENTS(DESCRIP. OF WORKINGS):

TUNNEL FOLLOWS THE VEIN FOR 350 FT

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15 ORE	EST	0.1	TONS	1920'S	49 GOLD
16 CU		3.771	LBS		
17 AG		59.959	OZS		
18 AU		0.088	OZS		

SOURCE OF INFORMATION (PRODUCTION).. LINDGREN, 1925, P. 176

PRODUCTION COMMENTS.... A FEW YEAR AGO (IN 1920'S) 100 TONS OF 49 GOLD ORE FROM THIS VEIN WAS MILLED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... BRADSHAW GRANITE; BRADY BUTTE PORPHYRITIC GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC
 IGNEOUS ROCK TYPES..... BRADY BUTTE PORPHYRITIC GRANODIORITE (ANDERSON AND BLACET)

IMPORTANT ORE CONTROL/LOCUS.. VEIN IS PARALLEL TO BUSTER VEIN

GENERAL REFERENCES

- 4) WILSON, E.D., CUNNINGHAM, J.B., AND BUTLER, G.M., 1967, ARIZONA LOOSE GOLD MINES AND GOLD MINING: ARIZ. BUR. MINES BULL. 137, 254 P.
- 5) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
- 6) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-997.
- 7) BLACET, P.M., 1964, GEOLOGIC MAP OF THE SE 1/4 MOUNT UNION QUADRANGLE, YAVAPAI CO., ARIZ: U.S. GEOL. SURVEY

OPEN-FILE REPORT.

8)BLACET, P.M., 1968, PRECAMBRIAN GEOLOGY OF THE SE 1/4 MOUNT UNION QUADRANGLE, BRADSHAW MOUNTAINS, CENTRAL ARIZONA: STANFORD, CALIF., STANFORD UNIV., PH.D. THESIS, 244 P.

9)JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.

10)ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00409

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003473
RECORD TYPE..... K2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... EUREKA DIST.
SYNONYM NAME..... BAGDAD DIST.

MINING DISTRICT/AREA/SUBDIST. EUREKA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

LATITUDE LONGITUDE
34-35-00N 113-13-00W

TWP..... 014N
RANGE.... 009W
SECTION.. 17

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB ZN RH W MO

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. CU MO
MINOR PRODUCTS.. AU AG PB ZN

MAIN COMMOD..... CU MO
MINOR COMMOD..... AU AG PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....
OCCURRENCE..... RH W U FE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

COPPER, LEAD, ZINC, AND SILVER ARE PRESENT IN THE OLD DICK AND COPPER KING MINES IN MASSIVE-SULFIDE REPLACEMENTS OF THE BRIDLE FORMATION, AND SUPERGENE ENRICHMENT HAS FORMED SOME SHIPPING ORE. FISSURE VEINS CONTAINING GOLD, SILVER, LEAD, ZINC, AND COPPER ARE OF IMPORTANCE, WHETHER OR NOT SUPERGENE ENRICHED. BOTH OXIDIZED AND SULFIDE ORES HAVE BEEN MINED FROM THE HILLSIDE VEIN. THE COPPER-LEAD-ZINC-GOLD-SILVER MINERALIZATION WAS RELATED TO THE INTRUSION OF QUARTZ MONZONITE IN LATE CRETACEOUS OR EARLY TERTIARY TIME.

LOW-GRADE WOLFRAMITE-BEARING VEINS OF PRE-CAMBRIAN AGE ARE A POTENTIAL RESERVE OF TUNGSTEN; MINING OF THESE VEINS BEGAN IN 1952 AT THE TUNGSTONA MINE. (ANDERSON ETAL, 1955)

PRODUCTION

YES

PRODUCTION COMMENTS.... MINING IN THE BAGDAD AREA BEGAN IN 1897, WHEN GOLD-SILVER-LEAD ORE WAS SHIPPED FROM THE HILLSIDE MINE, AND FAIRLY REGULAR PRODUCTION CONTINUED UNTIL 1912. THE MINE REOPENED IN 1934 AND IN 1937 ZINC BECAME AN IMPORTANT RECOVERABLE METAL. THE COPPER KING MINE WAS ACTIVE IN 1917-20, 1925-27; AFTER 1942 ZINC WAS THE IMPORTANT METAL RECOVERED. COPPER HAS BEEN PRODUCED AT BAGDAD SINCE 1920, EXCEPT FOR THE PERIOD 1931-34. MINING ON A LARGE SCALE BEGAN IN 1943 AND IN 1951 THE DAILY PRODUCTION REACHED 3,500 TONS PER DAY. GOLD, SILVER, LEAD, COPPER, AND ZINC HAVE BEEN PRODUCED AT DIFFERENT TIMES FROM SMALL MINES IN THE AREA. PRIMARY ZINC ORE HAS BEEN MINED FROM THE OLD DICK MINE SINCE 1947. THE TOTAL VALUE OF METALS PRODUCED ON THE BAGDAD AREA FROM 1887 TO 1951, INCLUSIVE, HAS BEEN MORE THAN \$31,000,000.

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. THE COPPER MINERALS IN THE BAGDAD MINE OCCUR IN MINOR FRACTURES AND ARE DISSEMINATED IN THE QUARTZ MONZONITE. (ANDERSON, ETAL, 1955)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE STRUCTURES IN THE BAGDAD MINE SHOW A DEFINITE ORIENTATION IN THE NORTHWEST AND NORTHEAST QUADRANTS. THE TREND OF THE QUARTZ MONZONITE STOCKS IS N. 70 E., AND AN APLITIC DIKE IN THE BAGDAD MINE STRIKES N. 40 W. THE GENERALIZED TREND OF THE DIORITE PORPHYRY DIKES IS N. 60 E. AND THE TREND OF THE QUARTZ MONZONITE PORPHYRY DIKES IS N. 20 W. QUARTZ-PYRITE-CHALCO-PYRITE VEINS TREND N. 50 -70 AND N. 40 W. THE MINOR MINERALIZED FRACTURES ARE CONCENTRATED ALONG ONE OF THREE DIRECTIONS, N. 70 E., N. 20 E., AND N. 40 W. MANY POSTMINERAL FAULTS STRIKE N. 70 E. BUT A FEW STRIKE N. 40 W. IT IS CONCLUDED THAT THE NORTHWEST AND NORTHEAST TRENDS OF RUPTURE REPRESENT CONJUGATE SHEARS AND THE MINOR MINERALIZED FRACTURES THAT CARRY THE BULK OF THE COPPER MINERALS IN THE BAGDAD MINE REPRESENT SECONDARY BREAKS OF CONJUGATE SHEARS AND ARE DIRECTLY RELATED TO THE LARGER FRACTURE PATTERN. (ANDERSON ETAL, 1955).

SIGNIFICANT ALTERATION:

HYPOGENE ALTERATION AND MINERALIZATION OF THE QUARTZ MONZONITE RESULTED IN THE FORMATION OF QUARTZ, ORTHOCLASE, ALBITIC PLAGIOCLASE, LEAFY Biotite, SERICITE, PYRITE, CHALCOPYRITE, AND MOLYBDENITE. SUPERGENE ENRICHMENT FORMED A CHALCOCITE BLANKET BEFORE ACCUMULATION OF THE GILA (?) CONGLOMERATE, AND THE DOMINANT NORTHEAST FAULTS WERE IMPORTANT IN CONTROLLING DEPOSITION OF THE CHALCOCITE. MAROON "RELIEF" INDIGENOUS IRON OXIDE IN THE LEACHED OUTCROPS INDICATES THE DISTRIBUTION OF THE CHALCOCITE. TRANSPORTED YELLOW-BROWN IRON OXIDE AND JAROSITE INDICATE THE DISTRIBUTION OF THE PRIMARY CHALCOPYRITE AND PYRITE. THE HAWKEYE FAULT MARKS THE WESTERN BOUNDARY OF THE CHALCOCITE BLANKET. (ANDERSON, ETAL, 1955)

COMMENTS (GEOLOGY AND MINERALOGY):

HYPOGENE METALLIZATION WAS CHARACTERIZED CHIEFLY BY THE DEPOSITION OF PYRITE, CHALCOPYRITE, MOLYBDENITE, AND SUBORDINATELY BY DEPOSITION OF GALENA, SPHALERITE, AND BARITE.

MOLYBDENITE-QUARTZ-ORTHOCLASE-PYRITE VEINS CUT THE QUARTZ-PYRITE-CHALCOPYRITE VEINS, WHICH INDICATE THAT THE MOLYBDENITE IS YOUNGER THAN THE CHALCOPYRITE

MOLYBDENITE, MoS_2 .--THE BRILLIANT GRAY FLAKY SULFIDE OF MOLYBDENUM IS COMMON IN THE BAGDAD MINE, OCCURRING IN QUARTZ-PYRITE VEINS THAT ARE LATER THAN THE PYRITE-CHALCOPYRITE VEINS. THE CRYSTALS RANGE IN SIZE FROM MINUTE FLAKES TO LARGE GRAINS ONE-QUARTER OF AN INCH IN DIAMETER. MOLYBDENITE IS FOUND IN THE BLACK MESA PIPE, OCCURRING CHIEFLY IN VEINLETS ALONG THE MARGINS OF THE QUARTZ THAT IS INTERSTITIAL TO THE BRECCIA FRAGMENTS. THIS MINERAL WAS NOTED ALSO IN THE MAMMOTH PROSPECT.

FERRIMOLYBDITE, $\text{Fe}_2\text{O}_3\text{MoO}_3\text{H}_2\text{O}$.---FERRIMOLYBDITE, SOMETIMES KNOWN AS MOLYBOITE, IS VERY RARE IN THE BAGDAD AREA AND WAS ONLY FOUND AS RADIATING CANARY-YELLOW FIBERS AT THE OUTCROP OF A SMALL QUARTZ VEIN IN THE GABBRO NEAR THE SOUTHERN TIP OF THE LARGE MASS OF APLITE-PEGMATITE. (ANDERSON, 1955)

GENERAL REFERENCES

4) EUREKA DIST. REFS:

ANDERSON, E.H., SCHOLZ, AND J.D. STROBEL, JR. (1955) GEOLOGY AND ORE DEPOSITS OF THE BAGDAD AREA, YAVAPAI COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 278, 103 P.

5) BUTLER, B.S. (AND WILSON, ELDRED D.) BAGDAD MINE. EUREKA DISTRICT: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 145, P. 98-104, MAP (1938)

6) ANDERSON, C.A., 1948, STRUCTURAL CONTROL OF COPPER MINERALIZATION, BAGDAD, ARIZONA: MINING TECHNOLOGY (AM. INST. MIN. ENG.), V. 12, NO. 2, TECH. PUBL. 2352.

SUMMARY OF EVIDENCE OF SHOW THAT A SET OF NORTHWEST AND NORTHEAST CONJUGATE SHEARS LOCALIZED IGNEOUS INTRUSIONS AND FRACTURING, CONTROLLING COPPER MINERALIZATION.

7) ANDERSON, C.A., 1950, ALTERATION AND METALLIZATION IN THE BAGDAD PORPHYRY COPPER DEPOSIT, ARIZONA: ECON. GEOL. V. 45, P. 609-628, P. 612, 616

8) ANDERSON, C.A., 1951, OLDER PRECAMBRIAN STRUCTURE IN ARIZONA: GEOL. SOC. AMERICA BULL., V. 62, P. 1331-1346. BRIEF ACCOUNT OF THE PRE-CAMBRIAN ROCKS AT BAGDAD AND RELATIONSHIP TO OTHER PRE-CAMBRIAN ROCKS IN ARIZONA.

9) ANONYMOUS, 1952, BAGDAD EXPANDS COPPER MILL--RECOVERS BY-PRODUCT MOLYBDENITE--UPS COPPER RECOVERY BY PH CONTROL: MIN. WORLD, V. 14, NO. 3, P. 30-33.

10) ANONYMOUS, 1946, BAGDAD MAKES A COMEBACK: MIN. WORLD, V. 8, NO. 6, P. 24-28. LARGELY A DISCUSSION OF THE GLORY-HOLE MINING METHOD STARTED IN 1945.

11) ANONYMOUS, 1952, BAGDAD EXPANDS COPPER MILL--RECOVERS BY-PRODUCT MOLYBDENITE--UPS COPPER RECOVERY BY PH CONTROL: MIN. WORLD, V. 14, NO. 3, P. 30-33. DESCRIPTION OF MILL OPERATIONS IN 1951.

12) ANONYMOUS, 1951, BAGDAD LEARNS TO TRUCK: MIN. WORLD, V. 13, NO. 10, P. 14-19. GOOD DESCRIPTION OF PIT OPERATIONS IN 1951.

13) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.

14) ALDRICH, L.T., WETHERILL, G.W., AND DAVIS, G.L., 1957, OCCURRENCE OF 1350-MILLION-YEAR-OLD GRANITIC ROCKS IN WESTERN UNITED STATES: GEOL. SOC. AMERICA BULL., V. 68, P. 655-656.

15) ALDRICH, L.T., WETHERILL, G.W., DAVIS, G.L., AND TILTON, G.R., 1958, RADIOACTIVE AGES OF MICAS FROM GRANITIC ROCKS BY Rb-Sr AND K-Ar METHODS: AM. GEOPHYS. UNION TRANS., V. 39, P. 1124-1134.

16) BUTLER, B.S., AND WILSON, E.D., 1938, BAGDAD MINE, EUREKA DISTRICT: ARIZ. BUR. MINES BULL. 145, P. 98-103. EXCELLENT BRIEF ACCOUNT OF THE GEOLOGY AND ORE DEPOSITS OF THE BAGDAD MINE.

17) DEMPSEY, W.J. AEROMAGNETIC MAP OF BAGDAD AREA, YAVAPAI COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)

18) DEMPSEY, W.J. (AND FACKLER, W.D.) AEROMAGNETIC MAP OF THE BAGDAD AREA, YAVAPAI COUNTY, ARIZONA: USGS MAP GP-411 (1963)

19) DICKIE, E.R., 1947, BAGDAD COPPER ADOPTS OPEN-PIT MINING: MINING AND METALLURGY, V. 29, NO. 481, P. 9.

20) DICKIE, E.R., GREEN GEORGE, HONDRUM, OLAF, AND COLVILLE, GEORGE, 1953. NEW IDEAS FOR BAGDAD COPPER: ENG. AND MIN. JOUR. V. 154, P. 88-93. OUTLINES PLANS FOR EXPANSION OF BAGDAD MINE AND MILL AND GIVES ORE RESERVES.

21) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

22) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413, P. 1408.

23) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.

24) HUTTL, J.B., 1943. BAGDAD--ARIZONA'S LATEST PORPHYRY COPPER: ENG. AND MIN. JOUR., V. 144, NO. 6, P. 62-66. A DESCRIPTION OF THE MINING AND MILLING METHODS AT THE START OF OPERATIONS IN 1943.

25) JACOBSEN, W.L., 1976, ENGINEERING PROPERTIES OF THE GILA CONGLOMERATE AT BAGDAD, ARIZONA: UNPUB. M.S.

THESIS, UNIV. ARIZ.,

26) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.

27) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1955, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1912-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.

28) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782 192 P.

29) NASH, J.T., AND CUNNINGHAM, C.G., 1974, FLUID INCLUSION STUDIES OF THE PORPHYRY COPPER DEPOSIT AT BAGDAD, ARIZONA: U.S. GEOL. SURVEY JOUR. RES., V. 2, NO. 1, P. 31-34.

30) SCHWARTZ, G.M., 1947, HYDROTHERMAL ALTERATION IN THE "PORPHYRY COPPER" DEPOSITS: ECON. GEOLOGY, V. 42, P. 319-352, P. 324.

31) SILVER, L.T., 1966, U-PB ISOTOPE RELATIONS IN PRECAMBRIAN ZIRCONS FROM BAGDAD, ARIZONA (ABS.): GEOL. SOC. AMERICA, PROGRAM ANN. MEETING ROCKY MOUNTAIN SEC., P. 52.

32) THOMAS, G.G., 1934, PILOT MILL FLOTATION WORK AT THE PROPERTY OF THE BAGDAD COPPER CORPORATION, HILLSIDE, ARIZONA: INST. MINING METALLURGY, TRANS. 1933-34, P. 705-748. A SUMMARY OF THE GEOLOGY OF THE BAGDAD MINE IS GIVEN, BASED ON PRIVATE REPORTS. THE MAIN PART OF THE PAPER DEALS WITH FLOTATION RESULTS OF THE PILOT MILL.

33) TILTON, G.R., DAVIS, G.L., WETHERILL, G.W., AND ALDRICH, L.T., 1957, ISOTOPTIC AGES OF ZIRCON FROM GRANITES AND PEGMATITES: AM. GEOPHYS. UNION TRANS., V. 38, NO. 3, P. 360-371.

34) U.S.G.S., 1972, AEROMAGNETIC MAP OF THE BRADSHAW MOUNTAINS AND VICINITY, YAVAPAI COUNTY, ARIZONA: U.S.G.S. TEPHYS. INV. MAP GP-758.

35) VACQUIER, V., STEENLAND, N.C., HENDERSON, R.G., AND ZIETZ, ISIDORE, 1951, INTERPRETATION OF AEROMAGNETIC MAPS: GEOL. SOC. AMERICA, MEM. 47, P. 31-34.

36) DISCUSSION OF AEROMAGNETIC MAP OF BAGDAD AREA WHICH ACCOMPANIES REPORT PLUS GENERALIZED GEOLOGIC MAP BY C.A. ANDERSON. MINERALIZED STOCK AT BAGDAD SHOWS CONSPICUOUS NEGATIVE ANOMALY; GABBRO AND ASSOCIATED TITANIFEROUS MAGNETITE BODIES SHOW HIGH MAGNETIC INTENSITY.

37) YOST, H.W., 1929, PRODUCTION PLANS OF BAGDAD COPPER CORPORATION: MIN. JOUR., V. 13, NO. 6, P. 5. DESCRIBES A PROPOSED METHOD OF COPPER RECOVERY FOR BAGDAD BY MEANS OF FLOTATION, ROASTING, LEACHING, AND ELECTROLYTIC PRECIPITATION OF COPPER.

38) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

39) ANDERSON, C.A., 1950, LEAD-ZINC DEPOSITS, BAGDAD AREA, YAVAPAI COUNTY, ARIZONA, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 122-138.

40) AXELROD, J.M.; GRIMALDI, F.S.; MILTON, CHARLES; AND MURATA, K.J., 1951, THE URANIUM MINERALS FROM THE HILLSIDE MINE, YAVAPAI COUNTY, ARIZ.: AM. MINERALOGIST, V. 36, P. 1-22.

41) BALL, S.H., AND BRODERICK, T.M., MAGMATIC IRON ORE IN ARIZONA: ENG. AND MIN. JOUR., V. 107, P. 353-354. BRIEF DESCRIPTION OF THE GEOLOGY OF THE BAGDAD AREA WITH SPECIAL EMPHASIS ON THE TITANIFEROUS MAGNETITE OCCURRING IN METAGABBRO. PRESENTS THREE CHEMICAL ANALYSES.

42) DALE, V. B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P.

43) HOAGLAND, JACKSON, 1937, COMSTOCK-DEXTER'S PLAN FOR PRODUCTION: MIN. JOUR., V. 21, NO. 8, P. 3-4. EARLY HISTORY OF THE COMSTOCK-DEXTER MINE IS GIVEN AS WELL AS PLANS FOR FUTURE OPERATION.

44) SINGEWALD, J.T., 1933, TITANIFEROUS MAGNETITES--ARIZONA, IN ORE DEPOSITS OF THE WESTERN STATES (LINDGREN VOLUME): AM. INST. MIN. MET. ENG., P. 511-512. ESSENTIALLY THE SAME INFORMATION AS IN BALL AND BRODERICK (1919).

45) STORMS, W.H., 1890, ARIZONA'S NEW BONANZA: ENG. AND MIN. JOUR., V. 50, P. 162-163. A BRIEF DISCUSSION OF THE HILLSIDE MINE WITH COMMENTS ON THE GRADE OF THE ORE THAT WAS BEING SHIPPED AT THAT TIME.

46) WILSON, F.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168

RECORD 00410

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030501
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... FIESTA GROUP

MINING DISTRICT/AREA/SUBDIST. KIRKLAND DIST/BRADSHAW MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

TWP..... 12N

RANGE.... 04W

POSITION FROM NEAREST PROMINENT LOCALITY: 3 1/2 MI SW FROM KIRKLAND JUNCTION

LOCATION COMMENTS: LOCATION APPROXIMATE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MO AG AU

MAIN ORE MINERALS:

CERUSSITE MOLYBDENITE

MINOR ORE MINERALS:

SILVER GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 30 FT
 STRIKE OF OREBODY.... NE
 DIP OF OREBODY..... 60 SE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

ONE 75 FT AND 1 60 FT TUNNEL PLUS 2 OPEN CUTS

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... QUARTZ PORPHYRY

GENERAL COMMENTS

OLD REPORT BY FARMER OWNER CLAIMS A 6 FT VEIN WITH ORE WHICH "ASSAYED 0.15 GOLD, 7.0 OZ SILVER, 85% MOS?"
 EVIDENTLY A SELECTED SAMPLE.

GENERAL REFERENCES

1) DEPT. MIN RESOURCES, 1962, MO PROSPECTS-AZ

RECORD 03411

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030503
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION
DEPOSIT NAME..... GENUNG SPRING MINE
MINING DISTRICT/AREA/SUBDIST. BLUE TANK DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI
POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 14 MI. NE OF WICKENBURG
LOCATION COMMENTS: LOCATION UNKNOWN

COMMODITY INFORMATION
COMMODITIES PRESENT..... PB MO

MAIN ORE MINERALS:
WULFENITE

MINOR ORE MINERALS:
GALENA

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
COMMENTS(DESCRIPTION OF DEPOSIT):
DIKE 3-30 FT THICK

DESCRIPTION OF WORKINGS
UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 45 FT

COMMENTS(DESCRIP. OF WORKINGS):
45 FT SHAFT WITH MODEST DRIFING ON 2 LEVELS

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. DEPT MIN RES., 1962, MO PROSPECTS AZ

PRODUCTION COMMENTS.... A 1936 LETTER WRITTEN TO INTEREST A PARTY IN THE PROPERTY, CONTAINED A PARAGRAPH READING "WE UNDERSTAND THAT MORE THAN \$130,000 WORTH OF WULFENITE WAS SHIPPED PROBABLY DURING THE WAR, BUT NOTHING HAS BEEN DONE SINCE.

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. DEPT. MIN. RES. (1962)

COMMENTS (RESERVES/POT RESOURCES).. APPROXIMATELY 250 TONS OF ORE ON THE STOCKPILE

GEOLOGY AND MINERALOGY
HOST ROCK TYPES..... DIABASE AND GNEISS

IMPORTANT ORE CONTROL/LOCUS.. ORE IS AT CONTACT OF DIABASE AND GNEISS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
GANGUE OF ALTERED DIABASE

GENERAL COMMENTS
A LONG SERIES OF ASSAYS GIVES AN APPARENT TENOR OF APPROXIMATELY 2.6% MO OZ PER TON OF MINE RUN ORE. DRY MILLING IS SAID TO HAVE RECOVERED FROM 50-60% OF THIS WULFENITE. THREE SHAPLES IN 1936 RAN 0.04, 0.07, AND 0.12% MO OZ.

GENERAL REFERENCES
1) DEPT. MIN. RESOURCES, 1964, MO PROSPECTS AZ

RECORD 00412

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030502
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... GREAT SOUTHERN MINE
SYNONYM NAME..... GREAT EASTERN CLAIM; RATTLER GROUP

MINING DISTRICT/AREA/SUBDIST. BLUE TANK DIST./WICKENBERG MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ.

LATITUDE LONGITUDE
33-59-56N 112-35-58W

TWP..... 08N
RANGE.... 03W
SECTION.. 32
MERIDIAN. GILA AND SALT R.

LOCATION COMMENTS: NW 1/4 OF 32, CORNER OF 29,30,31,32

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO

MAIN ORE MINERALS:
GALENA, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
WULFENITE

ANALYTICAL DATA(GENERAL)
VALUE \$22.50/TON (1923)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

318 FT LEVEL 130 FT SHAFT (IN 1921) ON GREAT EASTERN VEIN; 65 FT SHAFT ON RATTLER NO. 2 WITH 18 FT CROSSCUT

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... GRANITE IN FOOTWALL; DIABASE IN HANGING WALL

IGNEOUS ROCK TYPES..... PROPHYRITIC GRANITE

PERTINENT MINERALOGY..... HEMATITE, QUARTZ, PORPHYRY

IMPORTANT ORE CONTROL/LOCUS.. LEAD QUARTZ VEIN

GENERAL REFERENCES

1) ABM FILE PAGE - CLIPPING FILE

2) U.S.G.S. TOPO MAP.

3) SPECIMEN IN COLLECTION OF STANLEY B. KEITH 2/11/80

RECORD 00413

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M002357
 COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... KELLY

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

TWP..... 10N

RANGE.... 01E

SECTION.. 02 03

MERIDIAN. GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 1/2 MILE S. OF CLEATOR

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO AU AG PB BI

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PRODUCTION

NO PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	0.004	TONS	1937	
16 AG	ACC	0.001	OZS		
17 AU	ACC	0.003	OZS		

PRODUCTION COMMENTS.... NONE TO 1943. SURFACE

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. PEGMATITE CUT BY QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
 QUARTZ VEIN

RECORD 00414

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO..... M003493
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... KENTUCK PROSPECT
SYNONYM NAME..... ARIZONA CENTRAL

MINING DISTRICT/AREA/SUBDIST. HASSAYAMPA/BRADSHAW MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI
LAND CLASSIFICATION..... 41

QUAD SCALE QUAD NO OR NAME
1: 62500 MT. UNION

LATITUDE LONGITUDE
34-21-59N 112-24-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3803500. 370500. 412

TWP..... 012N
RANGE.... 001W
SECTION.. 19
MERIDIAN. G & SR

ALTITUDE.. 5750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 7 1/2 MILES OF GROOM CREEK 3 1/2 MILES S OF MT. UNION IN CROOKS CANYON
ABOUT 1 MILE S. OF SENATOR RD.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG MO

MAIN COMMOD..... AU AG
MINOR COMMOD.... MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
 POTENTIAL..... AU AG
 OCCURRENCE..... MO

MAIN ORE MINERALS:
 PYRITE, CHALCOPYRITE

MINOR ORE MINERALS:
 MOLYBDENITE

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 3

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL
 MAX WIDTH..... 2 FT
 STRIKE OF OREBODY.... N. 0 E
 DIP OF OREBODY..... W

PRODUCTION
 NO PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
 HOST ROCK TYPES..... CROOKS CANYON GRANODIORITE, NEAR GABBRO

AGE OF MINERALIZATION..... PREC

GENERAL REFERENCES

- 1) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P., P. 126.
- 2) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
- 3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 4) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-997.

RECORD 00415

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003742
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... LOMA PRIETA

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN/SIERRA PRIETA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 24000 WILHOIT

LATITUDE LONGITUDE
34-29-24N 112-34-60W

UTM NORTHING UTM EASTING UTM ZONE NO
3817445.0 354618. +12

TWP..... 13N
RANGE.... 03W
SECTION.. 21
MERIDIAN. 66SR

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

DESCRIPTION OF WORKINGS

UNDERGROUND

PRODUCTION

YES

PRODUCTION COMMENTS.... 2 OR 3 CARS 1916 FEBRUARY 1952.

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1		4,000	TONS	1961	0.124% MO AND 0.913% CU

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. ORE IS IN CRETACEOUS QUARTZ MONZONITE AND ASSOCIATED QUARTZ LATITE PORPHYRY DIKES

GENERAL REFERENCES

- 1) JOHNSTON, W.P., 1955, GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH, PH.D. THESIS
- 2) JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 916-940.
- 3) GAMBELL, N., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.
- 4) LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.
- 5) BLAKE, W.P., 1889, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.
- 6) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
- 8) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 9) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA. A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
- 10) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
- 11) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE
- 12) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-236.
- 13) KRIEGER, MEDORA H., RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOL. INV. MAP I-504, SCALE 1:62,500 (1967)
- 14) KRIEGER, MEDORA H., GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)
- 15) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

RECORD 00417

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003464
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... MOUNTAIN SPRING MINE

MINING DISTRICT/AREA/SUBDIST. EUREKA DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

TWP..... 014N

RANGE..... 009W

MERIDIAN. G6SR

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES SSW OF BAGDAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO ZN PB CU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE

EXPLORATION AND DEVELOPMENT

PRESENT/LAST OWNER..... OWNED BY M.L. LYNCH AND J.W. LAWLER IN 1945 (ANDERSON ETAL, 1955)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

DIP OF OREBODY..... STEEP

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUNDCOMMENTS(DESCRIP. OF WORKINGS):
2 SHAFTS, EACH ABOUT 45 FT DEEPPRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PB	ACC	14.405	LBS		-1950
16 CU	ACC	0.51	LBS		-1950
17 AG	ACC	0.56	OZ		-1950

SOURCE OF INFORMATION (PRODUCTION).. ANDERSON ETAL, 1955, P. 93

PRODUCTION COMMENTS.... IT IS REPORTED THAT SMALL SHIPMENTS OF HANDSORTED ORE HAVE BEEN MADE INTERMITTENTLY SINCE 1942. ONE SHIPMENT AVERAGED 25% PB, 1% CU, 19 OZ AG/TON

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. VEINS ALONG FAULT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ON SOUTH END OF MOUNTAIN SPRING FAULTCOMMENTS (GEOLOGY AND MINERALOGY):
THIN, YELLOW-ORANGE PLATES OF WULFENITE FOUND IN OXIDIZED ZONE

RECORD 00418

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030509
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
DATE..... 80 02
UPDATED..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... NEAR UNITED STATES MINE

MINING DISTRICT/AREA/SUBDIST. PRESCOTT-PAULDEN AREA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0048000 PAULDIN, ARIZ.

LATITUDE LONGITUDE
34-54-

TWP..... 08N
RANGE.... 01E
SECTION.. 27
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH OF UNITED STATES MINE

LOCATION COMMENTS: 1,422, 400 FT N; 396,000 FT E

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD V

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL.....
OCCURRENCE..... MD V PB

MAIN ORE MINERALS:
GALENA

MINOR ORE MINERALS:

WULFENITE, VANADINITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MISS

HOST ROCK TYPES..... REDWALL LIMESTONE

PERTINENT MINERALOGY..... CALCITE VINES

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE OCCURS AS THIN ORANGE WEDGES

GENERAL REFERENCES

- 1) KRIEGER, MEDORA H., 1965, GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS, P. 106

RECORD 00419

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030493
RECORD TYPE..... 41
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... OUTPOST MINE
SYNONYM NAME..... OUTPOST EXTENSION PROSPECT IS 1200 FT NNE OF OUTPOST MINE

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST./WICKENBERG MTS

STATE CODE..... US

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ.

LATITUDE LONGITUDE
33-58-56N 112-33-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3761100. 356040. 412

TWP..... 08N 07W
RANGE.... 03W 03W
SECTION.. 34
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 3400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: W. OF EDDIE WASH.

LOCATION COMMENTS: NW 1/4 OF NE 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... FLD BI SN V MD PB C C F AG

PRODUCER(PAST OR PRESENT):

MAJOR PRODUCTS.. BI FLD

MAIN COMMOD..... FLD BI

MINOR COMMOD..... SN V MD PB CU CA F AG

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... SN V MO PB CU

MAIN ORE MINERALS:

BISMUTITE, BEYERITE, NATIVE BISMUTH; BISMUTHINITE; FELDSPAR

MINOR ORE MINERALS:

PYRITE, PYRRHOTITE, CASSITERITE, VANADINITE WULFENITE PYROMORPHITE, MINETITE, ANGLESITE, CERUSSITE,
CHRYSOCOLLA, CUPRITE, FLUORITE, NATIVE SILVER, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNED BY EARL F. ANDERSON AND SIDNEY B ANDERSON IN 1947-1948.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PEGMATITE

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N NNE

DIP OF OREBODY..... STEEP E

PLUNGE OF OREBODY.... MODERATE

DIRECTION OF PLUNGE.. NNE

DESCRIPTION OF WORKINGS

SURFACE

DEPTH OF WORKINGS BELOW SURFACE. 20 FT

OVERALL LENGTH OF MINED AREA.... 90 FT

OVERALL WIDTH OF MINED AREA..... 35 FT

COMMENTS(DESCRIP. OF WORKINGS):

BENCH-LIKE MAIN CUT IS 90 FT LONG, 35 FT WIDE AND 20 FT DEEP; BISMUTH CUT IS SMALLER; SEVERAL IRREGULAR
TRENCHES, PITS, AND CUTS ARE HIGHER ON THE SLOPE TO THE S. & E. MUCH OF THE MINE AREA HAS BEEN STRIPPED WITH
BULLDOZER.

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 RI MIN. EST	0.012	TONS		1947-1948	
16 FELDSPAR ORE EST	1500	TONS		1947-1952	STOCKPILE

SOURCE OF INFORMATION (PRODUCTION).. JAHNS, 1952 P. 95

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1	POTIUSH	FELDSPAR	0.857	TONS	1952 HIGH GRADE TO 10 FT DEPTH

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. JAHNS, 1952, P. 96

COMMENTS (RESERVES/POT RESOURCES).. TOTAL RESERVES OF DEPOSIT ARE UNDOUBTEDLY MUCH LARGER AS THE PEGMATITES EXTEND DOWNWARD AND NORTHWARD BEYOND 10 FT DEEP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.
 HOST ROCK TYPES..... PEGMATITE; HORNBLENDE GNEISS AND QUARTZ HORNBLENDE BIOTITE GNEISS AND SCHIST;
 CHLORITE AND EPIDOTE-RICH ROCKS

PERTINENT MINERALOGY..... SCHORL ABUNDANT; PEGMATITE IS MAINLY QUARTZ, WITH ALBITE, PERTHITE, MUSCOVITE,
 BIOTITE; APATITE, BERYL, FLUORITE, GARNET MICROLITE, PYROCHLORE

IMPORTANT ORE CONTROL/LOCUS.. PEGMATITES ARE ORE BODIES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 THINLY FOLIATED, EAST-TRENDING, STEEPLY N. DIPPING

SIGNIFICANT ALTERATION:
 IRON OXIDE STAINING

COMMENTS (GEOLOGY AND MINERALOGY):

BISMUTH MINERALS ARE LOCALLY ABUNDANT IN BRECCIATED AND SHEARED QUARTZ-RICH PEGMATITE. THEY FORM VEINLETS AND STOCKWORKS IN THE QUARTZ, AND ALSO OCCUR AS SCATTERED IRREGULAR MASSES 2 INCHES TO 7 FEET IN DIAMETER. THE BISMUTH MINERALS ARE THEMSELVES TRANSECTED BY FRACTURE-CONTROLLED VEINLETS THAT CONTAIN WULFENITE, VANADINITE, PYROMORPHITE, MIMETITE, ANGLESITE, CERUSSITE, CHRYSOCOLLA, CUPRITE, AND FLUORITE. MOST OF THESE MINERALS FORM SMALL, SHARPLY FACED CRYSTALS. TINY FLAKES OF NATIVE SILVER AND MOLYBDENITE ARE DISSEMINATED THROUGH SOME MASSES OF BISMUTITE AND BEYERITE. (JAHNS, 1952, P. 95-96).

GENERAL REFERENCES

- 1) JAHNS, R.H. (1952) PEGMATITE DEPOSITS OF THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA. ARIZ. BUR. MINES. BULL. 162, MIN. TECH. SERIES 46, 105 P., P. 93-97.
- 2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00420

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030499
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 02

NAME AND LOCATION

DEPOSIT NAME..... PICACHO VIEW MINE
MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO 7.5

LATITUDE LONGITUDE
33-57-44N 112-33-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3758870. 355600. 12

TWP..... 07N
RANGE.... 03W
SECTION.. 10
MERIDIAN. GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: ON RIDGE CREST 1/4 MILE NE OF MITCHELL WASH

LOCATION COMMENTS: E 1/2 OF NW 1/4 OF SEC 10

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AU R.E. NB-TA MO FLD

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. FLD

MAIN COMMOD..... FLD

MAIN ORE MINERALS:

FELDSPAR

MINOR ORE MINERALS:

PYRITE, ALLANITE, COLUMBITE, MOLYBDENITE, SPHALERITE, GALENA; MOLYBDITE, CERUSSITE, HEMIMORPHITE, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... WHITEHALL CO. OWNED IN 1950'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PEGMATITE

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

COMMENTS(DESCRIPTION OF DEPOSIT):

PEGMATITE BODY IS 240 FT LONG, 140 FT MAXIMUM WIDTH, TRENDS N55 E, DIPS 35-55 SE ON NW SIDE AND STEEPER ON SE SIDE SUGGESTING THINNING DOWNWARD OR A LOCAL ROLL.

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 27 FT

OVERALL LENGTH OF MINED AREA.... 120 FT

OVERALL WIDTH OF MINED AREA..... 40 FT

COMMENTS(DESCRIP. OF WORKINGS):

A LARGE BENCH-LIKE OPEN CUT ON THE SE SLOPE OF THE RIDGE, SEVERAL SMALLER CUTS HIGHER ON THE RIDGE TO THE WEST AND A LONG NARROW BENCH ON THE NORTH END OF THE RIDGE. EXTENSIVE STRIPPING HAS ALSO BEEN DONE. MAIN CUT IS 120 FT LONG, 40 FT WIDE, AND 18-27 FT DEEP ON NW. STOCK PILED FELDSPAR AND DUMP MATERIAL CONCEAL AN ADIT AND A SHAFT PREVIOUSLY DEVELOPED FOR LEAD, ZINC, AND GOLD. (JAHNS, 1952, P. 90)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE OR USE
1		10.5	TONS	1952	COARSE GRAINED PERTHITE, 80% RECOVERABLE WITHIN 30 FT OF SURFACE

SOURCE OF INFORMATION (RESERVES/POT RESOURCES).. JAHNS, 1952, P. 92-93

COMMENTS (RESERVES/POT RESOURCES).. GREATER RESERVES OF MEDIUM-GRADE FELDSPAR OCCUR FURTHER FROM CENTER OF PEGMATITE BODY IN OUTER INTERMEDIATE ZONE. 10,000 TONS OF FELDSPAR COULD BE HAND SORTED AS NO. 1 GRADE FROM THE 21,500 TONS OF MEDIUM GRADE FELDSPAR ESTIMATED TO BE PRESENT TO A DEPTH OF 30 FT. EVEN THOUGH SAME MATERIAL WOULD YIELD 20,000 TONS OF NO. 2 GRADE MATERIAL. THESE PEGMATITES EXTEND DEEPER THAN 30 FT SO ADDITIONAL RESOURCES ARE PRESNET.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC.

HOST ROCK TYPES..... QUARTZ-MICA SCHIST AND QUARTZ-4ICA-AMPHIBOLE SCHIST WITH EPIDOSITE AND CHLORITE ROCKS;

AGE OF ASSOC. IGNEOUS ROCKS.. PREC.
 IGNEOUS ROCK TYPES..... PEGMATITE DIKES

PERTINENT MINERALOGY..... QUARTZ, ALBITE, PERTHITE, MUSCOVITE AND SCHORL IN PEGMATITE; BIOTITE, GARNET, IRON
 OXIDES

IMPORTANT ORE CONTROL/LOCUS.. SULFIDES SCATTERED THROUGH FELDSPAR AND QUARTZ OF PEGMATITES; SUPERGENE MINERALS
 ALONG FRACTURES IN QUARTZ; FELDSPAR OCCURS WITH PODS OF MASSIVE QUARTZ IN INNER INTERMEDIATE ZONE OF PEGMATITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 FOLIATION AND LAYERING TREND ENE TO E, DIP 30 NW AND SE

SIGNIFICANT ALTERATION:
 IRON OXIDE STAIN MARKS OUTCROPS OF SULFIDES

GENERAL REFERENCES

- 1) JAHNS, R.H. (1952) PEGMATITE DEPOSITS OF THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA.
 ARIZ. BUR. MINES BULL. 162, MIN. TECH. SERIES 46, 105 P., P. 90-93.
- 2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.

RECORD 00421

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030504
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... PINE FLAT

MINING DISTRICT/AREA/SUBDIST. TURKEY CREEK DIST/BRADSHAW MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. UNION A7.

LATITUDE LONGITUDE
34-21-50N 112-20-00W

TWP..... 12N
RANGE.... 01W
SECTION.. 22 27
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 5500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: JUST WEST OF PINE CREEK, 2 MILES E OF GOODWIN; SOUTH OF BIG BUG MESA

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG

MAIN COMMOD..... CU MO
MINOR COMMOD.... AU AG

MAIN ORE MINERALS:
CHALCOITE PYRITE CHALCOPYRITE MOLYBDENITE

MINOR ORE MINERALS:
BARITE, ARSENOPYRITE, SPHALERITE, GALENA, TETAHEDRITE, RUBY SILVER,; MALACHITE, AZURITE, CUPRITE, COPPER
SULFATE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

COPPER PORPHYRY; FISSURE VEINS
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... 3/4 MILE BY 1/2 MILE STOCK

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT-CRET., PREC
HOST ROCK TYPES..... QUARTZ LATITE PORPHYRY; SPUD MOUNTAIN VOLCANICS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT-CRET
IGNEOUS ROCK TYPES..... QUARTZ LATITE PORPHYRY (PINE FLAT INTRUSIVE COMPLEX WITH DACITE PORPHYRY, RHYODACITE PORPHYRY AND MONZONITIC PORPHYRY PHASES)

AGE OF MINERALIZATION..... TERT-CRET

PERTINENT MINERALOGY..... QUARTZ SEAM, ANKERITE; LIMONITE IN GOSSAN; KAOLIN, CALCITE, SELENITE

IMPORTANT ORE CONTROL/LOCUS.. DOMINANT ORE CONTROL IS STRUCTURE AS HIGHEST TOTAL SULFIDE CONTENT IS IN SILICEOUS BRECCIA, SCHIST BRECCIA, HIGHLY FRACTURED ZONES IN SCHIST CLOSE TO INTRUSIVE CONTACTS, AND IGNEOUS BRECCIA, IN THAT ORDER. HIGHEST COPPER VALUES SHOW A STRONG CORRELATION WITH IGNEOUS, SILICEOUS, AND SCHIST BRECCIAS WITHIN THE OUTER POTASSIC ZONE. (SPATZ, 1974, P. 111). CHALCOPYRITE IS DISSEMINATED IN SEAMS AND SPOTS ALONG PINE CREEK BED AND ALSO OCCURS IN FRACTURES AND QUARTZ VEINLETS; SEVERAL SMALL, PIPELIKE BODIES OF BRECCIA CONTAINING CHALCOPYRITE AND MOLYBDENITE OCCUR IN THE STOCK.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

THE AXIS OF AN OVERTURNED ANTICLINE IN PRECAMBRIAN BRECCIAS AND TUFF TRENDS THROUGH THE PINE FLAT AREA. FOLIATIONS TREND N29 E AND DIP 72NW IN PRECAMBRIAN SPUD MOUNTAIN VOLCANICS. THE PINE FLAT INTRUSION WAS APPARENTLY A PASSIVE EMPLACEMENT. FRACTURES IN THE INTRUSION AND ADJACENT PRECAMBRIAN VOLCANICS TREND N-S, N40 E, N50 W WITH STEEP (75-80) DIPS. FRACTURE DENSITY INCREASES IN VICINITY OF SILICEOUS BRECCIA ZONES AND INTRUSION CONTACTS. TWO POST-EMPLACEMENT FAULTS HAVE SEVERAL HUNDRED FEET OF LATERAL DISPLACEMENT; ALONG PINE CREEK A N50 W FAULT HAS ABOUT 200 FT OF LEFT-LATERAL STRIKE-SLIP AND SOUTHWEST OF THE INTRUSION A N80 E FAULT HAS ABOUT 400 FT OF RIGHT-LATERAL DISPLACEMENT (SPATZ, 1974, P. 54-56).

SIGNIFICANT ALTERATION:

ALTERATION IS SEPARABLE INTO PERVASIVE EARLY-STAGE DEUTERIC, A NORMALLY ZONED FRACTURE-CONTROLLED MAIN-STAGE POTASSIC, PHYLIC, AND PROPYLITIC; AND LATE-STAGE, CROSSCUTTING PHYLIC AND PROPYLITIC (SPATZ, 1974, P. XII)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

MINOR SUPERGENE ENRICHMENT (ON RIDGE THE ROCK IS SOFT AND DECOMPOSED AND CONTAINS CHALCOCITE)

COMMENTS (GEOLOGY AND MINERALOGY):

HIGH COPPER ASSAYS OCCUR IN THE INTRUSION BRECCIA IN THE OUTER POTASSIC ZONE, WHICH IN TURN OVERLAPS THE OUTER

MARGIN OF A CENTRAL LOW SULFIDE AND HIGH CHALCOPYRITE PYRITE RATIO ZONE (0.5 TO 1.5). THE PHYLIC ZONE COINCIDES WITH A ZONE OF HIGH FRACTURE DENSITY (SPATZ, 1974, P. XII). RESEMBLES COPPER BASIN OCCURRENCE.

FINE-GRAINED VEIN MOLYBDENITE AGGREGATES OCCUR IN ALMOST EVERY DRILL HOLE IN THE POTASSIC ZONE, GENERALLY WITH CHALCOPYRITE IN QUARTZ, CALCITE, AND PYRITE VEINS. MINOR OCCURRENCES OF MOLYBDENITE WERE FOUND IN THE PHYLIC ZONE AND THE PROPYLITIC ZONE.

MOLYBDENUM VALUES SHOW A CENTRAL HIGH (0.011-0.012% MO) CIRCUMSCRIBED BY AN INTERMEDIATE ZONE (0.007-0.009% MO) GENERALLY CONGRUENT WITH THE HIGH COPPER ZONE. MOLYBDENITE OCCURRENCE IS ESSENTIALLY LIMITED TO THE CENTRAL POTASSIC ZONE.

HIGH GOLD VALUES ARE CIRCUMFERENTIALLY DISTRIBUTED ABOUT A CENTRAL LOW; HIGH SILVER VALUES LIE JUST WEST OF THE CENTER OF THE INTRUSION AND IN THE CENTER OF THE WESTERN LOBE (SPATZ, 1974, P. 95).

GENERAL REFERENCES

- 1) SPATZ, DAVID M. 1974, GEOLOGY AND ALTERATION-MINERALIZATION ZONING OF THE PINE FLAT PORPHYRY COPPER OCCURRENCE, YAVAPAI COUNTY ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 148 P., 68 P. SUPP.
- 2) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP G2-997.
- 3) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P., P. 149-152.
- 4) GREELY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 87.
- 5) BLACET, P.M., 1968, PRECAMBRIAN GEOLOGY OF THE SE 1/4 MOUNT UNION QUADRANGLE, BRADSHAW MOUNTAINS, CENTRAL ARIZONA: STANFORD, CALIF., STANFORD UNIV., PH.D. THESIS, 244 P.
- 6) BLACET, P.M., 1964, GEOLOGIC MAP OF THE SE 1/4 MOUNT UNION QUADRANGLE, YAVAPAI CO., ARIZ.: U.S. GEOL. SURVEY OPEN-FILE REPORT.

RECORD 00422

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030506
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... SCHRUBER MINE
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN DIST.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI
QUAD SCALE QUAD NO OR NAME
1: 0024000 WILHDIT AR17.
LATITUDE LONGITUDE
34-29-30N 112-34-30W
TWP..... 13N
RANGE.... 03W
SECTION.. 21
MERIDIAN. GILA AND SALT RIVER
ALTITUDE.. 5400 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO AU AG

RECORD 00423

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO..... M001101
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... SQUAW PEAK MINE
MINING DISTRICT/AREA/SUBDIST. SQUAW PEAK DIST./BRADSHAW MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI
POSITION FROM NEAREST PROMINENT LOCALITY: 7 MILES S OF CAMP VERDE

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU MO

MAIN ORE MINERALS:
CHALCOPYRITE

MINOR ORE MINERALS:
SPHALERITE; MALACHITE, CHRYSOCOLLA, AZURITE, AND ANKERITE IN OXIDATION ZONE. GEOCHEMICAL TESTS FOUND MINOR AMOUNTS OF GOLD, SILVER, TUNGSTEN, AND RHENIUM.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PORPHYRY COPPER
FORM/SHAPE OF DEPOSIT: STEEP SIDED BOWL

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... MODERATE SULFIDE MINERALIZATION IS EXPOSED IN A NORTH-TRENDING ZONE APPROXIMATELY 1200 FEET LONG AND 800 FEET WIDE. THE 0.1% COPPER "SHELL" IS APPROXIMATELY 4200 FEET LONG IN A NORTH-NORTHWESTWARD DIRECTION, 1900 FEET WIDE IN AN EAST-NORTHEASTWARD DIRECTION, AND 900 FEET DEEP AT THE CENTER OF THE DEPOSIT. LOW GRADE AND LOW TONNAGE.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

UNDERGROUND WORKINGS AT THE SQUAW PEAK MINE CONSTITUTE ABOUT 4160 FEET OF DRIFTS AND ABOUT 200 FEET OF RAISES (FIGURE 7). TWO LEVELS OF DRIFTS KNOWN AS THE MAIN TUNNEL LEVEL AND THE HAULAGE TUNNEL LEVEL WERE DRIVEN AT ELEVATIONS OF 4150 FEET AND 3850 FEET, RESPECTIVELY. THE MAIN TUNNEL LEVEL CONSISTS OF 2175 FEET OF DRIFTS, AND THE HAULAGE TUNNEL LEVEL IS APPROXIMATELY 1985 FEET LONG. (ROE 1976)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	ACC	0.623	TONS	1944-1946	
16 CU	ACC	8.159	LBS		
17 ZN	ACC	0085	LBS		
18 AG	ACC	0.083	OZS		

SOURCE OF INFORMATION (PRODUCTION).. DEPT. MIN. RES. 1962, MO PROSPECTS- AZ.

PRODUCTION COMMENTS.... THE FIRST RECORDED ORE SHIPMENTS WERE IN 1944. PRODUCTION AT THE SQUAW PEAK MINE DURING 1944, 1945, AND 1946 (SQUAW PEAK COPPER MINING CO. FILES) AMOUNTED TO 5.40 TONS OF CONCENTRATE CONTAINING 99.82% MOLYBDENITE AND 36.03 TONS OF CONCENTRATE CONTAINING 22.85% COPPER, 1.92 OUNCES PER TON OF SILVER, AND 0.016 OUNCES PER TON OF GOLD. THESE CONCENTRATES WERE PRODUCED FROM APPROXIMATELY ONE THOUSAND TONS OF ORE, MOST OF WHICH WAS REMOVED FROM RAISES ON THE MAIN TUNNEL LEVEL. (ROE, 1976). R.F.C. SAMPLING IN THE CROSS CUTS BELOW THE STOPE AVERAGE 1.37% CU, 0.287% MOS₂, AND 0.79 OZ AG/T. 420 TONS MINED FROM THE STOPE RAN ABOUT 0.78% MOS₂ AND 1.12% CU. (ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA)

COMMENTS (RESERVES/POT RESOURCES).. GEOLOGIC RESERVES AT SQUAW PEAK ARE ESTIMATED AT 20 MILLION TONS AVERAGING 0.36 PER CENT COPPER WITH SUBSTANTIAL MOLYBDENUM. DRILL HOLE GEOCHEMISTRY HAS DOCUMENTED THE TERMINATION OF MINERALIZATION AT DEPTH, AND THE POTENTIAL FOR ADDITIONAL ECONOMIC BASE METAL DEPOSITS IN THE SQUAW PEAK AREA IS REMOTE. (ROE, 1976, P. IX, 96)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC; CRET-TERT.
HOST ROCK TYPES..... PREC QUARTZ DIORITE TO GRANODIORITE; LARAMIDE QUARTZ MONZONITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. CRET-TERT.
IGNEOUS ROCK TYPES..... QUARTZ MONZONITE PORPHYRY PLUG

AGE OF MINERALIZATION..... CRET.-TERT.

IMPORTANT ORE CONTROL/LOCUS.. DISSEMINATED SULFIDE MINERALIZATION IS SPATIALLY RELATED TO MINERALIZED FRACTURES AND VEINS. THE INTENSITY OF SULFIDE MINERALIZATION IS DIRECTLY RELATED TO THE FRACTURE DENSITY OF THE HOST ROCK.

CHALCOPYRITE NORMALLY OCCURS IN QUARTZ VEINLETS, IN FRACTURE COATING, AND AS DISSEMINATED GRAINS OR MASSES WITHIN SMALL MAFIC-RICH PODS, PARTICULARLY IN THE PRECAMBRIAN GRANODIORITE AND THE CONTACT ZONE BETWEEN THE GRANODIORITE AND THE SQUAW PEAK INTRUSION. BORNITE IS RARE. MOLYBDENITE OCCURS WITH CHALCOPYRITE, MOSTLY IN QUARTZ-SULFIDE VEINLETS. THE STRONGEST MOLYBDENITE MINERALIZATION IS AT THE MARGIN OF THE SQUAW PEAK INTRUSION. PYRITE OCCURS UBIQUITOUSLY WITH CHALCOPYRITE AND MOLYBDENITE IN QUARTZ VEINS, ALONG FRACTURES, AND DISSEMINATED IN MAFIC MASSES.

QUARTZ MONZONITE PORPHYRY IS EXPOSED AS NORTH-WEST-TRENDING DIKES NEAR THE CONTACT OF THE PRECAMBRIAN GRANODIORITE AND THE ASH CREEK METAVOLCANICS. LOCAL BRECCIATION, QUARTZ STOCKWORKS, AND COPPER-BEARING QUARTZ VEINS AND FRACTURES ARE SPATIALLY RELATED TO THESE DIKES IN TWO AREAS ALONG THE GRANODIORITE/METAVOLCANIC

CONTACT.

THE GRANITIC SHEAR ZONES ARE MINERALIZED BY CHALCOPYRITE, PYRITE, MOLYBDENITE, AND SECONDARY COPPER MINERALS FOR UP TO ONE THOUSAND FEET SOUTH OF THE SQUAW PEAK INTRUSION. THE SULFIDE MINERALIZATION IS COMMONLY LOCALIZED BY QUARTZ VEINS UP TO THREE FEET WIDE AND BY FRACTURING WITHIN THE DIKES.

WEAK COPPER AND MOLYBDENUM MINERALIZATION PERSISTS NORTHWESTWARD FROM THE DEPOSIT TO THE CONTACT OF THE GRANODIORITE WITH THE METAVOLCANICS. (ROE, 1976)

LOCAL GEOLOGY**SIGNIFICANT LOCAL STRUCTURES:**

THE DOMINANT STRUCTURAL GRAIN OF THE PRECAMBRIAN GRANODIORITE TRENDS NORTHWEST. MINOR FAULTS AND FRACTURES GENERALLY TEND N. 10 W. TO N. 75 W. AND DIP MODERATELY TO STEEPLY SOUTHWEST. GRANITIC SHEAR DIKES, SHEAR BRECCIA DIKES, AND LATITE PORPHYRY DIKES SURROUNDING THE DEPOSIT TEND NORTH TO N. 25 W. JOINT FRACTURES IN MINERALIZED AND UNMINERALIZED PRECAMBRIAN GRANODIORITE ARE GENERALLY STRONGEST IN A N. 40 W. TO N. 70 W. DIRECTION, WITH SOUTHWESTERLY DIPS TO 60 TO 80°. THE NORTHWEST TRENDING, SOUTHWEST DIPPING ORIENTATION IS MOST STRONGLY REFLECTED IN THE MINERALIZED VEINS AND FRACTURES WITHIN THE SQUAW PEAK DEPOSIT (FIGURE 13). THE AVERAGE MINERALIZED PLANE IN THE DEPOSIT STRIKES N. 33 W. AND DIPS 69° TO THE SOUTHWEST.

QUARTZ MONZONITE PORPHYRY DIKES EMANATING FROM THE SQUAW PEAK INTRUSION TEND ROUGHLY NORTH-SOUTH. THE DEPOSIT ITSELF IS ALSO ELONGATE TO THE NORTH.

A NORTHWEST-TRENDING FAULT WHICH POST-DATES THE SQUAW PEAK INTRUSION CUTS THE DEPOSIT APPROXIMATELY IN HALF (FIGURE 4, IN POCKET). BOTH ALTERATION AND MINERALIZATION ARE STRONGER AT DEPTH ON THE SOUTHWEST SIDE OF THIS FAULT, SUGGESTING THAT THE FAULT HAS LOWERED THE SOUTHWESTERN PORTION OF THE DEPOSIT. (ROE, 1976)

THE POST-MINERALIZATION VERDE FAULT IS A NORTH TO NORTHEAST TRENDING, NORMAL FAULT THAT DISPLACED THE EASTERN SIDE DOWNWARD INTO THE VERDE VALLEY OR GRABEN WITH POSSIBLY OVER 4000 FT OF POST-HICKEY BASALT (POST 13 M.Y.O.) MOVEMENT ACCORDING TO SEISMIC EVIDENCE (COOKSLEY, 1971) (ROE, 1976) P. 54-55

SIGNIFICANT ALTERATION:

A CENTRAL CORE OF QUARTZ-SERICITE AND STRUCTURALLY LOCALIZED QUARTZ-BIOTITE-ORTHOCLASE-SERICITE ALTERATION IS SURROUNDED BY A ZONE OF QUARTZ-SERICITE ALTERATION.

ALTERATION WITHIN THE INNER ZONE IS CHARACTERIZED BY PERVASIVE SILICIFICATION, QUARTZ AND QUARTZ-SULFIDE VEINS, MODERATE TO STRONG SERICITIZATION OF FELDSPARS, SECONDARY BIOTITE MASSES, LOCAL SECONDARY ORTHOCLASE FLOODING, AND LOCAL CHLORITIZATION AND EPIDOTIZATION OF MAFIC MINERALS.

AN INNER ZONE OF PYRITE-CHALCOPYRITE-MOLYBDENITE CONCENTRATION, QUARTZ-SERICITE ALTERATION, AND WEAKLY DEVELOPED SECONDARY BIOTITE-ORTHOCLASE ALTERATION SUB-CONCENTRICALLY SURROUNDS THE SULFIDE-DEFICIENT PORPHYRY STOCK. AN ERRATIC OUTER ZONE OF WEAK PERVASIVE CHLORITIZATION AND VEIN-CONTROLLED QUARTZ-EPIDOTE-CHLORITE-K-FELDSPAR-CALCITE ALTERATION ENVELOPES THE STRONGER ALTERATION AND MINERALIZATION ALONG NORTHWEST-TRENDING PRE-MINERALIZATION FRACTURES. THE ALTERATION AND GEOCHEMICAL ANOMALIES ARE ELONGATE IN A NORTHWESTERLY DIRECTION. (ROE, 1976)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

THE GEOMETRICAL ZONING OF ALTERATION AND MINERALIZATION ASSEMBLAGES AROUND THE SQUAW PEAK INTRUSION SUGGEST THAT THE DEPOSIT DEVELOPED IN RESPONSE TO THE EMPLACEMENT OF THE LARAMIDE (?) PORPHYRY AND ASSOCIATED HYDROTHERMAL ACTIVITY.

THE EXISTENCE OF CHALCOPYRITE, MOLYBDENITE, AND PYRITE WITHIN COMMON VEINS SUGGESTS THAT RELATIVELY CONTINUOUS SULFIDE MINERALIZATION OCCURRED IN A SINGLE PHASE. NO CONSISTENT CROSS-CUTTING VEIN RELATIONSHIPS ARE APPARENT. (ROE, 1976)

COMMENTS (GEOLOGY AND MINERALOGY):

SULFIDE MINERALIZATION AND CRUDELY ZONED ALTERATION ASSEMBLAGES IN THE PRECAMBRIAN GRANODIORITE ARE SPATIALLY ASSOCIATED WITH THE SQUAW PEAK INTRUSION. AN INNER ZONE OF STRONG TO MODERATE SULFIDE MINERALIZATION OCCURS WITH QUARTZ-SERICITE ALTERATION AND LOCAL ORTHOCLASE-BIOTITE ALTERATION. THE INNER ZONE IS SUB-CONCENTRIC AROUND THE RELATIVELY BARREN SQUAW PEAK INTRUSION STOCK. AN OUTER ZONE OF VEIN AND FRACTURE-CONTROLLED QUARTZ-ORTHOCLASE-CHLORITE-EPIDOTE-CALCITE ALTERATION AND SULFIDE MINERALIZATION ENCLOSES AND OVERLAPS THE INNER ZONE.

A BARREN CORE OF SQUAW PEAK QUARTZ MONZONITE IS ENVELOPED BY A CHALCOPYRITE-PYRITE-MOLYBDENITE ASSEMBLAGE WHICH YIELDS OUTWARD TO A PYRITE-CHALCOPYRITE ASSEMBLAGE.

AT THE PERIMETER OF THE AQUAM PEAK INTRUSION A GRADATIONAL CONTACT WITH THE PRECAMBRIAN GRANODIORITE IS ABUNDANTLY MINERALIZED BY UP TO 0.8% COPPER AND 3-4% PYRITE. MOLYBDENITE IS CONCENTRATED IN AREAS OF STRONGER FRACTURING NORTH, SOUTH, AND SOUTHEAST OF THE AQUAM PEAK INTRUSION.

LATERAL AND VERTICAL MINERAL ASSEMBLAGE RELATIONSHIPS SUGGEST THE DEPOSIT IS A MODERATELY TO DEEPLY ERODED REMNANT OF A SMALL PORPHYRY SYSTEM.

THE SULFIDE CONTENT IS RELATIVELY LOW THROUGHOUT THE DEPOSIT. THE PYRITE HALO COMMONLY ASSOCIATED WITH SOUTHWESTERN PORPHYRY DEPOSITS IS NOT EVIDENT AT SQUAM PEAK, WHERE PYRITE SELDOM EXCEEDS TWO PER CENT BY VOLUME. (ROE, 1976)

GENERAL COMMENTS

EXPLORATION ACTIVITY:

ONLY MINOR EXPLORATORY DRILLING WAS UNDERTAKEN FROM 1947 TO 1967. INTERMOUNTAIN EXPLORATION COMPANY DRILLED TWO DIAMOND DRILL HOLES TOTALING 601 FEET FROM THE MAIN TUNNEL LEVEL ABOUT 450 FEET FROM THE PORTAL DURING JUNE AND JULY, 1961. IN AUGUST, 1963, BOYLES BROTHERS DRILLING COMPANY COMPLETED A 723.6-FOOT VERTICAL HOLE FROM THE SURFACE NORTHEAST OF THE MINE. DURING MARCH AND APRIL, 1964, CALLAHAN MINING COMPANY DRILLED AN ANGLE HOLE FROM THE HAULAGE TUNNEL. THE HOLE (FIGURE 7) WAS DRILLED AT 40° TO THE WEST TO A DEPTH OF 1132 FEET.

IN MAY 1967 PHILLIPS PETROLEUM COMPANY OPTIONED THE PROPERTY FROM THE AQUAM PEAK COPPER MINING COMPANY FOR A TERM OF TEN YEARS. PHILLIPS CONDUCTED AN EXPLORATION PROGRAM WHICH INCLUDED 16,206.5 FEET OF DIAMOND CORE DRILLING, 2756 FEET OF ROTARY DRILLING, 43,000 LINE-FEET OF INDUCED POLARIZATION SURVEYS, AND 6500 FEET OF REFLECTION SEISMIC LINES. PHILLIPS TERMINATED THEIR OPTION ON THE PROPERTY IN MAY, 1973, AFTER A TOTAL EXPLORATION EXPENDITURE OF \$269,736.00.

IN AUGUST, 1973, AN OPTION AGREEMENT WAS REACHED BETWEEN THE AQUAM PEAK COPPER MINING COMPANY AND ESSEX INTERNATIONAL, INC., WHICH PERMITTED ESSEX TO EXPLORE THE PROPERTY FOR SIX MONTHS. ESSEX CONDUCTED AN EXPLORATION PROGRAM WHICH YIELDED 5380 FEET OF ROTARY DRILLING. A TEN YEAR LEASE--OPTION AGREEMENT WAS MADE IN FEBRUARY, 1974, WHICH GAVE ESSEX SOLE EXPLORATION RIGHTS WHICH ARE ANNUALLY RENEWABLE UNTIL 1994. ESSEX CURRENTLY (MAY 1975) OWNS EXPLORATION RIGHTS TO 153 UNPATENTED CLAIMS ON THE AQUAM PEAK PROPERTY.

GENERAL REFERENCES

- 1) ROE, ROBERT R., 1976, GEOLOGY OF THE SQUAM PEAK PORPHYRY COPPER-MOLYBDENUM DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 102 P.
- 2) COOKSLEY, J.W. (1971) REFLECTION SEISMIC INVESTIGATION OF SUBSURFACE GEOLOGY EAST OF THE SQUAM PEAK DISTRICT, YAVAPAI COUNTY, ARIZONA, PREPARED FOR PHILLIPS PETROLEUM CO.
- 3) GREELYE, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 142.
- 5) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 6) KIRKEND, HAROLD, ANDERSON, C.A., AND CREASEY, S.C., 1965, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 1942-60: U.S. GEOL. SURVEY BULL. 1182-E, 90 P.
- 7) ARIZ. FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00424

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M001108
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... STARLIGHT
SYNONYM NAME..... BUENA VISTA

MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

TWP..... 023S
RANGE.... 016E
SECTION.. 36
MERIDIAN. GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: ON S.W. SIDE OF MOUNT PACHAN; UPPER SAN DOMINGO WASH PROVIDENCIA
CANYON, PATAGONIA MTS, 13 MI E OF MORRISTOWN

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU AU W

MAIN COMMOD..... W
MINOR COMMOD..... MO CU AU

MAIN ORE MINERALS:
SCHEELITE, POWELLITE

MINOR ORE MINERALS:
PYRITE, HEMATITE, LIMONITE, CHALCOPYRITE, AZURITE, MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... E-SE

DIP OF OREBODY..... 65 NW

COMMENTS(DESCRIPTION OF DEPOSIT):

AT LEAST SIX SCHEELITE BEARING BANDS, EACH 3 OR MORE FEET WIDE BY SOME 500 FT LONG CROP OUT IN AN AREA 300 FT WIDE. SMALLER AREAS OF SIMILAR MINERALIZATION ARE TRACABLE INTERMITTENTLY FOR SOME 3,000 FT EASTWARD ACROSS THE MONSTER CLAIM. (WILSON, 1941, P. 24)

PRODUCTION

YES

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... HORNBLENDE BROTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)

IGNEOUS ROCK TYPES..... MEDIUM GRAINED, LIGHT GREY GRANITE AND FELDSPATHIC PEGMATITIC DIKES CUT VEINS

PERTINENT MINERALOGY..... QUARTZ VEINS, EPIDOTE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE, ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR BODIES OF DISSEMINATED SCHEELITE WITH POWELLITE OCCUR IN BANDS OF STRIPED BROWNISH GARNET-EPIDOTE SCHIST WITHIN BLACK SCHIST; ORE ZONES GENERALLY CONFORM TO SCHISTOSITY; LIMITS TO SCHEELITE-BEARING PORTIONS HAVE INDISTINCT LIMITS.

LOCAL GEOLOGY

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SILICIFIED

GENERAL REFERENCES

- 1) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516 68 P.
- 2) WILSON, E.O., (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P., P. 24
- 3) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE WHITE PICACHO DISTRICT, MARICOPA AND YAVAPAI COUNTIES, ARIZONA: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS
- 4) DALE, V.B., (1961) TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA. U.S. BUR. MINES INF. CIRC. 8078, P. 39
- 5) BELL, G.L., 1947, TUNGSTEN DEPOSITS NEAR MORRISTOWN, MARICOPA COUNTY: U.S. GEOL. SURVEY OPEN-FILE RPT. NO. 384.
- 6) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141, 156, 205.
- 7) A64 FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00425

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M001169
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TUNGSTENA MINE
SYNONYM NAME..... TUNGSTEN

MINING DISTRICT/AREA/SUBDIST. EUREKA DIST. (BAGDAD AREA)

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

POSITION FROM NEAREST PROMINENT LOCALITY: NE PART OF BAGDAD AREA ALONG BOULDER CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT..... W

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
YEAR OF DISCOVERY..... LOCATED ORIGINALLY IN 1932; RELOCATED IN 1945
BY WHOM..... LOCATED ORIGINALLY BY JULIUS COMODE; RELOCATED BY RUSSELL SAMSON
PRESENT/LAST OWNER..... OWNED BY RUSSELL SAMSON (IN 1955); BY BAGDAD COPPER CORP IN 1960.

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... WNW

PRODUCTION

YES

SOURCE OF INFORMATION (PRODUCTION).. ANDERSON ETAL. 1955, P. 97

PRODUCTION COMMENTS.... ABOUT 2,500 TONS OF ORE HAS BEEN MINED FOR USE IN MILL TESTING. EXPLORATORY PROGRAM DROVE AN ADIT DESIGNED TO CROSSCUT THE MOST FAVORABLE SURFACE-EXPOSED ZONE AT A DEPTH OF ABOUT 250 FEET. THE ZONE WAS

ENCOUNTERED AND EXTENSIVELY EXPLORED BY DRIFTS AND CROSSCUTS. FIVE STOPES WERE PREPARED AND MINED UNTIL APPROXIMATELY 15,000 TONS OF STOPE AND DEVELOPMENT ORE, CONTAINING AN AVERAGE OF 0.15 PERCENT WO₃, HAD BEEN PRODUCED. THE ORE WAS TRUCKED TO THE HILLSIDE MINE FOR PILOT PLANT TESTS. THE TESTS, COMPLETED IN SEPTEMBER 1953, RESULTED IN THE PRODUCTION OF 17,000 POUNDS OF CONCENTRATES CONTAINING 63 PERCENT TUNGSTEN TRIOXIDE. A 500-TON PLANT WAS BUILT ON THE PROPERTY AND BEGAN OPERATING ON NOVEMBER 3, 1954. THE PROPERTY CONTINUED TO OPERATE UNTIL THE PRICE OF TUNGSTEN DROPPED. PRODUCTION FROM 1952 THROUGH 1956 WAS 7,449 UNITS OF WO₃ FROM POSSIBLY 50,000 TONS OF ORE. (DALE, 1961 P. 53)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC. 1400 M.Y.
 HOST ROCK TYPES..... LAWLER PEAK GRANITE
 IGNEOUS ROCK TYPES..... QUARTZ VEINS MUNDVITE PHASE APLITE DIKES P. 21

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

WNW STRIKING TUNGSTEN-QUARTZ VEIN SWARM PARALLELS WNW TRENDING APLITE DIKES TO THE NW WHICH ARE RELATED TO LAWLER PEAK GRANITE

COMMENTS (GEOLOGY AND MINERALOGY):
 VEINS CARRYING TUNGSTEN

GENERAL REFERENCES

- 1) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8078, 104 P., P. 53-57.
- 2) ANDERSON, E.H. SCHOLZ, AND J.D. STROBELL, JR. (1955) GEOLOGY AND ORE DEPOSITS OF THE BAGDAD AREA. YAVAPAI COUNTY, ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 278, 103 P., P. 97.
- 3) WILSON, E.O. 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168
- 4) TILTON, G.R., DAVIS, G.L., WETHERILL, G.W., AND ALDRICH, L.T., 1957, ISOTOPIC AGES OF ZIRCON FROM GRANITES AND PEGMATITES: AM. GEOPHYS. UNION TRANS., V. 38, NO. 3, P. 360-371.
- 5) SILVER, L.T., 1966, U-PB ISOTOPE RELATIONS IN PRECAMBRAIN ZIRCONS FROM BAGDAD, ARIZONA (ABS.): GEOL. SOC. AMERICA, PROGRAM ANN. MEETING ROCKY MOUNTAIN SEC., P. 52.
- 6) ALDRICH, L.T., WETHERILL, G.W., AND DAVIS, G.L., 1957, OCCURRENCE OF 1350-MILLION-YEAR-OLD GRANITIC ROCKS IN WESTERN UNITED STATES: GEOL. SOC. AMERICA BULL., V. 68, P. 655-656.
- 7) ALDRICH, L.T., WETHERILL, G.W., DAVIS, G.L., AND TILTON, G.R., 1958, RADIOACTIVE AGES OF MICAS FROM GRANITIC ROCKS BY Rb-Sr AND K-Ar METHODS: AM. GEOPHYS. UNION TRANS., V. 39, P. 1124-1134.

RECORD 00426

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003374
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... TWIN LEDGE PROSPECT
MINING DISTRICT/AREA/SUBDIST. BRADSHAW MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YAVAPAI

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO CU AG AU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

DESCRIPTION OF WORKINGS

UNDERGROUND

PRODUCTION

YES

PRODUCTION COMMENTS.... POSSIBLE 6 T. LOW-GRADE

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... GOVERNMENT CANYON GRANODIORITE

IMPORTANT ORE CONTROL/LOCUS.. IN QUARTZ VEINS CUTTING GRANITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

ORE IN QUARTZ VEIN

GENERAL REFERENCES

- 2) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
- 3) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-997.
 - 4) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
 - 5) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
 - 6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00427

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M003571
COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... U.S. NAVY MINE

MINING DISTRICT/AREA/SUBDIST. COPPER BASIN

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: CONGRESS

TWP..... 13N
RANGE..... 03W
SECTION.. 18
MERIDIAN. GCSR

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

PRODUCTION

NO PRODUCTION

GENERAL REFERENCES

- 2) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPAI COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
- 3) JOHNSTON, W.P. GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH. PHD THESIS (1955)
 - 4) JOHNSTON, W.P. AND LOWELL, J.D., 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON. GEOL., V. 56, P. 916-940.
 - 5) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 141.
 - 6) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
 - 7) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT.
 - 8) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238.
 - 9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
 - 10) GREELEY, M.N., 1978, PROVEN COPPER RESERVES IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, THE PRIMARY COPPER INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 83-87.
 - 11) KRIEGER, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA:

USGS MISC. GEOL. INV. MAP 1-504, SCALE 1:62,500 (1967)

12) KRIEGER, MEDORA W. GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS (1965)

13) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

14) CAMPBELL, M., 1973, A HEAVY MINERAL RECONNAISSANCE OF A PORTION OF THE COPPER BASIN MINING DISTRICT, ARIZONA WITH EMPHASIS ON GOLD: NORTHERN ARIZ. UNIV. M.S. THESIS, 95 P.

15) LAUSEN, C., AND GARDNER, F.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. OF MINES BULL. 122.

16) BLAKE, W.P., 1889, THE COPPER DEPOSITS OF COPPER BASIN, ARIZONA, AND THEIR ORIGIN: AM. INST. MIN. ENG. TRANS., V. 17, P. 479-485.

RECORD 00428

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M003376
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

UPDATED..... 80 02
BY..... WILT, JAN C.

NAME AND LOCATION

DEPOSIT NAME..... WILLIAMS
SYNONYM NAME..... SPRINGTIME LODE

MINING DISTRICT/AREA/SUBDIST. GROOM CREEK DIST./BRADSHAW MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0062500 MOUNT UNION

TWP..... 013N
RANGE.... 002W
SECTION.. 22
MERIDIAN. G&SR

LOCATION COMMENTS: UNCERTAIN LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3

PRODUCTION

YES

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... GOVERNMENT CANYON GRANODIORITE OR UNDIFFERENTIATED GREEN GULCH VOLCANICS.

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
QUARTZ VEINS IN SCHIST

GENERAL REFERENCES

- 4) ANDERSON, C.A., AND BLACET, P.M., 1972, GEOLOGIC MAP OF THE MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-997.
- 5) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126. 11 P.
- 6) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 782, 192 P.
- 7) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

RECORD 00429

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030509
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILY, JAN C.
DATE..... 80 01

NAME AND LOCATION

DEPOSIT NAME..... PRESCOTT AREA

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YAVAPAI CO

QUAD SCALE QUAD NO OR NAME
1: 0048000 PRESCOTT, ARIZ.

LATITUDE LONGITUDE
34-30- N 112-30- W

TWP..... 13N
RANGE.... 02W
MERIDIAN. GILT & SALT R.

ALTITUDE.. 6250 FT

POSITION FROM NEAREST PROMINENT LOCALITY: EXTREME SW CORNER OF PRESCOTT QUAD.

LOCATION COMMENTS: APPROXIMATE LOCATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... MO

MAIN ORE MINERALS:
MOLYBDENITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PREC
HOST ROCK TYPES..... PRESCOTT GRANODIORITE

PERTINENT MINERALOGY..... LARGE QUARTZ VEINS

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
SCATTERED FLAKES OF MOLYBDENITE IN LARGE QUARTZ VEINS

GENERAL REFERENCES

- 1) KRIEGER, MEDORA H., 1965, GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P., ILLUS., TABLES, GEOL. MAPS, P. 105.

RECORD 00430

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030330
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. LA CHOLLA DISTRICT/EASTERN SLOPE OF DOME ROCK MOUNTAINS SOUTH OF QUARTZITE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOME ROCK MINS, ARIZ - CALIF.

LATITUDE LONGITUDE
33-35- N 114-20- W

TWP..... 02N 04N
RANGE.... 19W 20W
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 10 MILES SSW OF QUARTZSITE

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU PB ZN HG MO SB

MAIN COMMOD..... AU AG CU
MINOR COMMOD..... PB ZN HG MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

GOLD PLACER FISSURE VEIN, DISSEMINATED
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SPOTTY

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

MAINLY DRY PLACERS FROM 1860'S TO 1950'S; SEVERAL SMALL MINES & PROSPECTS FOR BASE & PRECIOUS METALS

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PLACER	AU EST	9.464	OZ	186	OKE EST
17		.294	TON	1930-1950	1.13 OZ/T AU 10.6 OZ/T AG, 6.8% CU
18	AU REC	332	OZ	1930-1950	1.13 OZ/T AU
19	AG REC	3.127	OZ	1930-1950	10.6 OZ/T AG
20	CU REC	.02	TONS	1930-1950	6.8% CU
21	HG REC	.116	FL	1908-1914	

PRODUCTION COMMENTS.... PLACERS PRODUCED (FROM 1860'S TO 1950'S) SOME 9464 OZ AU CONTAINING ABOUT 690 OZ. AG; IN 1930'S & 1940'S PRODUCED SOME 294 TONS OF ORE CONTAINING ABOUT 332 OZ AU, 3127 OZ AG, AND 20 TONS OF CU. SOME 116 OR MORE FLASKS OF MERCURY WERE PRODUCED FROM 1908 TO 1914.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES

HOST ROCK TYPES..... SCHIST & GNEISS

IMPORTANT ORE CONTROL/LOCUS.. GOLD PLACERS; SPOTTY & IRREGULAR CU PB ZN AU AG MINERALIZATION MAINLY ALONG FAULTS & FRACTURES, IN QUARTZ VEINS IN METAMORPHIC MESOZOIC SCHIST & GRANITE, SPOTTY DISSEMINATED MERCURY MINERALIZATION WITH MINOR BASE & PRECIOUS METALS IN FISSURE VEINS IN MESOZOIC SCHIST

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTS & FRACTURES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 182 P.
- 2) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 451, 130 P.
- 3) LAUSEN, C., AND GARDNER, E.D., 1927, QUICKSILVER (MERCURY) RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 122
- 4) BANCROFT, H., 1910, NOTES ON THE OCCURRENCE OF CINNABAR IN CENTRAL-WESTERN ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 151-153.

- 5) CROWL, W.J., 1979B GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZONA.
- 6) MCCASKEY, H.D., 1909, THE PRODUCTION OF QUICKSILVER: MINERAL RESOURCES U.S. FOR 1908 PT1: U.S. GEOL. SURVEY, P. 692.
- 7) TURNER, H.W., 1909, THE MINERAL INDUSTRY DURING 1908: QUICKSILVER, P. 743.
- NEARBY AREAS:
- 8) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES
- 9) ROBISON, BRAD A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 10) BALDERMAN, M.A.; LAVIOLETTE, J.W. NORTHWEST-TRENDING, LEFT-SEPARATION FAULTS IN THE SOUTHERN DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: ABSTR. GEOL. SOC. AM., ABSTR. PROGRAMS (USA) (GAAPBC), VOL. 9, NO. 4, P. 384-385, (1977)
- 11) THE GEOLOGICAL SOCIETY OF AMERICA, CORDILLERAN SECTION, 73RD ANNUAL MEETING, SACRAMENTO, CA, APRIL 5-7, 1977.
- 12) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
- 13) EBERLY, L.D., AND T.B. STANLEY JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 14) HAMILTON, WARREN, 1964, GEOLOGIC MAP OF THE BIG MARIA MOUNTAINS NE QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD MAP GQ-350.
- 15) JONES, E.L., JR., 1916B, GOLD DEPOSITS NEAR QUARTZSITE, ARIZONA: U.S. GEOL. SURVEY BULL. 620, P. 45-57.
- 16) KEISER, W.G., 1916, DRY PLACER MINING ON A LARGE SCALE (QUARTZSITE, YUMA COUNTY): MIN. ENGR. WORLD, V. 44, P. 999-1000
- 17) METZGER, D.G., LOELTZ, D.J., AND IRENA, B., 1973, GEOMORPHOLOGY OF THE PARKER-BLYTHE-CIBOLA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., 14PS.
- 18) MILLER, FRED KEY, GEOLOGIC MAP OF THE QUARTZSITE QUADRANGLE, YUMA COUNTY, ARIZONA: USGS GEOL. QUAD. MAP GQ-841, SCALE 1:62,500, SECTIONS, TEXT (1970)
- 19) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168, P. 25-30.
- 20) HARRER, C.M., 1964, RECONNAISSANCE OF IRON RESOURCES IN ARIZONA: U.S. BUR. MINES I.C. 8236.

RECORD 00431

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030332
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. GILA BEND MOUNTAINS DISTRICT/GILA BEND MOUNTAINS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 EAGETAIL MTS, ARIZ.

LATITUDE LONGITUDE
33-15- N 113-2 -

TWP..... 02S
MERIDIAN. GILA & SALT R.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU PB FE F CU MO

MAIN COMMOD..... AU PB FE F
MINOR COMMOD..... CU MO

MAIN ORE MINERALS:
GALEN, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
WULFENITE & LEAD OXIDE SPOTTY AU & CU

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHALLOW SHAFTS WITH DRIFTS & OPEN CUTS (KEITH, 1978, P. 150)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 150

PRODUCTION COMMENTS.... PROSPECTS FOUND IN EARLY 1900'S & WORKED SPARINGLY IN LATER YEARS. NO RECORDED PRODUCTION BUT MAY HAVE PRODUCED A FEW OUNCES OF GOLD

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PRECAMBRIAN
HOST ROCK TYPES..... SCHIST
IGNEOUS ROCK TYPES..... GRANITIC MASSES & ANDESITIC TO GRANITIC DIKES

PERTINENT MINERALOGY..... FLUORITE & QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. IN FRACTURES IN A FAULT ZONE CUTTING PRECAMBRIAN SCHIST WITH CHERT BAND SPOTTY GOLD & COPPER IN WEATHERED ZONES IN QUARTZ LENSES OR SILICIFIED ZONES WITH STRONG IRON OXIDES, IN PRECAMBRIAN SCHIST INTRUDED BY GRANITIC MASSES & ANDESITIC TO GRANITIC DIKES, OR IN GRANITIC MASSES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
IN FRACTURES IN A FAULT ZONE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 150-151.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 146.
- 3) GENERAL AREA:
EBERLY, L.D., AND STANLEY, T.B., JR., 1978 CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 5) SCARBOROUGH, R., AND WILT, J.C., 1979, A STUDY OF URANIUM FAVORABILITY OF CENOZOIC SEDIMENTARY ROCKS, BASIN & RANGE PROVINCE, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, OPEN FILE REPORT, 101 P.
- 6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 7) CHEESMAN, R.J., 1974, THE GEOLOGY OF THE WEBB MOUNTAIN DISTRICT, GILA BEND MOUNTAINS, MARICOPA COUNTY, SOUTHWESTERN ARIZONA: UNPUB. THESIS, NORTHERN ARIZ. UNIV.

RECORD 00432

CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030337
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. DOME (GILA CITY) DISTRICT/NORTHERN GILA MTNS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 FORTUNA, ARIZ.

TWP..... 08S

RANGE..... 21W

MERIDIAN. GILA & SALT R..

ALTITUDE.. 300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH OF GILA RIVER, EAST OF YUMA

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU MBI MD PB

MAIN COMMOD..... AU MBI

MINOR COMMOD..... CU AG PB MD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

PLACER, FISSURE VEINS

DESCRIPTION OF WORKINGS SURFACE

COMMENTS(DESCRIP. OF WORKINGS):
MOSTLY DRY PLACER OPERATIONS

PRODUCTION SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PLACER AU EST	26	OZ	1856-1950		
16 PLACER AG EST	1.2	OZ	1858-1950		

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1976, P. 145

PRODUCTION COMMENTS.... PLACER OPERATIONS WORKED MAINLY FROM 1958 TO ABOUT 1865 AND SPORADICALLY, ON SMALLER SCALE, MAINLY FROM 1931-1943 AND 1946-1950. ESTIMATED & RECORDED PRODUCTION WOULD BE CLOSE TO 26,000 OZ AU WITH ABOUT 1,200 OZ AG. THERE HAS BEEN VERY LITTLE PRODUCTION OF MARBLE OR RECORDED PRODUCTION OF AU OR CU FROM THE SHALLOW PROSPECTS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... SCHIST & QUARTZITE PLACERS IN QUATERNARY GRAVELS OVER PEDIMENT ON TERTIARY SEDIMENT

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1878, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 145.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134B, 236 P., P. 201, 181-189, 202-210.
- 3) OLMSTED, F.H., LOELTZ, O.S., AND IRELAND, B., 1973, GEOHYDROLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227 P., MAPS.
- 4) JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355
- 5) WILSON, E.D., 1961, GOLD PLACERS & PLACERING
- 6) BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER IN ARIZONA: ARIZ. BUR. MINES BULL. 168, P. 18-21.
- NEARBY AREAS:
- R-SUPPLY PAPER 499
- 7) CROWE, B.M., 1973, CENOZOIC VOLCANIC GEOLOGY OF THE SOUTHEASTERMOST CHOCOLATE MOUNTAINS, CALIFORNIA: PH.D. DISSERTATION, SANTA BARBARA, UNIVERSITY OF CALIFORNIA, SANTA BARBARA, 117 P.
- 8) CROWE, B.M., 1978, CENOZOIC VOLCANIC GEOLOGY AND PROBABLE AGE OF INCEPTION OF BASIN-RANGE FAULTING IN THE SOUTHEASTERMOST CHOCOLATE MOUNTAINS, CALIFORNIA: GEOL. SOC. AMERICA BULL., V. 89, P. 251-264.
- 9) CROWE, B.M., CROWELL, J.C., AND KRUMHACH, D., 1979, REGIONAL STRATIGRAPHY, K-AR AGES, AND TECTONIC IMPLICATIONS OF CENOZOIC VOLCANIC ROCKS, SOUTHEASTERN CALIFORNIA: AM. JOUR. SCI., V. 279, P. 186-216.
- 10) DILLON, J., 1975, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERMOST CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 7, P. 311.
- 11) DILLON, J., 1976, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERMOST CALIFORNIA: PH.D. DISSERT., UNIV. CALIFORNIA, SANTA BARBARA, 397 P.
- 12) EBERLY, L.D., AND STANLEY, T.B., JR., 1979, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 13) HALPENNY, L.C., AND OTHERS, 1952, GROUND WATER IN THE GILA RIVER BASIN AND ADJACENT AREAS; ARIZONA - A

SUMMARY U.S. GEOL. SURVEY OPEN FILE REPORT, 224 P., 32 P., 24 FIGS.

14)HAXEL, G.B., 1974, PRE-TERTIARY ROCKS OF THE PICACHO AREA, SOUTHEASTERN CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 6, P. 189-190.

15)HAXEL, G.B., 1977, OROCOPIA SCHIST AND THE CHOCOLATE MOUNTAIN THRUST IN THE PICACHO-PETER KANE MOUNTAIN AREA, SOUTHEASTERNMOST CALIFORNIA: PH.D. DISSERT., SANTA BARBARA, UNIV. CALIFORNIA, SANTA BARBARA.

16)HAXEL, G.B., 1978, THE PELONA-OROCOPIA SCHIST AND VINCENT-CHOCOLATE MOUNTAIN THRUST SYSTEM, SOUTHERN CALIFORNIA, IN MESOZOIC PALEOGEOGRAPHY OF THE WESTERN UNITED STATES: PACIFIC COAST PALEOGEOGRAPHY SYMPOSIUM 2, SOC. ECON. PALEONTOLOGISTS & MINERALOGISTS, P. 453-469.

17)HENSHAW, P.C., 1942, GEOLOGY & MINERAL DEPOSITS OF THE CARGO MICHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA: CALIF. JOUR. MINES & GEOLOGY, V. 38, P. 147-196.

18)MATTICK, R.E., OLMSTED, F.H., AND ZOHDY, A.A.R., 1973, GEOPHYSICAL STUDIES IN THE YUMA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 726-D, 36 P.

19)MILLET, JOHN A. (AND BARNETT, H. FRANK) SURFACE MATERIALS AND TERRAIN FEATURES OF YUMA PROVING GROUND, LAGUNA, ARIZ.-CALIF. QUADRANGLES: EARTH SCI. LAB., U.S. ARMY NATICK LABS., NATICK, MASS., TECH. REP. 71-14-ES, SERIES ES-59, 46 P., FIGS., TABLES, GEOL. MAP, SCALE 1:62,500 (1970)

20)MORTON, P.K., 1962, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE PICACHO PEAK, LAGUNA, OGILBY, GRAYS WELL NE, AND YUMA QUADRANGLES, CALIFORNIA: CALIF. DIV. MINES AND GEOLOGY RECONN. MAPPING FOR STATE GEOLOGIC MAP (EL CENTRO SHEET).

21)OLMSTED, F.H., TERTIARY ROCKS NEAR YUMA, ARIZONA (ABS.): GEOL. SOC. AM. SP. PAPER 101, P. 153-154 (1968)

22)OLMSTED, F.H., 1972, GEOLOGY OF THE LAGUNA DAM 7 1/2 MINUTE QUADRANGLE, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1014, SCALE 1:24,000.

23)ROSS, C.P., GEOLOGY OF THE LOWER GILA REGION, ARIZONA: USGS PROF. PAPER 129, P. 183-197, MAPS (1922); (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 51-52 (1920)

24)ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA, A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE, WITH A GUIDE TO DESERT WATERING PLACES: U.S. GEOL. SURVEY WATER SUPPLY PAPER 198, 237 P.

25)SCHENKER, A.R., 1977, PARTICLE-SIZE DISTRIBUTION OF LATE CENOZOIC GRAVELS ON AN ARID REGION PEDIMENT, GILA MOUNTAINS, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.,

26)WILSON, F.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

RECORD 00433

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030335
RECORD TYPE..... 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

SYNONYM NAME..... ORD FIND DIST.

MINING DISTRICT/AREA/SUBDIST. MIDDLE CAMP DIST/DOME ROCK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOME ROCK MTS, ARIZ. - CALIF.

LATITUDE LONGITUDE
33-38- N 114-19- N

TWP..... 03N 04N
RANGE.... 19W 20W
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: INTERSTATE 10 CROSSES DOME ROCK MTS

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG PB CU ZN AL3 BI SB

MAIN ORE MINERALS:
GOLD, SILVER

MINOR ORE MINERALS:
LEAD, COPPER & ZINC MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

GOLD PLACER, VEINS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS WET & DRY PLACER OPERATIONS, MOSTLY FROM GRAVEL IN PITS, SHAFTS, & TRENCHES BY SMALL OPERATORS. LARGE SCALE OPERATIONS GENERALLY UNSUCCESSFUL. SMALL MINES & PROSPECTS (KEITH, 1978, P. 161)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PLACER AU EST		12	OZ	1860-1974	
16 PLACER AG EST		07		1860-1974	
17 ORE ACC	.866		TONS	1860-1974	0.37 OZ/T AU 0.29 OZ/T AG, 7.04% PR, 1.04% ZN, CU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 161

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
 HOST ROCK TYPES..... DOME ROCK METAMORPHIC FM & MID JURASSIC MIDDLE CAMP QUARTZ MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
 IGNEOUS ROCK TYPES..... DIABLO QUARTZ MONZENITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

STRUCTURAL PLANES IN MESOZOIC METAMORPHICS & GRANITE

GENERAL REFERENCES

- 1) CROWL, W.J., 1979, GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS UNIV. ARIZ., 76 P.
- 2) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 161-162.
- 3) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 451, 130 P., P. 85-886.
- 4) JONES, E.L., JR., 1916, GOLD DEPOSITS NEAR QUARTZSITE, ARIZONA: U.S. GEOL. SURVEY BULL. 620, P. 45-57.
- 5) GARDNER, E.D., AND JOHNSON, C.H., 1934, PLACER MINING IN THE WESTERN UNITED STATES: U.S. BUR. MINES I.C. 6786.
- 6) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA, 6TH ED., REVISED: ARIZ. BUR. MINES BULL. 160, P. 30-31.
- 7) JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355, P. 78-80.
- 8) HEIKES, V.C., AND YALE, C.G., 1913, DRY PLACERS IN ARIZONA, NEVADA, NEW MEXICO, AND CALIFORNIA: U.S. GEOL.

SURVEY MINERAL RESOURCES (1912), PT. 1, P. 254-263.

- 9) HEINEMAN, R.E.S., 1935, SUGARLOAF BUTTE ALUNITE: ENGR. MIN. JOUR., V. 136, P. 138-9.
- 10) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., & WILT, J.C., COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 289.
- 11) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 12) KEISER, W.G., 1916, DRY PLACER MINING ON A LARGE SCALE (QUARTZSITE, YUMA COUNTY): MIN. ENGR. WORLD, V. 44, P. 999-1000.

RELATED AREAS:

- 13) MILLER, F.K., 1970, GEOLOGIC MAP OF THE QUARTZSITE QUADRANGLE, YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-841, SCALE 1:62,500, SECTIONS, TEXT.
- 14) HARKER, C.M., 1964, RECONNAISSANCE OF IRON RESOURCES IN ARIZONA: U.S. BUR. MINES I.C. 8236.
- 14) BALDERMAN, M.A., AND LAVIOLETTE, J.W., 1977, NORTHWEST-TRENDING, LEFT-SEPARATION FAULTS IN THE SOUTHERN DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 4, P. 384-385.
- 15) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, DLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
- 16) EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 17) HAMILTON, WARREN, 1964, GEOLOGIC MAP OF THE BIG MARIA MOUNTAINS NE QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-350.
- 18) METZGER, D.G., LOELTZ, D.J. AND IRELAND, B., 1973, GEOMORPHOLOGY OF THE PARKER-BLYTHE-CIBOLA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., MAPS.
- 19) MILLER, F.K., 1967, STRUCTURE AND PETROLOGY OF THE SOUTHERN PLOMOSA MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. PH.D. DISSERT., STANFORD UNIV., 107 P.
- 20) ROBISON, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.

RECORD 00434

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030345
RECORD TYPE..... 12
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. MOHAWK DISTRICT/MOHAWK MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 MOHAWK MTS. S.E. ARIZ

LATITUDE LONGITUDE
32-34-40N 113-37-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3607290. 253440. +12

TWP..... 08S 09E 10S
RANGE.... 15W 14W 13W
SECTION.. 01 02 03NE
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1400 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB BA AU CU MO F

MAIN COMMOD..... AG PB BA
MINOR COMMOD.... AU CU MO F

MAIN ORE MINERALS:

GALENA, SILIC O4S SILVER, BARITE

MINOR ORE MINERALS:

OXIDIZED COPPER, NICKERITE, FLUORITE WULFENITE MALACHITE, CHRYSOTILITE GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N65W

DIP OF OREBODY..... 80SW

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SMALL PROSPECTS & MINES OWRKD INTERMITTENTLY SINCE EARLY 1900'S. (KEITH, 1978, P. 163)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15	ORE EST	.061	TONS	1900-1974	350 OZ/T AG 18% PB, CU, AU
16	BA EST	.018	TONS	1900-1974	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 163

PRODUCTION COMMENTS.... THE TOTAL PRODUCTION OF BASE & PRECIOUS METALS IN THE MOHAWK DISTRICTS SINCE EARLY 1900'S WOULD BE SOME 61 TONS OF ORE CONTAINING ABOUT 21,346 OZ OF AG, 11 TONS OF PB AND MINOR CU & AU. SOME 18 TONS OF BARITE ORE HAVE BEEN PRODUCED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... GRANITIC GNEISS, & SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. GRANITE PORPHYRY DIKE

PERTINENT MINERALOGY..... LENSING BARITE WITH MINOR FLUORITE; CALCITE & GYPSUM, LIMONITE, CHLORITE

IMPORTANT ORE CONTROL/LOCUS.. IN VEINS IN MESOZOIC GRANITE GNEISS; IN FAULT & BRECCIA ZONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULTS & BRECCIA ZONES

SIGNIFICANT ALTERATION:
SERICITIZATION & SILICIFICATION ABUNDANT

COMMENTS (GEOLOGY AND MINERALOGY):

SMALL AMOUNTS OF WULFENITE HAVE BEEN FOUND WITHIN VUGGY QUARTZ VEINS IN THE SOUTHWESTERN PORTION OF THE MOHAWK MTS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 163
- 3) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY ARIZONA: ARIZ. BUR. MINES.
- 4) EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 5, P. 921-940
- 5) DARTON, N.H., 1933, GUIDEBOOK OF THE WESTERN UNITED STATES, PART F. THE SOUTHERN PACIFIC LINES, NEW ORLEANS TO LOS ANGELES: U.S. GEOL. SURVEY BULL. 845, 304 P., P. 232-4.
- 6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA

RECORD 00435

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030344
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1,2
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN
 DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME DISTRICT

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
 LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
 1: 62500 CASTLE DOME MT; RED BLUFF MT

LATITUDE LONGITUDE
 33- - N 114-10- W

UTM NORTHING UTM EASTING UTM ZONE NO
 3656000. 764000. +11

TWP..... 04S 06S
 RANGE.... 17W 20W
 MERIDIAN. GILA & SALT R; AZ BASE LINE

ALTITUDE.. 1340 FT

POSITION FROM NEAREST PROMINENT LOCALITY: CASTLE DOME MTS, 2 1/2-5 1/2 MILES SW OF CASTLE DOME PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA MN IN CU AU V MO BE SB SE AS U

MAIN COMMOD..... PB AG F BA MN ZN CU SU
 MINOR COMMOD..... N MO BE SB SE AS U

MAIN ORE MINERALS:

ARGENTIFERSUS GALENA, CERUSSITE, & LEAD OXIDES.

MINOR ORE MINERALS:

HYDROZENCITE, SMITHSONITE, WULFENITE, VANADINITE AND MINETITE; CHALCOCITE, COPPER CARBONATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN/SHEAR ZONE

FORM/SHAPE OF DEPOSIT: LENSING VEINS

SIZE/DIRECTIONAL DATA

DEPTH TO TOP	0	
DEPTH TO BOTTOM.....	225	ST
MAX LENGTH.....	5000	FT
MAX WIDTH.....	5-12	FT
STRIKE OF OREBODY....	NNW	
DIP OF OREBODY.....	90	

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

ONE OF THE OLDEST & MOST PRODUCTIVE DISTRICTS IN YUMA CO. POSSIBLY WORKED BY SPANISH OR FRENCH AS EARLY AS LATE 1700. OR EARLY 1800'S. SINCE 1870'S ALMOST CONTINUAL LARGE & SMALL OPERATION FROM NUMEROUS, RELATIVELY SHALLOW SHAFTS OPEN CUTS, & WITH REWORKING OF OLD DUMPS & STOPE FILLS (KEITH, 1978)

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	121	TONS	1870-1974	8.8% PB 4.1 OZ/T AG, .02 OZ/T AU, .03% ZN, .03% CU, F, MN, AU
16	PB EST	10,697	TONS	1870-1974	8.8% PB
17	AG EST	498	OZ	1870-1974	4.1 OZ/T AG
18	AU EST	2	OZ	1870-1974	0.02 OZ/T AU
19	ZN EST	.038	TONS	1870-1974	0.03% ZN
20	CU EST	.036	TONS	1870-1974	0.03% CU
21	F EST	3.3	TONS	1870-1974	
22	MN EST	.4	LTU	1870-1974	
23	PLACER AU EST	7	OZ	1870-1900	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974B P. 116

PRODUCTION COMMENTS.... TOTAL ESTIMATED & RECORDED MINE PRODUCTION OF BASE & PRECIOUS METALS THROUGH 1974 WOULD BE SOME 121,000 TONS OF ORE CONTAINING AT LEAST 10,697 TONS OF LEAD, ABOUT 498,000 OZ AG, 2000 OZ AU, 38 T ZN, 36 T CU. THE PRODUCTION OF BYPRODUCT DUMP & GRAVEL DUMPS WOULD BE SOME 3,300 T. ABOUT 400 LONG TONS OF MN OXIDE ORE HAS BEEN REPORTED AS SHIPPED. PLACER GOLD PRODUCTION, MOSTLY PRIOR TO 1900, IS ESTIMATED AS MORE THAN 7000 OZ

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	MESOZATE
HOST ROCK TYPES.....	METAMORPHIC SHALE IMPUR Limestone & SANDY BEDS
IGNEOUS ROCK TYPES.....	DIORITE DIKES & LATER QUARTZ PORPHYRY DIKES

PERTINENT MINERALOGY..... BANDED GANGUE OF FLUORITE, CALCITE, BARITE & MINOR QUARTZ GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. ALONG FAULT ZONES, FRACTURES & DIKE CONTACTS IN METAMORPHASED MESOZOIC SEDIMENTS
INTRUDED BY A DENSE SWARM OF DIORITE DIKES SLIGHTLY LATER QUARTZ PORPHYRY INTRUSIVE DIKES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONES, FRACTURES STRIKE NNW DIP WSW

SIGNIFICANT ALTERATION:

WALL ROCKS ALTERED TO QUARTZ, CALCITE, & SERICITE WITH SOME CHLORITIZATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

ORE SHOOTS ARE GENERALLY BEST WHERE DIORITE PORPHYRY FORMS ONE OR BOTH OF THE VEIN WALLS. THE VEINS APPARENTLY FAVOR THE GENERAL VICINITY OF THE QUARTZ PORPHYRY INTRUSIONS, BUT ARE POOR WITHIN THEM (WILSON, 1933, P. 83).

GENERAL REFERENCES

- 1) KEITH, STANTON R., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 116-122.
- 2) WILSON, E.D., 1951B, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 98-115
- 3) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 77-105.
- 4) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
5) BLAKE, W.P. (1881A) VANADINITE IN ARIZONA. AMER. JOUR. SCI. 22, 3RD SERIES: 235.
6) BLAKE, W.P., 1881B, ON THE OCCURRENCE OF VANADATES OF LEAD AT THE CASTLE DOME MINES IN ARIZONA: AM. JOUR. SCI., 3RD SER., V. 22, P. 410-411.
7) NEVIUS, J.N., 1912, THE CASTLE DOME LEAD DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 104, P. 854-855
8) ALLEN, M.A., AND BUTLER, G.M., 1921, FLUORSPAR, ARIZ. BUR. MINES BULL. 114
9) THOMPSON, A.P., 1925B, THE CASTLE DOME LEAD DISTRICT OF YUMA COUNTY: ARIZ. MIN. JOUR., V. 9, NO. 7, P. 9-10, 60-62.
10) BURCHARD, E.F., 1934, FLUORSPAR DEPOSITS IN WESTERN UNITED STATES: A.I.M.E. TRANS., V. 109, P. 370-373.
11) HOLT, E.B., 1942, NEW PRODUCTION FROM CASTLE DOME DISTRICT: MIN. JOUR. V. 20, NO. 7, P. 4-5.
12) STEWART, L.A., AND PFISTER, A.J., 1960, BARITE DEPOSITS OF ARIZONA: U.S. BUR. MINES R15651
13) WILSON, E.D., 1951A, FLUORSPAR IN ARIZONA: ARIZ. BUR. MINES CIRCULAR 15.

RECORD 00436

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030322
RECORD TYPE..... X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA) DISTRICT/WELLTON HILLS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 WELLTON, ARIZ.

LATITUDE LONGITUDE
32-35- N 114-09- W

TWP..... 09S 11S
RANGE.... 17W 184

ALTITUDE.. 600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 TO 8 MILES SOUTH OF WELLTON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU AU AG FE V U MO

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
IRON OXIDE, CHRYSOCOLLA, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS, PLACER
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY.... W-NW
DIP OF OREBODY..... 60N

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
MOSTLY SMALL SURFACE PROSPECTS & SHALLOW MINES, OPERATED SPORADICALLY FROM LATE 1800'S, & A FEW MINOR GOLD PLACER OPERATIONS (KEITH, 1978, P. 160)

PRODUCTION
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE, REMARKS
15	ORE EST	.415	TONS		1880-1974	1.9% CU 0.37 OZ/T AU, 0.72 OZ/T AG
16	PLACER AU EST	.028	OZ		1880-1974	
17	PLACER AG EST	.008	OZ		1880-1974	

PRODUCTION COMMENTS.... TOTAL MINE PRODUCTION WOULD BE SOME 415 TONS OF ORE CONTAINING ABOUT 9 TONS CU, 153 OZ AU, 300 OZ AG. ONLY ABOUT 28 OZ AU WITH 8 OZ AG HAVE BEEN REPORTED AS PRODUCED FROM PLACER OPERATIONS

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... SCHIST, GNEISS & GRANITE
IGNEOUS ROCK TYPES..... GRANITE PORPHYRY DIKES & PIGMATE DIKES

PERTINENT MINERALOGY..... COARSELY CRYSTALLINE QUARTZ, WEAKLY BANDED & VUGGY; BROWN, CRYSTALLINE, FERRUGINOUS CALCITE FILLS VUGS.

IMPORTANT ORE CONTROL/LOCUS.. MANY LOW GRADE GOLD-QUARTZ VEINS WITHIN BRECCIATED FAULT ZONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIATED FAULT ZONES STRIKE BETWEEN N 35 W AND W, & DIP FROM 10-85 NW NE

SIGNIFICANT ALTERATION:
IRON & COPPER SULFIDES WERE ORIGINALLY PRESENT & HAVE BEEN DESTROYED BY OXIDATION. DOMINANT WALL ROCK ALTERATION IS INTENSE SERICITIZATION WITH LESS MARKED SILICIFICATION & CARBONITIZATION.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 160.
- 2) WILSON, E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 164-168, 172-176.

- 3) BRYAN, K.. 1925. THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499, P. 62-63, 190, 196-197.
- 4) WILSON, E.D.. 1960. GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
5) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 6) WALLABY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE.

RECORD 00437

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 1030316
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.

NAME AND LOCATION

SYNONYM NAME..... MARCUAR DIST

MINING DISTRICT/AREA/SUBDIST. ELLSWORTH DISTRICT/WESTERN MARCUAR & GRANITE WASH MOUNTAINS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

LAND CLASSIFICATION..... 1

QUAD SCALE QUAD NO OR NAME
1: 0062500 SALOME, ARIZ

LATITUDE LONGITUDE
33-47- N 113-35- W

TWP..... 05N 07N
RANGE.... 13W 15W

ALTITUDE.. 1800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: GRANITE WASH MTNS

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU CU AG W BA FE F U MO MN

MAIN COMMOD..... AU CU AG W BA FE
MINOR COMMOD.... F U MO MN

MAIN ORE MINERALS:

SCHULITE, AU & AG, LEAD & COPPER MINERALS.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VEINS, CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT: LENSING VEINS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL PROSPECTS & MINES SCATTERED THROUGH THE DISTRICT FROM EAST OF COTTONWOOD PASS, THROUGH TANK PASS & ALONG THE LENGTH OF THE GRANITE WASH MOUNTAINS. DISTRICT PROSPECTED & WORKED SPORADICALLY FROM LATE 1800'S FOR GOLD, COPPER, LEAD, & TUNGSTEN (KEITH, 1976, P. 146)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC AMOUNT THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST	14 TONS	1880?-1974	2.75% CU, 0.17 OZ/T AU, 1.05 OZ/T AG, 0.086% PB, 0.03% ZN, 0.07% W OZ, BA, AU PLACER
16 PLACER AU EST	.3 OZ	1880?-1974	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 146

PROD CTION COMMENTS.... TOTAL ESTIMATED & RECORDED PRODUCTION OF MINED BASE & PRECIOUS METALS WOULD BE SOME 18000 TONS OF ORE CONTAINING ABOUT 385 TONS OF COPPER, 2350 OZ OF AU, 14700 OZ AG, 12 TONS PB, 4.5 TONS ZN, 10 TONS W03; SMALL SHIPMENTS OF BARITE ORE HAVE BEEN MADE; GOLD PLACER OPERATIONS PRODUCED SOME 300 OR MORE OZ AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PAL. & PREC
HOST ROCK TYPES..... SCHIST & GNEISS; PALEOZOIC LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS.. LATE CRET
IGNEOUS ROCK TYPES..... GRANITE INTRUSION; DIKES OF DIORITE, ANDESITE, & RHYOLITE

PERTINENT MINERALOGY..... QUARTZ, CALCITE-SCHIEHLITE VEINS, BARITE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1878, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 148, 146.
- 2) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 451, P. 23, 24, 95-104
- 3) CIANCANELLI, E.Y., 1965, STRUCTURAL GEOLOGY OF THE WESTERN EDGE OF THE GRANITE WASH MOUNTAINS, YUMA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.
- 4) MINES HANDBOOK AND COPPER HANDBOOK, 1918, BY W.H. WEED.
GENERAL AREA:
- 5) REHRIG, W.A., AND REYNOLDS, S.J., 1979, GEOLOGIC AND GECHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA, IN PRESS: GEOL. SOC. AMERICA MEMOIR, METAMORPHIC CORE COMPLEX VOLUME.

- 6)REYNOLDS, S.J., 1979, LATE CRETACEOUS-TERTIARY PLUTONISM, METAMORPHISM AND DEFORMATION, WEST-CENTRAL ARIZONA (ABS.): 7TH ANNUAL GEOSCIENCES COLLOQUIUM, UNIV. ARIZ., DEPT. OF GEOSCIENCES, P. 31.
- 7)EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 8)DAMON, P.E., AND OTHERS, 1970, ATOMIC ENERGY COMMISSION GRANT REPORT.
- 9)WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 10)ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00438

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030314
RECORD TYPE..... 12
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER

NAME..... HILT, JAN C
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. MUGGINS DIST/MUGGINS MTS

CONTINENT OR GLOBAL AREA..... PYROMORPHITE, CARNDTITE, TYUYAUNITE, WEEKSITE, VANADINITE, CUPRITE, WULFENITE

COUNTRY CODE..... JS

STATE CODE..... 04

COUNTY..... YUMA

LAND CLASSIFICATION..... 50

QUAD SCALE QUAD NO OR NAME
1: 0024000 WILLTON, ARIZ.

LATITUDE LONGITUDE
32-45- N 114-12- W

TWP..... 07S 08S
RANGE..... 19W 20W
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES NW OF WILLTON, ARIZ.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU U V MOCLY1

MAIN ORE MINERALS:

GOLD, URANSPHANE, AUTUNITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

AU PLACER, QUARTZ-VEINS, BEDDED U.
FORM/SHAPE OF DEPOSIT: HIGH GRADE POCKETS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL PLACER & PROSPECTING OPERATIONS SINCE THE 1960'S (KEITH, 1978, P. 163)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PLACER AU EST		1	OZ	1860-1974	
16 PLACER AG EST		.2	OZ	1860-1974	
17 ORE EST		.1	TONS	1860-1974	0.22 OZ/T AU, AG, CU.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 163

PRODUCTION COMMENTS.... TOTAL ESTIMATED & RECORDED PLACER PRODUCTION WOULD AMOUNT TO SOME 1000 OZ. OF AU, WITH ABOUT 200 OZ. OF AG. MINE PRODUCTION OF BASE & PRECIOUS METAL ORE WOULD NOT AMOUNT TO MORE THAN ABOUT 100 TONS CONTAINING SOME 22 OZ OF AU AND A FEW OZ. OF AG & POUNDS OF CU. NO BENTONITIC CLAY OR URANIUM HAVE BEEN PRODUCED COMMERCIALY.

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. GOLD PLACERS IN WASHES & TERTIARY CEMENTED GRAVELS DERIVED FROM GOLD IN QUARTZ VEINS & PIGMATITE DIKES IN MESOZOIC GNEISS & SCHIST; BENTONITIC CLAY IN OLD UPPER LAKE BEDS; URANIUM IN VOLCANIC TUFF & LACUSTRINE SEDIMENTS

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS. 255 P., P. 207.
- 2) HONEA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
- 3) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 164.
- 4) WILSON, E.D., 1933. GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 218-220.
- 5) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-289, P. 256, 257.
- 6) REYNER, M.L., AND ASHWILL, W.R., 1955, PRELIMINARY RECONNAISSANCE REPORT ON URANIUM OCCURRENCES OF THE YUMA TEST STATION, YUMA COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMMISSION, 17 P.
- 7) REYNER, M.L. AND ASHWILL W.R., 1955, P.R.R. - A-P 302 (RED KNOB CLAIMS), 1 P.
- 8) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 9) OUTERBRIDGE, W.F., M.H. STAATS, R. MEYROWITZ, AND A.H. POMMER (1960) WEEKSITE, A NEW URANIUM SILICATE FROM THE THOMAS RANGE, JUAB COUNTY, UTAH. AMER. MIN. 45: 39-52.
- 10) LANCE, J.F., AND WOOD, P.A., 1958, NEW CIOCENE FOSSIL LOCALITY FROM SOUTHWESTERN ARIZONA (ABS.): GEOL. SOC. AMERICA BULL. 69, NO. 12, P. 1694.
- 11) DAMON, P.E., AND OTHERS, 1968, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC

ENERGY COMM. ANN. PROG. REP. NO. COO-689-100, P. 47.

12)BABCOCK, H.M (AND BROWN S.C., AND HEM, J.D.) 1947 GEOLOGY AND GROUND-WATER RESOURCES OF THE WELLTON-MOHAWK AREA, YUMA COUNTY, ARIZONA: USGS MIMED. REP., 22P., MAPS

13)BABCOCK, H.M. (AND SOURDRY, A.M.) 1948, WELLTON-MOHAWK AREA YUMA COUNTY, ARIZONA: RECORDS OF WELLS, WELL LOGS, WATER ANALYSES, AND MAPS SHOWING LOCATIONS OF WELLS: USGS MIMED. REP., 39 P. (1948).

14)BROWN, R.H. (AND MARSHBARGER, J.W., AND THOMAS, H.E.) 1956, ANALYSIS OF BASIC DATA CONCERNING GROUNDWATER IN THE YUMA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 117 P., ILLUS.

15)DARTON, N.H., 1933, GUIDEBOOK OF THE WESTERN UNITED STATES, PART F. THE SOUTHERN PACIFIC LINES, NEW ORLEANS TO LOS ANGELES: U.S. GEOL. SURVEY BULL. 845, 304 P., P. 232-6.

16)EBERLY, L.D., AND STANLEY, T.B., JR., 1979, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTROY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.

17)KHALAF, J.M., 1951, THE WATER RESOURCES OF THE LOWER COLORADO RIVER BASIN: UNIV. CHICAGO, DEPT. GEOL. RESEARCH PAPER 22, V. 2, 234 P., ILLUS., MAPS.

18)LEE, W.I., 1906, GEOLOGY OF THE LOWER COLORADO RIVER: GEOL. SOC. AM. BULL., V. 17, P. 275-285.

19)METZGER, D.G., 1952, WELLTON-MOHAWK AREA (GROUNDWATER). YUMA COUNTY: USGS OPEN-FILE REP., P. 165-176.

20)METZGER, D.G., 1961, GEOHYDROLOGIC INVESTIGATIONS OF THE LOWER COLORADO RIVER VALLEY: USGS OPEN-FILE REP., 8 P.

21)OLMSTED, F.H., LOELTZ, D.S., AND IRELAND, B., 1973, GEOHYDROLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227P., MAPS.

22)PETERSON, DONALD L. (AND OTHERS) 1967, PRINCIPAL FACTS FOR GRAVITY STATIONS IN THE YUMA AREA, ARIZONA, AND BLYTHE, CALIFORNIA: USGS OPEN-FILE REP.

23)ROSS, C.P., 1922, ROUTES TO DESERT WATERING PLACES IN THE LOWER GILA REGION, ARIZONA: USGS WATER-SUPPLY PAPER 490-C, P. 1-4, 271-315, MAPS.

24)ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA: A GEOGRPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 498, 237 P., MAPS.

25)WOOD, P.A., 1956, A MIOCENE CAMEL FROM WELLTON, YUMA CJUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 37 P. (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 54-55 (1956)

RECORD 00439

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030311
RECORD TYPE..... X2
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. MUGGINS DIST/MUGGINS MTS
CONTINENT OR GLOBAL AREA..... PYROMORPHITE, CARNOTITE, TYUYAMUNITE, WEEKSITE, VANADINITE, CUPRITE, WULFENITE
COUNTRY CODE..... JS
STATE CODE..... 04
COUNTY..... YUMA
LAND CLASSIFICATION..... 50
QUAD SCALE QUAD NO OR NAME
1: 0024000 WILLTON, ARIZ.
LATITUDE LONGITUDE
32-45- N 114-12- W
TWP..... 07S 08S
RANGE.... 19W 20W
MERIDIAN. GILA & SALT R.,
ALTITUDE.. 500 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES NW OF WILLTON, ARIZ.

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG CU U V MOCLY1

MAIN ORE MINERALS:
GOLD, URANSPHANE, AUTUNITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

AU PLACER, QUARTZ-VEINS, BEDDED U.
FORM/SHAPE OF DEPOSIT: HIGH GRADE POCKETS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL PLACER & PROSPECTING OPERATIONS SINCE THE 1950'S (KEITH, 1978, P. 163)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 PLACER AU EST	1	OZ	1860-1974		
16 PLACER AG EST	.2	OZ	1860-1974		
17 ORE EST	.1	TONS	1860-1974		0.22 OZ/T AU, AG, CU.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 163

PRODUCTION COMMENTS.... TOTAL ESTIMATED & RECORDED PLACER PRODUCTION WOULD AMOUNT TO SOME 1000 OZ. OF AU, WITH ABOUT 200 OZ. OF AG. MINE PRODUCTION OF BASE & PRECIOUS METAL ORE WOULD NOT AMOUNT TO MORE THAN ABOUT 100 TONS CONTAINING SOME 22 OZ OF AU AND A FEW OZ. OF AG & POUNDS OF CU. NO BENTONITIC CLAY OR URANIUM HAVE BEEN PRODUCED COMMERCIALY.

GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS.. GOLD PLACERS IN WASHES & TERTIARY CEMENTED GRAVELS DERIVED FROM GOLD IN QUARTZ VEINS & PIGMATE DIKES IN MESOZOIC GNEISS & SCHIST; BENTONITIC CLAY IN OLD UPPER LAKE BEDS; URANIUM IN VOLCANIC TUFF & LACUSTRINE SEDIMENTS

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS. 255 P., P. 207.
- 2) HONEA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
- 3) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 164.
- 4) WILSON, E.D., 1933. GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 218-220.
- 5) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 192, P. 103-159, 202-289, P. 256, 257.
- 6) REYNER, M.L., AND ASHILL, W.R., 1955, PRELIMINARY RECONNAISSANCE REPORT ON URANIUM OCCURRENCES OF THE YUMA TEST STATION, YUMA COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMMISSION, 17 P.
- 7) REYNER, M.L. AND ASHILL W.R., 1955, P. RR. - A-P 302 (RED KNOB CLAIMS), 1 P.
- 8) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 9) OUTERBRIDGE, W.F., M.H. STAATS, R. MEYROWITZ, AND A.H. PJMMER (1960) WEEKSITE, A NEW URANIUM SILICATE FROM THE THOMAS RANGE, JUAB COUNTY, UTAH. AMER. MIN. 45: 39-52.
- 10) LANCE, J.F., AND WOOD, P.A., 1958, NEW CIOCENE FOSSIL LOCALITY FROM SOUTHWESTERN ARIZONA (ABS.): GEOL. SOC. AMERICA BULL. 69, NO. 12, P. 1694.
- 11) DAMON, P.E., AD OTHERS, 1968, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC

ENERGY COMM. ANN. PROG. REP. NO. COO-689-100, P. 47.

12)BARCOCK, H.M. (AND BROWN S.C., AND HEM, J.D.) 1947 GEOLOGY AND GROUND-WATER RESOURCES OF THE WELLTON-MOHAWK AREA. YUMA COUNTY, ARIZONA: USGS MIMED. REP., 22P., MAPS.

13)BARCOCK, H.M. (AND SOURDRY, A.M.) 1948, WELLTON-MOHAWK AREA YUMA COUNTY, ARIZONA: RECORDS OF WELLS, WELL LOGS, WATER ANALYSES, AND MAPS SHOWING LOCATIONS OF WELLS: USGS MIMED. REP., 39 P. (1948).

14)BROWN, R.H. (AND HARSHBARGER, J.W., AND THOMAS, H.E.) 1956, ANALYSIS OF BASIC DATA CONCERNING GROUNDWATER IN THE YUMA AREA. ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 117 P., ILLUS.

15)DARTON, N.H., 1933, GUIDEBOOK OF THE WESTERN UNITED STATES, PART F. THE SOUTHERN PACIFIC LINES, NEW ORLEANS TO LOS ANGELES: U.S. GEOL. SURVEY BULL. 845, 304 P., P. 232-6.

16)EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.

17)KHALAF, J.M., 1951, THE WATER RESOURCES OF THE LOWER COLORADO RIVER BASIN: UNIV. CHICAGO, DEPT. GEOL. RESEARCH PAPER 22, V. 2, 234 P., ILLUS., MAPS.

18)LEE, W.T., 1906, GEOLOGY OF THE LOWER COLORADO RIVER: GEOL. SOC. AM. BULL., V. 17, P. 275-285.

19)METZGER, D.G., 1952, WELLTON-MOHAWK AREA (GROUNDWATER). YUMA COUNTY: USGS OPEN-FILE REP., P. 165-176.

20)METZGER, D.G., 1961, GEOMORPHOLOGIC INVESTIGATIONS OF THE LOWER COLORADO RIVER VALLEY: USGS OPEN-FILE REP., 8 P.

21)OLMSTED, F.H., LOELTZ, D.S., AND IRELAND, B., 1973, GEOMORPHOLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227P., MAPS.

22)PETERSON, DONALD L. (AND OTHERS) 1967, PRINCIPAL FACTS FOR GRAVITY STATIONS IN THE YUMA AREA, ARIZONA, AND BLYTHE, CALIFORNIA: USGS OPEN-FILE REP.

23)ROSS, C.P., 1922, ROUTES TO DESERT WATERING PLACES IN THE LOWER GILA REGION, ARIZONA: USGS WATER-SUPPLY PAPER 490-C, P. 1-4, 271-315, MAPS.

24)ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA: A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 498, 237 P., MAPS.

25)WOOD, P.A., 1956, A MIOCENE CAMEL FROM WELLTON, YUMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 37 P. (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 54-55 (1958)

RECORD 00440

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... US04059
 RECORD TYPE..... K2
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 05

NAME AND LOCATION

SYNONYM NAME..... MINES & CLAIMS INCLUDE: SILVER CLIP OR BLAINE MINE, AMELIA OR GALLO CLAIM,
 REVELATION CLAIM, MENDEVIL CLAIM, CHLORIDE, MANDARIN, & CASH ENTRY CLAIMS, DIVES OR SAXON MINE, PRINCESS MINE,
 HAMBURG CLAIMS, SILVER KING CLAIM, GERONIMO CLAIMS, RED CLUD MINE, BLACK ROCK MINE, PACIFIC & MANDAN CLAIMS,
 SILVER GLANCE CLAIM, PAPAGO CLAIM

MINING DISTRICT/AREA/SUBDIST. SILVER (EUREKA) DISTRICT/SOUTHERN TRIGO MOUNTAINS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

LAND CLASSIFICATION..... // NAT'L WILDLIFE, BLM, NAT'L DEFENSE

QUAD SCALE QUAD NO OR NAME
 1: 0024000 PICACCO ARIZC - CALIF.

LATITUDE LONGITUDE
 33-05-00N 114-335-00W

TWP..... 03S 04S
 RANGE.... 22W 24W
 MERIDIAN. GILA & SALT R., ARIZ. BASELINE

ALTITUDE.. 750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES E. OF COLORADO RIVER

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG AU CU BA F MO V KYN SR FE W CA CO BO CR BE SE SB MN AS
 RD

MAIN COMMOD..... PB AN AG F BA V
 MINOR COMMOD..... AU CU MO V

MAIN ORE MINERALS:
 ARGENTIFEROUS GALENA

MINOR ORE MINERALS:

DUMORTIERITE, KYANITE, SCHEELITE, AU, AG LIMONITE, HEMATITE, PYROLUSITE, CERRUSITE, ANGLESITE, SMITHSONITE, CALAMINE, WULFENITE, VANADINITE, YELLOW LEAD OXIDE, & CERARGYRITE. PRIOR TO OXIDATION, PYRITE AND SPHALERITE WERE DOUBTLESS LOCALLY ABUNDANT & SOME MOLYBDENITE WAS PROBABLY PRESENT (WILSON, 1933, P. 55).

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: SPOTTY, IRREG. & LENSING ORE SHOOT

SIZE/DIRECTIONAL DATA

MAX LENGTH..... 4000 FT
MAX WIDTH..... 30 FT
STRIKE OF OREBODY.... NNW

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

NUMEROUS SMALL MINES WORKED SPORADICALLY FROM ABOUT 1865, BUT MOSTLY FROM 1879 THROUGH 1880'S (KEITH, 1978)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE	EST	52.343	TONS	1879-1977	2.7% PB 30.57 OZ/T AG, 0.018 OZ/T AU, 0.028% ZN, 0.002% CU.
16 PB	EST	1.460	TONS	1879-1977	2.7% PB
17 AG	EST	1600.	OZ	1879-1977	30.5% OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 175

PRODUCTION COMMENTS.... TOTAL ESTIMATED & RECORDED PRODUCTION OF BASE & PRECIOUS METALS WOULD BE AT LEAST SOME 52,343 TONS OF ORE CONTAINING ABOUT 1,460 TONS OF LEAD, 1.6 MILLION OZ. AG, 940 OZ AU, 15 TONS ZN & LESS THAN 1 TON COPPER. THE COLORADO RIVER PLACERS PRODUCED ABOUT 1160 OZ AU & 100 OZ AG. POSSIBLY MINOR TUNGSTEN PRODUCED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... GRANODIORITE STOCKS: VOLCANICS

PERTINENT MINERALOGY..... GANGUE OF QUARTZ, CALCITE, LIMONITE, BARITE & FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. IN SPOTTY, IRREGULAR & LENSING ORE SHOOTS ALONG WELL-DEFINED FISSURE VEINS & AT FISSURE INTERSECTIONS IN CRETACEOUS-TERTIARY VOLCANICS INTRUDED BY LARAMIDE GRANODIORITE STOCKS; GOLD PLACERS IN GRAVELS; COPPER-SILVER-GOLD IN FAULT FISSURE VEINS IN SCHIST

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT FISSURE VEINS & FISSURE INTERSECTIONS; NNW TRENDING FAULTS AFFECTE & SCHISTS.

SIGNIFICANT ALTERATION:

PRONOUNCED CHLORITIZATION & CARBONATIZATION; LESS SERICITIZATION & SILICIFICATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

GALENA IS OF PRIMARY ORIGIN; CERUSSITE & ANGLESITE WERE OXIDIZED IN PLACE, ZONE MOVED DOWNWARD; CERARGYRITE WAS RICHEST AT SURFACE & IN ASSOCIATION WITH MANGANESE DIOXIDE & WAS APPARENTLY A PRODUCT OF SUPERGENE ENRICHMENT. (WILSON, 1933, P. 55)

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 175-179.
- 2) WILSON, E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 235 P., P. 50-72.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS, 193 P., MAPS.
- 4) THOMPSON, A.P., 1925C, THE SILVER MINING DISTRICT IN YUMA COUNTY; ARIZ. MIN. JOUR., V. 9, NO. 16, P. 3-4.
- 5) CROWE, B.M., 1978, CENOZOIC VOLCANIC GEOLOGY AND PROBABLY AGE OF INCEPTION OF BASIN-RANGE FAULTING IN THE SOUTHEASTERNMOST CHOCOLATE MOUNTAINS, CALIFORNIA: GEOL. SOC. AMERICA BULL., V. 89, P. 251-264.
- 6) WILSON, E.O., 1951, SILVER AND EUREKA DISTRICTS, IN ARIZONA ZINC AND LEAD DEPOSITS, PART II: ARIZ. BUR. MINES BULL. 158, P. 83-97.
- 7) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P.
- 8) BLAKE, W.P., 1881, VANADINITE IN ARIZONA: AMER. JOUR. SCI. 22, 3RD SERIES: 235.
- 9) COOPER, J.R., 1962, BISMUTH IN THE UNITED STATES: U.S. GEOL. SURVEY MAP MR-22.
- 10) FOSHAG, W.F., (1919) FAMOUS MINERAL LOCALITIES: YUMA COUNTY, ARIZONA. AMER. MIN. 4: 149-150.
- 11) FLEISCHER, M., (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. ECON. GEOL. 54: 1406-1413.
- 12) HAMILTON, P., 1881, THE RESOURCES OF ARIZONA: 1ST ED., PRESCOTT, ARIZ.; 2ND ED., SAN FRANCISCO, 1883, 3RD ED., 1884.
- 13) MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924. BY W.H. NEED: PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y., 1916, AND W.H. NEED, 1918, 1920.
- 14) RAYMOND, R.W., 1870, STATISTICS OF MINES AND MINING IN THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, U.S. TREAS. DEPT., WASHINGTON, 2ND REP.; ALSO 1872, 3RD REP.; 1873, 4TH REP.; 1873, 5TH REP.; 1874, 6TH REP.; 1875, 7TH REP.; 1877, 8TH REP.
- 15) SILLIMAN, B., (1881), MINERALOGICAL NOTES. AMER. JOUR. SCI. 22, 3RD SERIES: 198-205.
- 16) STEWART, L.A., AND PFISTER, A.J., 1960, BARITE DEPOSITS OF ARIZONA: U.S. BUR. MINES R15651
- 17) CROWE, B.M., 1973, CENOZOIC VOLCANIC GEOLOGY OF THE SOUTHEASTERNMOST CHOCOLATE MOUNTAINS, CALIFORNIA: PH.D. DISSERTATION, SANTA BARBARA, UNIVERSITY OF CALIFORNIA, SANTA BARBARA. 117 P.
- 18) CROWE, B.M., CROWELL, J.C., AND KRUMMENACHER, D., 1979, REGIONAL STRATIGRAPHY, K-AR AGES, AND TECTONIC IMPLICATIONS OF CENOZOIC VOLCANIC ROCKS, SOUTHEASTERN CALIFORNIA: AM. JOUR. SCI., V. 279, P. 186-216.
- 19) DILLON, J., 1975B, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERNMOST CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 7, P. 311.
- 20) DILLON, J., 1976, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERNMOST CALIFORNIA: PH.D., DISSERT., UNIV. CALIFORNIA, SANTA BARBARA, 397 P.
- 21) EBERLY, L.D., AND T.B. STANLEY, 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA:

GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.

22)HAXEL, G.B., 1974, PRE-TERTIARY ROCKS OF THE PICACHO AREA, SOUTHEASTERN CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 6, P. 189-190.

23)HAXEL, G.B., 1977, OROCOPIA SCHIST AND THE CHOCOLATE MOUNTAIN THRUST IN THE PICACHO-PETER KANE MOUNTAIN AREA, SOUTHEASTERNMOST CALIFORNIA: PH.D. DISSERT., SANTA BARBARA, UNIV. CALIFORNIA, SANTA BARBARA.

24)HAXEL, G.B., 1978, THE PELONA-OROCOPIA SCHIST AND VINCENT-CHOCOLATE MOUNTAIN THRUST SYSTEM, SOUTHERN CALIFORNIA, IN MESOZOIC PALEOGEOGRAPHY OF THE WESTERN UNITED STATES: PACIFIC COAST PALEOGEOGRAPHY SYMPOSIUM 2, SOC. ECON. PALEONTOLOGIC & MINERALOGISTS, P. 453-469.

25)JENNINGS, C.W., 1967, GEOLOGIC MAP OF CALIFORNIA, SALTON SEA SHEET: CALIF. DIV. MINES & GEOLOGY.

26)MATTICK, R.E., OLMSTED, F.H., AND ZOHDY, A.A.R., 1973, GEOPHYSICAL STUDIES IN THE YUMA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 726-D, 36 P.

27)MEIZGER, D.G., LOELTZ, D.J., AND IRELAND, B., 1973, GEOPHYDROLOGY OF THE PARKER-BLYTHE-CIBOLA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., MAPS.

28)MORTON, P.K., 1962, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE PICACHO PEAK, LAGUNA, OGILBY, GRAYS WELL NE, AND YUMA QUADRANGLES, CALIFORNIA: CALIF. DIV. MINES AND GEOLOGY RECONM. MAPPING FOR STATE GEOLOGIC MAP (EL CENTRO SHEET).

29)OLMSTED, F.H., LOELTZ, D.S., AND IRELAND, B., 1973, GEOPHYDROLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227 P., MAPS.

SILVER DISTRICT NEARBY AREAS

30)BANCROFT, H., 1911, MINING IN YUMA COUNTY: MINING & ENG. WORLD, V. 35, P. 332.

31)BIDEAUX, R.A., & WILLIAMS, S.A., 1960, SOME NEW OCCURRENCES OF MINERALS OF ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 3, P. 53-56.

32)BUTLER, G.M., 1928, HISTORY OF MINING IN YUMA COUNTY, ARIZONA: MINING JOUR., V. 12, P. 7-9.

33)BUTLER, B.S., & WILSON, E.D., 1938, SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES, BULL. 146 164 P.

34)HENSHAW, P.C., 1942, GEOLOGY & MINERAL DEPOSITS OF THE CARGO MACHADO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA: CALIF. JOUR. MINES & GEOLOGY, V. 38, P. 147-196.

35)HIGGINS, F., 1910, COPPER DEPOSITS OF NORTHERN YUMA COUNTY, ARIZONA: MINING WORLD, V. 33, P. 855-857, 903, 949-951.

36)KING, J.B., 1940, OCCURRENCE OF WULFENITE IN ARIZONA: AMERICAN MINERALOGIST, V. 8, P. 261-262.

37)MINHINNICK, H.J., 1926, SOME BONANZA MINES OF YUMA COUNTY, ARIZONA: PROGRESSIVE ARIZONA, V. 2, P. 25-26, 33.

38)HAXEL, G.B., 1978, THE PELONA-OROCOPIA SCHIST AND VINCENT-CHOCOLATE MOUNTAIN THRUST SYSTEM, SOUTHERN CALIFORNIA, IN MESOZOIC PALEOGEOGRAPHY OF THE WESTERN UNITED STATES: PACIFIC COAST PALEOGEOGRAPHY SYMPOSIUM 2, SOC. ECON. PALEONTOLOGISTS & MINERALOGISTS, P. 453-469.

RECORD 00441

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030336
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... ADAMS MINE GROUP
SYNONYM NAME..... DANDY BOY GROUP, PUZZLER, SILVER DOLLAR 20 CLAIMS WERE HELD BY G.B. ADAMS IN 1933;
OTHER OWNERS HAVE BEEN STEPHENS, HUDSON.

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

DRAINAGE AREA..... 1 1/2 MILES SE OF CASTLE DOME MINE

LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTS.

LATITUDE LONGITUDE
33-01-55N 114-09-22W

UTM NORTHING UTM EASTING UTM ZONE NO
3658300. 76500. 11

TWP..... 04S
RANGE.... 18E
SECTION.. 31 SW
MERIDIAN. GILA & SALT R., AZ BASELINE

ALTITUDE.. 1440 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD V AG F CU

MAIN COMMOD..... PB AG F

MAIN ORE MINERALS:
GALENA

MINOR ORE MINERALS:
 ANGLESITE, CERUSSITE, LEAD OXIDES VANADINITE & WULFENITE, CU OXIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE
 PRESENT/LAST OWNER..... V MO CU

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENS

SIZE/DIRECTIONAL DATA

DEPTH TO TOP	0	FT
DEPTH TO BOTTOM.....	200	FT
MAX WIDTH.....	8	FT
STRIKE OF OREBODY....	S23E	
DIP OF OREBODY.....	70NE	

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE.	200	FT
LENGTH OF WORKINGS.....	500	FT

COMMENTS(DESCRIP. OF WORKINGS):

RELATIVELY SHALLOW SHAFTS WITH MINOR LEVEL WORKINGS. (KEITH, 1978); FOUR SHAFTS ABOUT 200 FEET DEEP; ON PUZZLER CLAIM ON 55 FT LEVEL IS OVER 100 FT OF DRIFT IN VEIN; ON 110 FOOT LEVEL HAS ABOUT 230 FEET OF DRIFTS AND 175 FOOT LEVEL HAS ABOUT 290 FEET OF DRIFTS (WILSON, 1933 P. 101)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVRFRBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15 ORE EST		.240	TONS	1900'S-1952	49 X PB, 18 OZ/T AG, AU, CU
16 LEAD ORE ACC		.125	TONS	1918-1930	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 117; WILSON, 1933, P. 101; WILSON, 1951, P. 113

PRODUCTION COMMENTS.... OPERATED SPORADICALLY MAINLY IN THE PUZZLER MINE, FROM EARLY 1900'S THROUGH ABOUT 1952, PRODUCING SOME 240 TONS OF ORE AVERAGING ABOUT 49% PB, 18OZ AG/T & VERY LITTLE AU & CU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	MESOZOIC
HOST ROCK TYPES.....	SHALE METAMORPHASED TO SLATE SURFACE COVERED BY GRAVELS
IGNEOUS ROCK TYPES.....	DIORITE PORPHYRY DIKES & A FEW SMALL IRREGULAR MASSES OF QUARTZ PORPHYRY

PERTINENT MINERALOGY..... GANGUE OF CRYSTALLINE FLUORITE & BROWN TO BLACK CALCITE

IMPORTANT ORE CONTROL/LOCUS.. IN LENSING FAULT ZONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIATED WALL ROCK; FAULT ZONE STRIKES S23 E, DIPS 70 NE, & IS 7-8 FT WIDE

SIGNIFICANT ALTERATION:

IRON STAINED GAUGE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

IN GENERAL BEST ORE OCCURS WHEN THE FAULT ZONE CONTAINS REDDISH GAUGE

COMMENTS (GEOLOGY AND MINERALOGY):

FLUORITE IS IN GREENISH CRYSTALS UP TO AN INCH IN DIAMETERS; IRREGULAR & SPOTTY MASSES OF COARSELY CRYSTALLINE GALENA, COATED WITH ANGLESITE, CERUSSITE, & LEAD OXIDES, VANADINITE & WULFENITE IN VUGS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 117.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134 P. 101-102.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS - CASTLE DOME DISTRICT, (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 113.
- 4) ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY FILE PAGE.

RECORD 00442

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... #030306
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... BETTY LEE MINE
SYNONYM NAME..... ARIZONA CONSOLIDATED GROUP/OWNED IN 1933 BY SWENSON, COPPER, & MCINTOSH

MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA) DIST./COPPER MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 MOHAWK SW, ARIZ

LATITUDE LONGITUDE
32-30-28N 113-59-41W

TWP..... 11S
RANGE.... 17W
SECTION.. 02NW
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 19 MILES SOUTH OF WELLTON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU FE AG MO V U AU

MAIN ORE MINERALS:
CHRYSOCOLLA MALACHITE

MINOR ORE MINERALS:
HEMATITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT
 STRIKE OF OREBODY.... 552E
 DIP OF OREBODY..... 90

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 700 FT
 LENGTH OF WORKINGS..... 2000 FT

COMMENTS(DESCRIP. OF WORKINGS):

700 FT DEEP SHAFT THAT CONNECTS WITH ABOUT 2000 FT OF WORKINGS ON 7 LEVELS. MORE THAN 100 FT OF TUNNELS (WILSON, 1933, P. 166).

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE	REMARKS
15	EST	.145	TONS		2 % CU	0.3 OZ/T AU, 1.4 OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH 1978, P. 160

PRODUCTION COMMENTS.... FRISCO, BETTY LEE & ELLEN J. MINES PRODUCED SOME 145 TONS ORE AVERAGING SOME 2% CU, 0.3 OZ AU/T AND 1.4 OZ AG/T

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
 HOST ROCK TYPES..... GRANITE

PERTINENT MINERALOGY..... IN LENSING & BANDED, COARSELY CRYSTALLINE, QUARTZ HEMATITE SERICITE VEINS

IMPORTANT ORE CONTROL/LOCUS.. IN VEINLETS & COATINGS ALONG FISSURE ZONE IN MESOZOIC GRANITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

WALL ROCKS SILICIFIED & SERICITIZED

GENERAL REFERENCES

- 1) WALLABY ENTERPRISES, TUCSON, ARIZ, MINING DISTRICT DATA BASE FILE.
- 2) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 160.
- 3) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 166-167.
- 4) NEARBY AREAS & REGIONAL GEOLOGY: BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY

PAPER 499

5)WILSON, E.D.. 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES
6)ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00443

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030342
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... BLACK ROCK MINE
SYNONYM NAME..... BLACK ROCK MG. & REDUCTION CO PENN METALS, INC., RILEY & HOLMES

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ.-CALIF.

LATITUDE LONGITUDE
33-05-28N 114-35-37W

TWP..... 04S
RANGE.... 23W
SECTION.. 11 12 S
MERIDIAN. GILA & SALT R, ARIZ BASELINE

ALTITUDE.. 750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN BLACK ROCK WASH, 4 MI. N.W. COLORADO R

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG MN F

MAIN ORE MINERALS:

SILVER IN ?; ZN CARBONATE & PB CARBONITE OXIDE & SULFATE GALENA

MINOR ORE MINERALS:

LIMONITE PYROLUSITE, SMITHSONITE, WULFENITE, CERUSSITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

4.9% PB, 9.8% ZN, 6.7 OZ AG/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM.....	270	FT
MAX LENGTH.....	600	FT
MAX WIDTH.....	18	FT
STRIKE OF OREBODY....	N65W	
DIP OF OREBODY.....	40NE	

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 420 FT

LENGTH OF WORKINGS..... 900 FT

COMMENTS(DESCRIP. OF WORKINGS):

ONE OF THE EARLIEST DISCOVERIES & PATENTED IN 1880. SHAFT, ADIT AND PIT OPERATIONS (KEITH, 1978)

PRODUCTION

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
1	ORE ACC	1.3	TONS	1941	5.3% PB, 1.7 OZ/T AG, CU, AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 175

PRODUCTION COMMENTS.... RICH PB-AG ORE PRODUCED FROM 1883-1887 BUT AMOUNT UNKNOWN. IN 1941 PRODUCED SOME 1300 TONS OF ORE AVERAGING ABOUT 5.3% PB, 1.7 OZ/T AND MINOR CU & AU. DUMP RETREATED IN 1948-1949 TOGETHER WITH OTHER DUMPS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZIC
HOST ROCK TYPES..... QUARTZITE, SCHIST & GRANITE ROCK SCHIST &

AGE OF ASSOC. IGNEOUS ROCKS.. TERTIARY
IGNEOUS ROCK TYPES..... GRANITE ROCK GRANODIORITE ?

PERTINENT MINERALOGY..... CALCITE, FLUORITE MULENITE; GANGUE OF MNS FE STAINED VUGGY QUARTZ & FINE GRAINED FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. FAULT & VEIN IN SCHIST & QUARTZITE & GRANITIC ROCK; IN LENSING ORE SHOOTS IN

CRETACEOUS OR TERTIARY SCHIST & HORNFILS, INTRUDED & METAMORPHOSED BY GRANODIORITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT

SIGNIFICANT ALTERATION:
SCHIST SHOWS PRONOUNCED SILTICIFICATION, CHLORITIZATION, & CARBONATIZATION FOR SOME 50 FT FROM VEIN

COMMENTS (GEOLOGY AND MINERALOGY):
YELLOW WULFENITE REPORTED FROM THE THIRD LEVEL BY PETE, DOHMS OF NEW JERSEY ZINC

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 175.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 67-69.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS, 193 P., MPAS.
- 4) HAMILTON, P., 1884, THE RESOURCES OF ARIZONA: 3RD ED., SAN FRANCISCO.
- 5) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 6) ATOMIC ENERGY COMMISSION MICROFILM. WILSON, E.D., 1951, P. 93-94.

RECORD 00444

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030339
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... BUCKEYE VEIN GROUP
SYNONYM NAME..... CASTLE DOME, NEW DIL-NEW CHANCE NO. 1, LADY EDITH & YUMA - NEW CHANCE NO. 4, AND BIG
DOME-DUSTY NO. 4; FORMERLY PARTLY COVERED BY HOPKINS, NORMA, CALEDONA, WILLIAM PENN, & MILLER; OWNERS MILLER &
NAGLE, MILLER & HOPKINS, CASTLE DOME MG & SMTG CO., GONDOLFO & SANQUINETTI, DE LUCE, & NUMEROUS LATER OPERATORS
& LESSEES

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTS, AZ

LATITUDE LONGITUDE
33-02-30N 114-10-30W

UTM NORTHING UTM EASTING UTM ZONE NO
3659250. 763850. +11

TWP..... 04S
RANGE.... 19W
SECTION.. 25 SE, 36 NE-SE
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1340 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE RE SB

MAIN COMMOD..... PB AG F BA
MINOR COMMOD..... V MO ZN AU CU AS SE RE SB

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, FLUORITE

MINOR ORE MINERALS:
WULFFENITE, ANGLESITE, CERUSSITE, LEAD OXIDES, HYDROZINCITE, SMITHSONITE, MIMETITE, VANADINITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: LENSING & BRANCHING VEIN

SIZE/DIRECTIONAL DATA
DEPTH TO TOP 0 FT
DEPTH TO BOTTOM..... 200 FT
MAX LENGTH..... 5000 FT
MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... S25E
DIP OF OREBODY..... 70W

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 250 FT
LENGTH OF WORKINGS..... 5000 FT

COMMENTS(DESCRIP. OF WORKINGS):
EXTENSIVE STOPING OF ORE SHOOTS DOWN TO AT LEAST 250 FT FROM NUMEROUS INCLINE SHAFTS. CASTLE DOME CLAIM PATENTED IN 1876. MOST MINING DONE PRIOR TO 1890 BUT OLD FILLS & DUMP REWORKED LATER FOR LEAD-SILVER & FLUORSAPR. IN 1930, THE MINES ON THE BUCKEYE VEIN WERE ALL IDLE & THEIR SURFACE EQUIPMENT MOSTLY DISMANTLED. (WILSON, 1933, P. 86, 96.) WORKINGS ON THE BUCKEYE VEIN, WHICH IS TRACEABLE MORE OR LESS CONTINUOUSLY FOR 5,000 FEET AND IS FROM A FEW INCHES TO SEVERAL FEET WIDE, INCLUDE: 1)THE CASTLE DOME CLAIM (PATENTED IN 1876) WITH 7 SHAFTS FROM 40 TO 191 FEET DEEP, 2)THE NEW DIL AND LADY EDITH CLAIMS WITH SEVERAL SHALLOW CUTS AND 5 SHAFTS FROM 75 TO 600 FEET DEEP ON THE INCLINE AND SOME OF THESE CONNECT WITH EXTENSIVE STOPES ABOVE THE 300 FOOT LEVEL. PRIOR TO 1880, ACCORDING TO BLAKE, 1880, THE HOPKINS & NORMA GROUND (NOW THE NEW DIL AND LADY EDITH) WAS STOPED OUT CONTINUOUSLY FOR A DISTANCE OF 1,000 FEET AND TO A DEPTH OF 200 TO 250 FEET, 3)THE BIG DOME CLAIM WITH 4 SHAFTS FROM 180 TO 225 FEET DEEP WITH GOOD ORE EXTRACTED FROM STOPES CONNECTING THE NORTHERNMOST THREE ABOVE THE 200 FOOT LEVEL, 4)ADDITIONAL CLAIM NAMES INCLUDE THE HOPKINS, NORMA, YUMA, RAILROAD, POCAHONTAS, CALEDONIA, WILLIAM PENN, AND MILLER.

PRODUCTION
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1	ORE ACC	.850	TONS	1871	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 119; WILSON, 1951, P. 110

PRODUCTION COMMENTS.... BUCKEYE VEIN GROUP CONTRIBUTED A MAJOR SHARE OF TOTAL PRODUCTION SINCE BEFORE 1870. BUCKEYE VEIN WAS WORKED BEFORE 1870, BUT ITS TOTAL PRODUCTION IS UNKNOWN (WILSON)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC

HOST ROCK TYPES..... SHALE

IGNEOUS ROCK TYPES..... LARGE DIORITE PORPHYRY DIKES & SMALLER QUARTZ PORPHYRY DIKE

PERTINENT MINERALOGY..... LOCALLY ABUNDANT FLUORITE AS IN THE BIG DOME - DUSTY NO. 4 CLAIM, GANGUE OF VEINS CONSISTS OF VARICOLORED FLUORITE, CALCITE, BARITE, & MINOR QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. VEINS BEST DEVELOPED NEAR OR ON CONTACT OF TWO TYPES OF DIKES; IRREGULAR & DISCONTINUOUS DRESHOOTS, POSSIBLY RELATED TO CROSS FRACTURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

DISCONTINUOUS DRESHOOTS POSSIBLY RELATED TO CROSS FRACTURES

SIGNIFICANT ALTERATION:

VEIN WALL ROCKS SHOW PRONOUNCED ALTERATION TO QUARTZ, CALCITE, & SERICITE; SMALL PYRITE METACRYSTS, MORE OR LESS ALTERED TO LIMONITE ARE PRESENT. THE SHALES SHOW SOME CHLORITIZATION.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 119.
- 2) WILSON, E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 95-96.
- 3) WILSON, E.O., 1951, ARIZONA ZINC AND LEAD DEPOSITS-CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES B 11. 158, P. 110-111.
- 4) BLAKE, W.P., 1890, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
- 5) BLAKE, W.P., 1881B, ON THE OCCURRENCE OF VANADATES OF LEAD AT THE CASTLE DOME MINES IN ARIZONA: AM. JOUR. SCI., 3RD SER. V. 22, P. 410-411.
- 6) NEVIUS, J.N., 1912, THE CASTLE DOME LEAD DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 104, P. 854-855.
- 7) ARIZONA BUREAU OF GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00445

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
 RECORD NO..... M030318
 RECORD TYPE..... 12
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER
 NAME..... WILT, JAN C.
 DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... CASTLE DOME MINE GROUP
 SYNONYM NAME..... SEVERAL CLAIM GROUPS & INDIVIDUAL MINES WITH CHANGING NAMES, & OWNERS OR OPERATORS,
 INCLUDING FLORA TEMPLE, RUCKEYE VEIN GROUP, SENDRA GROUP, LITTLE DOME, HULL OR RTALTO GROUP, CLEVELAND-CHICAGO
 GROUP, & LA COLORADO OR LINCOLN GROUP. MAJOR OWNERS & OPERATORS INCLUDED POLHAMUS & CO., MILLER & NAGEL, MILLER
 & HOPKINS, CASTLE DOME MG. & SMTG. CO., GONDOLFO & SANGNINETTI, DELUCE, MODESTI, CASTLE DOME MG. & MLLG. CO.,
 VANWAGNER, DOME EXPLORATION CO., REORGANIZED UNITED MINES CO., HAACK, HULL, DOME LEASING CO., ARIZONA LEAD CO.,
 JOPLIN LEAD CO., WALL, & DESERT LEAD CO.

CONTINENT OR GLOBAL AREA..... WULFENITE, ANGLESITE CERUSSITE & LEAD OXIDES HYDROZINCITE, SMITHSONITE, MINETITE
 VANADINITE

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
 1: 0062500 CASTLE DOME MTNS, ARIZ

LATITUDE LONGITUDE
 33-02-28N 114-10-30W

UTM NORTHING UTM EASTING UTM ZONE NO
 3659250. 763850. 411

TWP..... 04S 04S 05S
 RANGE.... 19W 18W 19N
 SECTION.. 24 25 36 30 31 01
 MERIDIAN. GILA & SALT R., AZ. BASELINE

ALTITUDE.. 1340 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 40 KM FROM DOME, 35 KM E OF RED CLOUD

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE BE SB

MAIN COMMOD..... PB AG F BA
 MINOR COMMOD.... V MO ZN AU CU

MAIN ORE MINERALS:
 ARGENTIFEROUS GALENA

EXPLORATION AND DEVELOPMENT
 STATUS OF EXPLOR. OR DEV. 4
 PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENSING VEINS; SHEETLIKE MASSES & IRREGULAR VEIN-LIKE BUNCHES

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 200-350 FT

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

OPEN CUTS & EXTENSIVE STOPING FROM NUMEROUS SHAFTS. RELICT WORKINGS, TRAILS, & SLAG HEAPS SUGGEST EARLY MARK BY SPANJARDS & OR FRENCH, MINERS IN EARLY 1700'S OR EARLY 1800'S. MAIN WORKINGS DATE FROM ABOUT 1863 & HAVE CONTINUED ON LARGE & SMALL SCALE ALMOST YEARLY AT LEAST THROUGH 1974. (KEITH, 1978 P. 118)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE, REMARKS
15	ORE EST	106	TONS		1863-1974	10 % PB, 5 OZ/T AG, AU, CU, ZN
16	F EST	3.3	TONS		1863-1974	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 118

PRODUCTION COMMENTS.... TOTAL ESTIMATED & RECORDED PRODUCTION OF BASE & PRECIOUS METALS FROM PRIMARY MINING & REWORKING OF DUMPS & OLD STOPE FILLS WOULD AMOUNT TO 106,000 TONS OF ORE AVERAGING ABOUT 10% PB, 5 OZ AG/T, & MINOR AU, CU & ZN. BYPRODUCT DUMP & GRAVEL FLUORSPAR PRODUCED IS ESTIMATED AT SOME 3,300 TONS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
 HOST ROCK TYPES..... CLAY SLATES METAMORPHOSED TO MICA SCHISTS

AGE OF ASSOC. IGNEOUS ROCKS.. PROBABLE LARAMIDE
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY; QUARTZ PORPHYRY DIKES

PERTINENT MINERALOGY..... BANDED WITH VARICOLORLED CRYSTALLINE FLUORITE, BARITE, CALCITE, OCCASIONAL GYPSUM & VEINS QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. VEINS IN ANDESITE INTRUSION; IN LENSING VEINS ALONG FAULT ZONES & SPLITS CUTTING ALONG CONTACTS OF MESOZOIC SHALE, SLATE, & LIMESTONE, WITH SWARMS OF INTRUSIVE DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES & MASSES OF PROBABLE LARAMIDE AGE, VEINS & MINERALIZATION DEVELOPED BEST WHERE CLOSELY ASSOCIATED WITH DIORITE PORPHYRY DIKES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

WALL ROCKS HAVE BEEN ALTERED TO QUARTZ & SERICITE WITH SOME CHLORITIZATION & WEAK PYRITIZATION OF THE SEDIMENTARY BEDS.

COMMENTS (GEOLOGY AND MINERALOGY):

BRIGHT LEMON YELLOW WULFENITE; SMALL-BRILLIANT-WELLFORMED; UP TO 1 CM IN SIZE; PROFUSELY SCATTERED OVER ETCHED CRYSTALS OF ANGLESITE; FIRST & SECOND ORDER PYRAMIDS & LARGE BASE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 119-121, 21-26.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P.
- 3) WILSON, E.D., 1951B, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY) ARIZ. BUR. MINES BULL. 158, P. 98-115, P.
- 4) ALLEN, M.A., AND RUTLER, G.M., 1921, FLUORSPAR: ARIZ. BUR. MINES BULL. 114, P. 6,7.
- 5) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN
- 6) BLAKE, W.P., 1881, VANADINITE IN ARIZONA. AMER. JOUR. SCI, 22, 3RD SERIES: 235.
- 7) BLAKE, W.P., 1881B, ON THE OCCURRENCE OF VANADATES OF LEAD AT THE CASTLE DOME MINES IN ARIZONA: AM. JOUR. SCI., 3RD SER., V. 22, P. 410-411
- 8) BURCHARD, E.F., 1934, FLUORSPAR DEPOSITS IN WESTERN UNITED STATES, A.I.M.E. TRANS., V. 109, P. 370-373
- 9) FOSHAG, W.F., (1919) FAMOUS MINERAL LOCALITIES: YUMA COUNTY, ARIZONA. AMER. MIN. 4: 149-150.
- 10) HOLT, E.N., 1942, NEW PRODUCTION FROM CASTLE DOME DISTRICT: MIN. JOUR. V. 20, NO. 7, P. 4-5
- 11) NEVIUS, J.N., 1912, THE CASTLE DOME LEAD DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 104, P. 854-855
- 12) THOMPSON, A.P., 1925B, THE CASTLE DOME LEAD DISTRICT OF YUMA COUNTY: ARIZ. MIN. JOUR., V. 9, NO. 7, P. 9-10, 60-62.
- 13) STEWART, L.A., AND PEISTER, A.J., 1960, BARITE DEPOSITS OF ARIZONA: U.S. BUR. MINES R15651
- 14) WILSON, E.D., 1951A FLUORSPAR IN ARIZONA: ARIZ. BUR. MINES CIRCULAR 15
- 15) ANTHONY, J.W., 1977, FILE PAGES FOR MINERALOGY OF ARIZONA, UNIV. OF ARIZ. PRESS, TUCSON
- 16) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZONA BUREAU OF MINES BULL. 180, P. 200
- 17) VANALSTINE, R.F., AND MOORE, R.T., 1969, FLUORSPAR, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 354.
- 18) ARIZONA BUREAU OF GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00446

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... #030320
COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... CHLORIDE, MANDARIN & CASH ENTRY CLAIMS
SYNONYM NAME..... HELD IN 1933 BY NEAL MINING CO.

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ. - CALIF.

LATITUDE LONGITUDE
33-06-30N 114-01-30W

TWP..... 04S
RANGE.... 22W
SECTION.. 06 07
MERIDIAN. GILA & SALT R., ARIZ BASELINE

ALTITUDE.. 800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 2 MILES E OF RED CLOUD MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN MO CU F BA MN AS V

MAIN ORE MINERALS:
BARITE, FLUORITE

MINOR ORE MINERALS:
GALENA, YELLOW LEAD OXIDE, WULFENITE, SMITHSONITE, CERUSSITE, CHRYSOCOLLA, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 5 FT
 STRIKE OF OREBODY.... N10W
 DIP OF OREBODY..... 65SW

COMMENTS(DESCRIPTION OF DEPOSIT):

THE CHLORIDE NO. 1 CLAIM CONTAINS A 3-5 FT THICK VEIN IN A FAULT (N10W, 60-70 SW, 35-55 FT THROW). ON THE MANDARIN CLAIMS A NW TRENDING FAULT ZONE CONTAINS A NARROW FLUORITE-BARITE-CALCITE VEIN. THE CASH ENTRY CLAIM CONTAINS VEINLETS OF MANGANIFEROUS CALCITE & OF FLUORITE & NARROW FISSURES LINED WITH VANADINITE.

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

MANDARIN CLAIMS PROSPECTED BY SEVERAL SHALLOW WORKINGS; CASH ENTRY CLAIM PROSPECTED BY A SHORT TUNNEL (WILSON, 1933, P. 61-62).

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1933, P. 61

PRODUCTION COMMENTS.... SO FAR AS KNOWN NO ORE HAS BEEN PRODUCED (AS OF 1933)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
 HOST ROCK TYPES..... TRACHYTIC TO ANDESITIC LAVAS, TUFFS & BRECCIAS; GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
 IGNEOUS ROCK TYPES..... TRACHYTIC TO ANDESITIC LAVAS, TUFFS & BRECCIAS; GRANITE

PERTINENT MINERALOGY..... FINELY CRYSTALLINE QUARTZ & FLUORITE CUT BY BARITE & VEINLETS OF CALCITE; LIMONITE STAINED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

EXTENSIVELY FAULTED & FRACTURED; MAJOR FAULTS STRIKE N6NW, WITH MINOR FAULTS IN OTHER DIRECTIONS. THE PRINCIPAL JOINTING IN THE GRANITE STRIKES 570W & DIPS STEEPLY SOUTHEAST.

GENERAL REFERENCES

- 1) WILSON; E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 60-62.
- 2) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00447

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030333
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... CLEVELAND-CHICAGO GROUP
SYNONYM NAME..... NEW CLEVELAND, BIG JIM HOPE, RUBY NO. 1 & NO. 2; OWNERS HODGE, DE LUCE, HAACK,
YOUNG, MAYHEW MG. CO., CASTLE DOME MG. CO., K&W MG. CO., CHILDRESS & WRIGHT

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS. ARIZ

LATITUDE LONGITUDE
33-02-45N 114-04-50W

UTM NORTHING UTM EASTING UTM ZONE NO
3659750. 765850. +11

TWP..... 04S
RANGE.... 18W
SECTION.. 30 SW 31 NW
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1440 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3600 FT EAST OF TEMPLE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO AN AU CU AS SE BE AB

MAIN COMMOD..... PB AG F BA

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... V MO ZN AU CU AS SE BE SB

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 350 FT

MAX LENGTH..... 1400 FT

MAX WIDTH..... 3 FT

STRIKE OF OREBODY.... S30E

DIP OF OREBODY..... 80SW

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 170 FT

COMMENTS(DESCRIP. OF WORKINGS):

SERIES OF RELATIVELY SHALLOW SHAFTS & STOPS DOWN AT LEAST 300 FT. LARGELY WORKED OUT BUT STOPE FILL & DUMPS REWORKED IN EARLY 1930'S & LATE 1940'S & AGAIN IN 1966-1967 (KEITH, 1978, P. 119). WORKINGS ON THE CLEVELAND - CHICAGO VEIN INCLUDED 2 SHAFTS 170 AND 130 FEET DEEP ON THE CLEVELAND CLAIM AND 1 SHAFT 100 FEET DEEP ON THE CHICAGO CLAIM AND SEVERAL SHALLOWER HOLES. A CONSIDERABLE PORTION OF THE VEIN ABOVE THE HUNDRED FOOT LEVEL APPEARED TO HAVE BEEN STOPED PRIOR TO 1930. FROM 1913 TO 1930 THE PROPERTY WAS PRACTICALLY IDLE, EXCEPT FOR A LITTLE REWORKING OF THE DUMPS. IN 1930 THE SURFACE EQUIPMENT HAD LONG BEEN DISMANTLED (WILSON, 1933, P. 101).

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	2	TONS		20% PB, 5 OZ AG/T, ZN, CU, AU

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 119

PRODUCTION COMMENTS.... TOTAL PRODUCTION WOULD BE OVER 2000 TONS OF 20% PB AND 5 OZ AG/T. SOME MINOR ZN, CU & AU RECOVERED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC

HOST ROCK TYPES..... WELL BEDDED, STEEPLY DIPPING SHALE & IMPURE LIMESTONE.

IGNEOUS ROCK TYPES..... DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES

PERTINENT MINERALOGY..... GANGUE OF CRYSTALLINE & BANDED CALCITE, FLUORITE, & MINOR BARITE

IMPORTANT ORE CONTROL/LOCUS.. IN A LENSING FISSURE VEIN UP TO 3 FEET & AT LEAST 1400 FT LONG; VEIN IS IN SLATE AT NORTHWESTERN END, WITH A DIKE OF QUARTZ PORPHYRY NEAR THE FOOTWALL, BUT FARTHER SOUTHEAST, IT CUTS ON LIES NEAR A DIKE OF DIORITE PORPHYRY.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURE THAT DIPS ABOUT 60 SW

COMMENTS (GEOLOGY AND MINERALOGY):
MOST OF OUTCROP CONCEALED BY GRAVEL; BARITE LATER THAN FLUORITE

GENERAL REFERENCES

- 1) KEITH, STANTON, B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY. BULL. 192, P. 119.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 100-101.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS -- CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 112-113.
- 4) ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

RECORD 00448

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030329
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 05

NAME AND LOCATION

DEPOSIT NAME..... COLORADO GROUP OR LINCOLN MINE GROUP
SYNONYM NAME..... MODFSTI, LAGUNA, HUDSON

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS, ARIZ

LATITUDE LONGITUDE
33-00-15N 114-10-07W

UTM NORTHING UTM EASTING UTM ZONE NO
3655200. 764560. +11

TWP..... 05S
RANGE..... 19W
SECTION.. 12 EC
MERIDIAN. GILA & SALT R, AZ BASELINE

ALTITUDE.. 1300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTHWARD FROM UNION SHAFT

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE BE SB

MAIN COMMOD..... PB AG F BA
MINOR COMMOD..... V MO ZN AU CU AS SE BE SB

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA, PARTLY OXIDIZED GALENA

MINOR ORE MINERALS:
COPPER STAINING

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: LENSING

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SPOTTY BUNCHES & POCKETS

DEPTH TO BOTTOM..... 200 FT

MAX WIDTH..... 1-8 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

STOPING OPERATIONS FROM SHAFTS IN LATE 1800'S INTO EARLY 1900'S AND FILL & DUMPS REMORKED IN THE LATE 1940'S
(KEITH, 1978 P. 120). SURFACE EQUIPMENT HAD BEEN DISMANTLED PRIOR TO 1930 (WILSON, 1933, P. 102)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	1.4	TUN	1800S-1950S	43 % PB, 38 OZ. AG/T, F

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978 P. 120

PRODUCTION COMMENTS.... TOTAL ESTIMATED AND RECORDED PRODUCTION WOULD BE SOME 1900 TONS OF ORE AVERAGING ABOUT 43%
PB AND 38 OZ AG/T. SOME FLUORSPAR ALSO SHIPPED

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
HOST ROCK TYPES..... SHALE & LIMESTONE
IGNEOUS ROCK TYPES..... DIORITE PORPHYRY DIKES

PERTINENT MINERALOGY..... GANGUE OF CALCITE, FLUORITE, & MINOR BARITE

IMPORTANT ORE CONTROL/LOCUS.. VEINS ALONG FISSURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FISSURES

SIGNIFICANT ALTERATION:

WALL ROCKS SHOW STRONG SILICIFICATION & SERICITIZATION

COMMENTS (GEOLOGY AND MINERALOGY):

PARTLY COVERED BY SURFACE GRAVELS; SOME VEINS MARKED BY COPPER STAIN

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 120.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 102.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 114.

RECORD 00449

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030317
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... DESERT MINE
SYNONYM NAME..... GOLDEN MOUND GOLD EAGLE; OPERATED BY WINCHESTER IN 1911; VICKSBURG DEVELOPMENT CO.,
DESERT MG. CO., NAVAJO MINES CO., LESHER, HASEDDL, MG. CO, TROY, ALL STATE MG. CO.

MINING DISTRICT/AREA/SUBDIST. ELLSWORTH DISTRICT/GRANITE WASH MOUNTAINS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 49

QUAD SCALE QUAD NO OR NAME
1: 0062500 SALOME, ARIZ.

LATITUDE LONGITUDE
33-45-57N 113-43-23W

TWP..... 05N
RANGE..... 14W
SECTION.. 21 C
MERIDIAN. GILA & SALT R., ARIZ BASELINE

ALTITUDE.. 1560 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NE OF VICKSBURG 1 MILE W OF WINCHESTER PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU CU AG PB MD FE

MAIN COMMOD..... AU CU AG PB
MINOR COMMOD..... MD FE

MAIN ORE MINERALS:
GOLD, OXIDIZED COPPER

MINOR ORE MINERALS:

LEAD-MOLYBDENUM (WULFENITE) LIMONITE, CHRYSOCOLLA, MALACHITE, CUPRITE, CHALCOHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

PROSPECTED & WORKED FROM EARLY 1900'S THROUGH 1950 FROM SMALL SHAFTS, OPEN CUTS, & TUNNEL (KEITH, 1978, P. 148)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	.7	TONS	1900-1950	0.3 OZ/T AU; 2% CU, 5 OZ/T AG.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 148

PRODUCTION COMMENTS..... PRODUCTION WOULD BE SOME 700 OR MORE TONS OF ORE AVERAGING ABOUT 0.3 OZ AU/T, 2% CU AND 5 OZ AG/T.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
 HOST ROCK TYPES..... METAMORPHASED SEDIMENTS; ARENACEOUS SHALES & ARGILLITES
 IGNEOUS ROCK TYPES..... RHYOLITE & PHONOLITE EXTRUSIVES, APLITE & BASIC DIKES

PERTINENT MINERALOGY..... WIDE ZONE OF QUARTZ & CALCITE VEINS & STRINGERS, & AMORPHOUS QUARTZ; IRON OXIDES
 WITH IRON OXIDES, FOLLOWING SCHISTOSITY OF METAMORPHASED MESOZOIC SEDIMENTS.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SCHISTOSITY OF MESOZOIC SEDIMENTS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 148.
- 2) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY, BULL. 451, P. 102.
- 3) CIANCANELLI, E.Y., 1965, STRUCTURAL GEOLOGY OF THE WESTERN EDGE OF THE GRANITE WASH MOUNTAINS, YUMA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS.
- 4) GENERAL AREA:
 BRIGGS, P.C., 1969, GROUND-WATER CONDITIONS IN THE RANEGRAS PLAIN, YUMA COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 41, 28 P.
- 5) DARTON, N.H., 1925, A RESUME OF ARIZONA GEOLOGY: ARIZ. BUR. MINES BULL. 119, P. 221-223.

- 6) EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, 6, P. 921-940.
- 7) HALPENNY, L.C., AND OTHERS, 1952, GROUND WATER IN THE GILA RIVER BASIN AND ADJACENT AREAS: ARIZONA - A SUMMARY: U.S. GEOL. SURVEY OPEN-FILE REPORT, 224 P.
- 8) JONES, E.L., AND RANSOME, F.L., 1920, DEPOSITS OF MANGANESE ORE IN ARIZONA: U.S. GEOL. SURVEY BULL. 710 D, P. 93-184.
- 9) KAM, WILLIAM, 1961, GEOLOGY AND GROUND-WATER RESOURCES OF MCMULLEN VALLEY, MARICOPA, YAVAPAI, AND YUMA COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 8.
- 10) KAM, WILLIAM, 1964, GEOLOGY AND GROUND-WATER RESOURCES OF MCMULLEN VALLEY, MARICOPA, YAVAPAI, AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1665, 64 P.
- 11) METZGER, D.G., 1951, GEOLOGY AND GROUND-WATER RESOURCES OF THE NORTHERN PART OF THE RANEGRAS PLAIN AREA, YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY OPEN-FILE REPORT, 47 P.
- 12) METZGER, D.G., 1957, GEOLOGY AND GROUND-WATER RESOURCES OF THE HARQUAHALA PLAINS AREA, MARICOPA AND YUMA COUNTIES, ARIZONA: ARIZ. STATE LAND DEPT., WATER RESOURCES REPORT, NO. 4, 40 P.
- 13) MINES HANDBOOK AND COPPER HANDBOOK, 1918, BY W.H. WEED.
- 14) REHRIG, W.A., AND REYNOLDS, S.J., 1979, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA, IN PRESS, GEOL. SOC. AMERICA MEMOIR, METAMORPHIC CORE COMPLEX VOLUME.
- 15) REYNOLDS, S.J., 1979, LATE CRETACEOUS-TERTIARY PLUTONISM, METAMORPHISM AND DEFORMATION, WEST-CENTRAL ARIZONA (ABS.): 7TH ANNUAL GEOSCIENCES COLLOQUIUM, UNIV. ARIZ., DEPT. OF GEOSCIENCES, P. 31.
- 16) ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA, A GEOGRAPHIC, GEOLOGIC AND HYDROLOGIC RECONNAISSANCE, WITH A GUIDE TO DESERT WATERING PLACES: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 498, 237 P.
- 17) TOVOTE, W.L., 1961B CUNNINGHAM PASS DISTRICT, ARIZONA: MINING SCIENCE PRESS, V. 117, P. 19-20.W
- 18) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 19) DAMON, P.E., AND OTHERS, 1970, ATOMIC ENERGY COMMISSION GRANT REPORT.
- 20) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA

RECORD 00450

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030315
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... FLORA TEMPLE CLAIM
SYNONYM NAME..... FLORA TEMPLE EXTENSION

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS, ARIZ.

LATITUDE LONGITUDE
33-02-25N 114-10-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3659150. 764000. +11

TWP..... 04S
RANGE..... 19W
SECTION.. 36 NC
MERIDIAN. GILA & SALT R..

ALTITUDE.. 1330 FT

POSITION FROM NEAREST PROMINENT LOCALITY: S. 30 W FROM CASTLE DOME PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG ZN MO V F BA BE AU CU AS SE SB

MAIN COMMOD..... PB AG F BA
MINOR COMMOD..... V MO ZN AU CU AS SE BE SB

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA

MINOR ORE MINERALS:

CERUSSITE, ANGLESITE, HYDROZINCITE, SMITHSONITE, WULFENITE, VANADINITE, MIMETITE, PYRITE, LIMONITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: LENSES & SHOTS

SIZE/DIRECTIONAL DATA

DEPTH TO TOP	0	FT
DEPTH TO BOTTOM.....	225	FT
MAX LENGTH.....	2000	FT
MAX WIDTH.....	10	FT
STRIKE OF OREBODY....	N18W	
DIP OF OREBODY.....	50E	

COMMENTS(DESCRIPTION OF DEPOSIT):

PRINCIPAL VEIN STRIKES N18 W AND DIPS FROM 45 TO 55 E; A VERTICAL VEIN, STRIKING A FEW DEGREES MORE NORTHWESTERLY, BRANCHES FROM THIS VEIN NEAR THE SOUTHERN BOUNDARY OF THE CLAIM.

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 225 FT

COMMENTS(DESCRIP. OF WORKINGS):

IRREGULAR, PARTIALLY FILLED STOPES MINED FROM NUMEROUS OLD SHAFTS. SECOND CLAIM PATENTED IN ARIZONA (1871) & LARGELY MINED OUT PRIOR TO 1880. STOPE FILL & DUMPS REWORKED LATER FOR LEAD-SILVER & FLUORSPAR (KEITH, 1978, P. 119). THE MAIN FLORA TEMPLE SHAFT IS 225 FEET DEEP ON A 45 TO 55 E INCLINE; THE VEIN HAS BEEN STOPED OUT FOR A WIDTH OF 1 TO 10 FT, OR AN AVERAGE OF ABOUT 4 1/2 FT. & ALONG A LENGTH OF 100 TO 160 FT. SOME 11 SHAFTS, MORE OR LESS CONNECTED BY IRREGULAR, PARTIALLY FILLED STOPES, HAVE BEEN SUNK AT INTERVALS ALONG THE LENGTH OF THE CLAIM. MOST OF THESE WERE WORKED & ABANDONED PRIOR TO 1880. SURFACE EQUIPMENT IN 1933 INCLUDED A HEAD FRAME, HOIST, BLACKSMITH SHOP, & A STIBBINS CONCENTRATOR. (WILSON, 1933, P. 90-92).

PRODUCTION

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERRBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1	ORE ACC	.4	TONS	1871	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 119

PRODUCTION COMMENTS.... ONE OF MAJOR PRODUCING MINES; 400 TONS IN 1871 BUT TOTAL OUTPUT UNKNOWN (WILSON, 1933 P. 90).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
 HOST ROCK TYPES..... DENSE GRAY SLATE IN FOOT WALL
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES
 AGE OF MINERALIZATION..... RHYOLITE PORPHYRY IN HANGING WALL (WILSON)
 PERTINENT MINERALOGY..... BARITE, CALCITE, & FLUORITE GANGUE, QUARTZ & ARAGONITE
 IMPORTANT ORE CONTROL/LOCUS.. VEINS IN SLATE & QUARTZ PORPHYRY; IN VEINS ALONG WELL-DEFINED FAULTS WITH STRONG
 CROSS-FRACTURING IN MESOZOIC SLATE & DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
 WELL-DEFINED FAULTS WITH STRONG CROSS-FRACTURING

SIGNIFICANT ALTERATION:
 WALL ROCKS ARE APPRECIABLY SERICITIZED & SILICIFIED, & LOCALLY IRON STAINED; THE QUARTZ PORPHYRY HANGING WALL
 SHOWS ABUNDANT SMALL PSEUDOMORPHS OF LIMONITE AFTER PYRITE, AND THE TERROMAGNESIAN MINERALS OF THE DIORITE
 PORPHYRY ARE PARTLY ALTERED TO LIMONITIC MINERALS.

COMMENTS (GEOLOGY AND MINERALOGY):
 SEVERAL FOOT THICK (25 FT) MANTLE OF SURFACE GRAVEL INCLUDED NUMEROUS NUGGETS OF PARTLY ALTERED ARGENTIFEROUS
 GALENA JUST ABOVE THE ROCK PEDIMENT

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL
 TECHNOLOGY, BULL. 192, P. 119.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134,
 P. 90-92
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS - CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL.
 158, P. 106-107.
- 4) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE,
 MOREHOUSE, AND TAYLOR, NEW HAVEN.
- 5) BLAKE, W.P., 1881B, ON THE OCCURRENCE OF VANADATES OF LEAD AT THE CASTLE DOME MINES IN ARIZONA: AM. JOUR.
 SCI., 3RD SER. V. 22, P. 410-411.
- 6) ARIZONA BUREAU OF MINES FILE PAGE.
- 7) ATOMIC ENERGY COMMISSION MICROFILM.

RECORD 00451

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030304
RECORD TYPE..... 11
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... GERONIMO
SYNONYM NAME..... SOUTH GERONIMO NORTH GERONIMO

MINING DISTRICT/AREA/SUBDIST. SILVER DISTRICT/TRIGO MTS.

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 24000 PICACHO, ARIZ CALIF.

LATITUDE LONGITUDE
33-70-00N 114-36-45W

TWP..... 03S
RANGE.... 23W
SECTION.. 34 NE EC SE
MERIDIAN. GILA & SALT R., ARIZ. BASELINE

ALTITUDE.. 750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/4 MI. NW OF RED CLOUD

COMMODITY INFORMATION

COMMODITIES PRESENT..... ZN PB MO V MN AG FE F

MAIN ORE MINERALS:
ARGENTIFEROUS LEAD SULFATE & CARBONATE

MINOR ORE MINERALS:
SMITHSONITE LEAD OXIDE WULFENITE VANADENITE ALTERED GALENA ANGLESITE, CERUSSITE, & YELLOW OXIDE

ANALYTICAL DATA(GENERAL)
6% PB, 8 OZ AG/T (WILSON, 1933 P. 65)

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
ORE AVERAGES 6% PB AND 8 OZ AG/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREG. LENSING VEINS

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 50 FT

STRIKE OF OREBODY.... N27W

DIP OF OREBODY..... 65NE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 100 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT & TUNNEL OPERATIONS; TWO VEINS, ONE A FEW FEET & ONE ABOUT 50 FEET WIDE ON THE SOUTH GERONIMO CLAIM AND A TUNNEL ON THE WIDER VEIN AND AN OLD SHAFT, PERHAPS 100 FEET DEEP TO THE NE AND A TUNNEL & WINZE TO THE SOUTH. AN IRREGULAR VEIN UP TO A FEW FEET WIDE OCCURS ON A N TRENDING, 35 E DIPPING FAULT ZONE ON THE NORTH GERONIMO CLAIM; ON N END IS AN 80 FT SHAFT WITH 2 SHORT DRIFTS ON THE 25 FT LEVEL.

PRODUCTION

SMALL PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... RHYOLITE TUFFS & ANDESITE FLOWS

IGNEOUS ROCK TYPES..... FAULTED AGAINST GRANODIORITE

PERTINENT MINERALOGY..... GANGUE IS VLEN OXIDES, MANGANIFEROUS CALCITE, QUARTZ, & FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. IN IRREGULAR BUNCHES OR IS VUGS IN IRREGULAR LENSING VEINS ALONG FAULTS CUTTING TERTIARY-CRETACEOUS RHYOLITE TUFFS & ANDESITE FLOWS. NORTHERN PART OF DEPOSIT IS IN FAULT CONTACT WITH GRANODIORITE.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 176.
- 2) WILSON, E.D., 19338 GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134 P. 64-65.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT; TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS, 193 P, MAPS
- 4) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 5) ATOMIC ENERGY COMMISSION MICROFILM.

RECORD 00452

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030327
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... HAACK MINE GROUP
SYNONYM NAME..... HAACK NO. 1 & NO. 2, BARITE-NIP NO. 1, BRONZA-HARDRICK ALGODONES NIP NO. 2, & ABE
NO. 10; OWNERS DE LUCE, HAACK, ARIZONA LEAD CO., DESERT LEAD CO.

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME DIST.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS. ARIZ.

LATITUDE LONGITUDE
33-02-55N 114-10-13W

UTM NORTHING UTM EASTING UTM ZONE NO
3660075. 764275. +11

TWP..... 04S 04S
RANGE.... 19W 16W
SECTION.. 25 SE 31 NW
MERIDIAN. GILA & SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: 600 FEET SOUTH OF CLEVELAND & CHICAGO

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE BE SB

MAIN COMMOD.....
MINOR COMMOD.... V MO ZN AU CU AS SE BE SB

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, PARTLY OXIDIZED

MINOR ORE MINERALS:
OXIDIZED CU & ZN MINERALS

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: LENSING
SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... NARROW

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
PROSPECTED & MINED SPORADICALLY FROM LATE 1800'S BY MEANS OF SHALLOW SHAFTS, PITS, & CUTS (KEITH, 1978 P. 119)

PRODUCTION
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	20	TONS	1940-1950	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 119

PRODUCTION COMMENTS.... SOME 20,000 TONS OF ORE AVERAGING ABOUT 6% PB AND 2 OZ AG/T WAS PRODUCED FROM OLD FILL AND DUMPS IN THE 1940'S

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
HOST ROCK TYPES..... SHALE
IGNEOUS ROCK TYPES..... LARGE & SMALL DIKES & MASSES OF DIORITE & QUARTZ PORPHYRY

PERTINENT MINERALOGY..... GANGUE OF CRYSTALLINE CALCITE, FLUORITE, & BARITE

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 119.
- 2) WILSON, E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, PLATE 9.
- 3) ARIZONA BUR. MINES FILE DATA.

RECORD 00453

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030313
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... HAMBURG CLAIM
SYNONYM NAME..... OWNERS - BLAKE IN 1880-1881; NORTON, CRAWFORD & LAMBIE, NEAL MC. CO.

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ.-CALIF.

LATITUDE LONGITUDE
33-06-30N 114-34-20W

TWP..... 04S
RANGE.... 23E
SECTION.. 01 C

ALTITUDE.. 840 FT

POSITION FROM NEAREST PROMINENT LOCALITY: JOINS PRINCESS ON SOUTH; 1 MILE NW OF RED CLOUD MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO V BA ZN F SR FE

MAIN ORE MINERALS:

ARGENTIFEROUS LEAD CARBONATE, SULFATE, & OXIDE

MINOR ORE MINERALS:

WULFENITE, GALENA, ARGENTITE, & CERARGYRITE, VANADINITE, CERUSSITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR FISSURE FILLING

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 6 FT

STRIKE OF OREBODY.... NNW

DIP OF OREBODY..... 30SW

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 60 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS WORKED DURING 1880'S (KEITH, 1978)

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 177.

PRODUCTION COMMENTS.... PRINCESS PRODUCED SUBSTANTIAL BUT UNRECORDED AMOUNT OF SILVER ORE. NO RECORD OF PRODUCTION FROM HAMBURG

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES

HOST ROCK TYPES..... SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERTIARY

IGNEOUS ROCK TYPES..... GRANITE & VOLCANICS

AGE OF MINERALIZATION..... SAME FAULT ZONE AS PRINCESS CLAIMS

PERTINENT MINERALOGY..... IN A GANGUE OF CALCITE & BRECCIATED SILICIFIED WALL ROCK CEMENTED WITH CALCITE, BARITE, CELESTITE, QUARTZ, FLUORITE, & IRREGULAR MASSES OF IRON OXIDE

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR FISSURE FITTING IN FAULT ZONE CUTTING METAMORPHIC MESOZOIC SCHIST INTRUDED BY LARAMIDE GRANODIORITE & CAPPED BY TERTIARY DACITE FLOWS & PYROCLASTICS; ON THE HAMBURG #2 CLAIM SOUTH OF THE HAMBURG CLAIM THE FAULT ZONE CONTAIN SEVERAL BARITE VEINS UP TO 10 INCHES THICK AND TO 6 FT THICK WITH 75% BARITE AT THE SOUTH END OF THE CLAIM & INCLUDING LIMONITE, & WULFENITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE, CURVING FAULT TRACEABLE FOR A MILE SOUTHWARD

GENERAL REFERENCES

- 1) KEITH STANTON D., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 177.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 63-64.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS.

- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAU, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, P. 207.
- 5) BLAKE, W.P., 1881, VANADINITE IN ARIZONA: AMER. JOUR. SCI., V. 22, 3RD SER., P. 235.
- 6) BLAKE, W.P., 1881, CASTLE DOME MINING AND SMELTING COMPANY PRIVATE REPORT, P. 25.
- 7) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY, FILE DATA.
- 8) ATOMIC ENERGY COMMISSION MICROFILM.

RECORD 00454

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030326
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... HULL MINE GROUP
SYNONYM NAME..... REALTO GROUP CHIEF OF DOME, DIANA, HULL AND SURPRISE CLAIMS, FORMERLY DOUGLAS,
RAILROAD, & POCAHONTAS; OWNERS CASTLE DOME MG. & SMELTING COMPANY, GONDOLFO & SANQUINETTI, DE LUCE, CASTLE DOME
MG. CO., HULL MINES, REALTO CO., JOPLIN LEAD CO., WALL, DESERT LEAD CO., TAYLOR

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS, ARIZ

LATITUDE LONGITUDE
33-03-37N 114-10-40W

UTM NORTHING UTM EASTING UTM ZONE NO
3661350. 763550. +11

TWP..... 04S
RANGE..... 19W
SECTION.. 24 SW 25 NE
MERIDIAN. GILA & SALT R., ARIZ BASELINE

ALTITUDE.. 1400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES SW OF CASTLE DOME PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD V AG F BA AU CU AS SE BE SB

MAIN COMMOD..... PB AG F BU
MINOR COMMOD..... V MB ZN AU CU AS SE BE SB

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA PARTLY OXIDIZED

MINOR ORE MINERALS:

WULFENITE & VANADINITE & VANADIFEROUS MIMETITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR MASSES; LENSES

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 300 FT

MAX LENGTH..... 2000 FT

MAX WIDTH..... 12 FT

STRIKE OF OREBODY.... N30W

DIP OF OREBODY..... 70NE

COMMENTS(DESCRIPTION OF DEPOSIT):

PRINCIPLE VEIN, N30W, DIPS 65-75 E

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE. 300 FT

LENGTH OF WORKINGS..... 1700 FT

COMMENTS(DESCRIP. OF WORKINGS):

STOPED & FILLED FROM SERIES OF SHAFTS DOWN TO ABOUT 200 FT. (KEITH, 1978 P. 120) DIANA CLAIM PATENTED IN 1899 IS THE LDLA FOR WILLIAM DE LUCA UNDERGROUND WORKINGS HAVE EXPLJRED VEIN FOR MORE THAN 2000 FEET LENGTH. FROM NORTHWEST TO WOUTHWEST IN 1933 THE PRINCIPLA SHAFTS WERE: OLD MILL SHAFT, 390 FT DEEP; 1933 SHAFT, 300 FEET DEEP; DIANA CLAIM - 5 SHAFTS AT 300, 470, 85, 60 & 45 FEET DEEP. SURFACE EQUIPMENT IN 1933 INCLUDED A SMALL HOIST, COMPRESSOR BLACKSMITH, SHOP, OLD CONCENTRATING MACHINERY, & PUMP (WILSON, 1933, P. 99-100).

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBUR.)

ITEM	ACC	AMOUNT	THOUS.UNITS	YEAR	GRADE,REMARKS
15	ORE EST	20	TONS	1890-1960	

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 120

PRODUCTION COMMENTS.... MOST ORE MINED PRIOR TO 1900 BUT LESSEES REWORKED FILL & DUMPS UP TO 1960. TOTAL PRODUCTION WOULD BE SOME 20,000 OR MORE TONS OF ORE. IN 1890, THE CHIEF OF DOME, DIANA, AND SURPRISE GROUND, KNOWN AS THE DOUGLASS, RAILROAD, AND POCAHONTAS CLAIMS; YEILDED A LARGE PRODUCTION OF SHIPPING ORE. A 30 TON MILL WAS RUN DURING 1902 OR 1903. A MILL WORKED PART OF THE DUMP IN 1915 (WILSON, 1933).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
 HOST ROCK TYPES..... SHALE, LIMESTONE & SANDSTONE
 IGNEOUS ROCK TYPES..... DIORITE PORPHYRY DIKES

PERTINENT MINERALOGY..... GANGUE OF FLUORITE & CALCITE

IMPORTANT ORE CONTROL/LOCUS.. VEIN IN SLATE; IN A LENSING VEIN ALONG A FAULT ZONE WITH INTERSECTING FAULTS,
 CONTAINING GANGE & MINERALIZATION

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
 STRONGLY SERICITIZED WITH SOME SILICIFICATION & CHLORITIZATION

COMMENTS (GEOLOGY AND MINERALOGY):
 SURFACE EXPOSURES LIMITED BY GRAVEL COVER ON PEDIMENT

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 120.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 99-100.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 11-112.
- 4) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
- 5) BLAKE, W.P., 1881B, ON THE OCCURRENCE OF VANADATES OF LEAD AT THE CASTLE DOME MINES IN ARIZONA: AM. JOUR. SCI., 3RD SER., V. 22, P. 410-411.
- 6) NEVIUS, J.N., 1912, THE CASTLE DOME LEAD DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 104, P. 854-855.
- 7) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 8) ATOMIC ENERGY COMMISSION MICROFILM DATA.

RECORD 00155

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... MD30341
 RECORD TYPE..... X1
 COUNTRY/ORGANIZATION. USGS
 INFORMATION SOURCE... 1
 MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
 DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... LITTLE DOME MINE
 SYNONYM NAME..... LINDA EXTENSION; OWNED DE LUCE, HAAK, WALL

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA
 LAND CLASSIFICATION..... 4

QUAD SCALE QUAD NO OR NAME
 1: 0062500 CASTLE DOME MTS, AZ

LATITUDE LONGITUDE
 33-02-00N 114-10-20W

UTM NORTHING UTM EASTING UTM ZONE NO
 3658370. 760150. +11

TWP..... 04S
 RANGE..... 19W
 SECTION.. 36 SE 36 SE NW
 MERIDIAN. GILA & SALT R., ARIZ. BASELINE

ALTITUDE.. 1320 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1/2 MILE S OF CASTLE DOME MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE BE SB

MAIN COMMOD..... PB AG F BA
 MINOR COMMOD..... V MO ZN AU CU AS SE BE SB

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA

MINOR URE MINERALS:

ANGLESITE, CERUSSITE, YELLOW LEAD OXIDES

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

GALENA AVERAGED 28 OZ AG/T; CARBONATES AVERAGED 4 OZ AG/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR MASSES & STRINGERS

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM.....	60	FT
MAX LENGTH.....	125	FT
MAX WIDTH.....	7	FT
STRIKE OF OREBODY....	S50E	
DIP OF OREBODY.....	85SW	

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 60 FT

OVERALL LENGTH OF MINED AREA.... 125 FT

OVERALL WIDTH OF MINED AREA..... 7 FT

COMMENTS(DESCRIP. OF WORKINGS):

RELATIVELY SHALLOW STOPING FROM SHAFTS CARRIED OUT INTERMITTENTLY FROM 1880'S & RICH STOPE FILL & DUMPS REWORKED IN 1930'S & POSSIBLY LATER (KEITH 1978). STOPES FROM 4 TO 7 FEET WIDE HAVE FOLLOWED THE VEIN FOR A LENGTH OF APPROXIMATELY 125 FEET & A DEPTH OF 20 TO 60 FEET; THESE STOPES ARE PARTLY FILLED IN. (WILSON, 1933, P. 98)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	.03	TON		

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1933, P. 98

PRODUCTION COMMENTS.... ACCORDING TO MR. HAAK, 30 TONS OF OLD FILL IN STOPES YIELDED \$1700 WHEN LEAD SOLD AT SEVEN CENTS/LB.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
 HOST ROCK TYPES..... SHALE-SLATE
 IGNEOUS ROCK TYPES..... LARGE DIORITE PORPHYRY DIKE CUT BY SMALL QUARTZ PORPHYRY DIKE

PERTINENT MINERALOGY..... GANGUE OF CRYSTALLINE FLUORITE, CALCITE, & GAUGE, CUT BY BARITE VEINLETS

IMPORTANT ORE CONTROL/LOCUS.. VEINLETS OF CRYSTALLINE TO MASSIVE BARITE IN A LENSING VEIN ALONG A FAULT ZONE CUTTING MESOZOIC SHALE (SLATE) & A LARGE DIORITE PORPHYRY DIKE. SHALE & DIORITE PORPHYRY BUT BY SMALL QUARTZ PORPHYRY DIKES. VEIN SPLAYS OUT TO NORTH AND SOUTH. BEST ORE OCCURS WHERE FAULT IS INTERSECTED BY OBLIQUE FRACTURES.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

ALONG A FAULT ZONE INTERSECTED BY OBLIQUE FRACTURES, THE FAULT ZONE STRIKES S 45 E TO S 55 E AND DIPS 85 SW, THE BEST ORE OCCURS WHERE OBLIQUE CROSS FRACTURES INTERSECT THIS FAULT.

SIGNIFICANT ALTERATION:

PRINCIPAL WALL ROCK ALTERATIONS ARE SERICITE AND QUARTZ

COMMENTS (GEOLOGY AND MINERALOGY):

SURFACE COVERED BY THIN VENEER OF GRAVEL

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 120.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 96-99.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 110.
- 4) ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

RECORD 00456

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030305
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MCHAHAN PROSPECT
MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA) DIST./WELLTON HILLS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 WELLTON, ARIZ.

LATITUDE LONGITUDE
32-33-10N 114-06-20W

TWP..... 10S
RANGE..... 18W
SECTION.. 15 SE
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MILE NORTH OF DOUBLE EAGLE SHAFT, NEAR THE SOUTHERN TIP OF A LOW
RIDGE ON THE WEST SIDE OF COYOTE WASH.

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU FE PB MO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE, COPPER STAIN IRON OXIDE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1 FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

AN OLD 60 FT SHAFT INCLINES ABOUT 55 NE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES

HOST ROCK TYPES..... GNESIS

PERTINENT MINERALOGY..... QUARTZ VEINS, HEAVILY IRON STAINED, LOCALLY BANDED BY NARROW VEINLETS OF GRAY & BROWN CALCITE. IN PLACES IT SHOWS ABUNDANT VUGS LINED WITH QUARTZ & FILLED WITH IRON OXIDE, COPPER-STAINED SILICA, & SERICITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE STRIKES SOUTHEAST & IS 2-3 FT WIDE IN PLACES

GENERAL REFERENCES

1) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE PAGE

2) WALLABY ENTERPRISES, TUCSON ARIZ. MINING DISTRICT DATA BASE FILE

3) WILSON, E.D. 1933, GEOLOGY & MINERAL RESOURCES OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, G. 175-176.

RECORD 00457

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030340
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MCPHAUL COPPER PROSPECT

MINING DISTRICT/AREA/SUBDIST. DOME (GILA CITY) DISTRICT/NORTHERN GILA MTNS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 FORTUNA, ARIZ.

LATITUDE LONGITUDE
32-44-24N 114-22-32W

UTM NORTHING UTM EASTING UTM ZONE NO
3625305. 745160. +11

TWP..... 08S
RANGE.... 21W
SECTION.. 14 NC
MERIDIAN. GILA & SALT R..

ALTITUDE.. 1000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: N END GILA MTNS

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU PB MO AU

MAIN ORE MINERALS:

CHRYSOCOLLA, MALACHITE, LIMONITE, HEMATITE

MINOR ORE MINERALS:

WULFENITE, GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ FISSURE VEINS

FORM/SHAPE OF DEPOSIT: IRREGULAR LENSING

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 4 FT

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

WORKINGS ON THIS PROSPECT IN 1933 CONSISTED OF A FEW SHALLOW PITS (WILSON, 1933, P. 201). THE TOPOGRAPHIC MAP SHOWS AN ADIT AND MINE SHAFT IN THE GENERAL AREA.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES

HOST ROCK TYPES..... SCHIST, MARBLE

PERTINENT MINERALOGY..... VEIN OF COARSE-GRAINED, VITREOUS, GRAY QUARTZ; COARSE-GRAINED SERICITE IS ABUNDANT ALONG THE VEIN WALLS; IN PLACES THE QUARTZ CONTAINS SMALL PSEUDOMORPHS OF LIMONITE AFTER PYRITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

STRIKE FAULT, WITH SCHIST FOOTWALL & MARBLE HANGING WALL

COMMENTS (GEOLOGY AND MINERALOGY):

NEAR THE SURFACE, AND PARTICULARLY NEAR THE WALLS, ABUNDANT SMALL CRYSTALS OF WULFENITE OCCUR ASSOCIATED WITH THE COPPER MINERALS OR GROUPED WITHIN SMALL CAVITIES AND FISSURES

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 145.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 201, 181-189, 202-210.
- 3) OLMSTED, F.H., LOELTZ, D.S., AND IRELAND, B., 1973, GEOHYDROLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227 P., MAPS.
- 4) NEARBY AREAS:
JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355.
- 5) BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499.
- 6) CROWE, B.M., 1973, CENOZOIC VOLCANIC GEOLOGY OF THE SOUTHEASTERNMOST CHOCOLATE MOUNTAINS, CALIFORNIA: PH.D. DISSERTATION, SANTA BARBARA, UNIVERSITY OF CALIFORNIA, SANTA BARBARA, 117 P.
- 7) CROWE, B.M., 1978, CENOZOIC VOLCANIC GEOLOGY AND PROBABLE AGE OF INCEPTION OF BASIN-RANGE FAULTING IN THE SOUTHEASTERNMOST CHOCOLATE MOUNTAINS, CALIFORNIA: GEOL. SOC. AMERICA BULL., V. 89, P. 251-264.
- 8) CROWE, B.M., CROWELL, J.C., AND KRUMMENACHER, D., 1979, REGIONAL STRATIGRAPHY, K-AR AGES, AND TECTONIC

- IMPLICATIONS OF CENOZOIC VOLCANIC ROCKS, SOUTHEASTERN CALIFORNIA: AM. JOUR. SCI., V. 279, P. 186-216.
- 9) DILLON, J., 1975, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERNMOST CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 7, P. 311.
- 10) DILLON, J., 1976, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERNMOST CALIFORNIA: PH.D. DISSERT., UNIV. CALIFORNIA, SANTA BARBARA, 397 P.
- 11) EBERLY, L.O., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 12) HALPENNY, L.C., AND OTHERS, 1952, GROUND WATER IN THE GILA RIVER BASIN AND ADJACENT AREAS; ARIZONA - A SUMMARY: U.S. GEOL. SURVEY OPEN-FILE REPORT, 224P. 32P., 24 FIGS.
- 13) HAXEL, G.B., 1974, PRE-TERTIARY ROCKS OF THE PICACHO AREA, SOUTHEASTERN CALIFORNIA: GEOL. SOC. AMERICA, ABS. WITH PROGRAMS, V. 6, P. 189-190.
- 14) HAXEL, G.B., 1977, OROCOPIA SCHIST AND THE CHOCOLATE MOUNTAIN THRUST IN THE PICACHO-PETER KANE MOUNTAIN AREA, SOUTHEASTERNMOST CALIFORNIA: PH.D. DISSERT., SANTA BARBARA, UNIV. CALIFORNIA, SANTA BARBARA.
- 15) HAXEL, G.B., 1978, THE PELONA-OROCOPIA SCHIST AND VINCENT-CHOCOLATE MOUNTAIN THRUST SYSTEM, SOUTHERN CALIFORNIA, IN MESOZOIC PALEOGEOGRAPHY OF THE WESTERN UNITED STATES: PACIFIC COAST PALEOGEOGRAPHY SYMPOSIUM 2, SOC. ECON. PALEONTOLOGISTS & MINERALOGISTS, P. 453-469.
- 16) HENSHAW, P.C., 1942, GEOLOGY & MINERAL DEPOSITS OF THE CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA: CALIF. JOUR. MINES & GEOLOGY, V. 38, P. 147-196.
- 17) MATTICK, R.E., OLMSTED, F.H., AND ZOHDY, A.A.R., 1973, GEOPHYSICAL STUDIES IN THE YUMA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 726-D, 36 P.
- 18) MILLETT, JOHN A. (AND BARNETT, H. FRANK) SURFACE MATERIALS AND TERRAIN FEATURES OF YUMA PROVING GROUND, LAGUNA, ARIZ.-CALIF. QUADRANGLES: EARTH SCI. LAB., U.S. ARMY NATICK LABS., NATICK, MASS., TECH. REP. 71-14-ES, SERIES ES-59, 46 P., FIGS., TABLES, GEOL. MAP, SCALE 1:62,500 (1970)
- 19) MORTON, P.K., 1962, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE PICACHO PEAK, LAGUNA, OGILBY, GRAYS WELL NE, AND YUMA QUADRANGLES, CALIFORNIA: CALIF. DIV. MINES AND GEOLOGY RECONN. MAPPING FOR STATE GEOLOGIC MAP (EL CENTRO SHEET).
- 20) OLMSTED, F.H., TERTIARY ROCKS NEAR YUMA, ARIZONA (ABS): GEOL. SOC. SP. PAPER 101, P. 153-154 (1968)
- 21) OLMSTED, F.H., 1972, GEOLOGY OF THE LAGUNA DAM 7 1/2 MINUTE QUADRANGLE, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-1014, SCALE 1:24,000.
- 22) ROSS, C.P., GEOLOGY OF THE LOWER GILA REGION, ARIZONA: USGS PROF. PAPER 129, P. 183-197, MAPS (1922); (ABST.): WASH. ACAD. SCI. JOUR., V. 10, NO. 2, P. 51-52 (1920)
- 23) ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA, A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE, WITH A GUIDE TO DESERT WATERING PLACES: U.S. GEOL. SURVEY WATER SUPPLY PAPER 498, 237 P.
- 24) SCHENKER, A.R., 1977, PARTICLE-SIZE DISTRIBUTION OF LATE CENOZOIC GRAVELS ON AN ARID REGION PEDIMENT, GILA MOUNTAINS, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.,
- 25) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

RECORD 00458

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... 4030343
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MINE
MINING DISTRICT/AREA/SUBDIST. MOHAWK DIST/MOHAWK MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 MOHAWK MTS SE, ARIZ

LATITUDE LONGITUDE
32-34-40N 113-37-35W

UTM NORTHING UTM EASTING UTM ZONE NO
3607290. 253440. +12

TWP..... 10S
RANGE.... 13W
SECTION.. 08 NE
MERIDIAN. GILA & SALT R

ALTITUDE.. 1400 FT

COMMODITY INFORMATION

COMMODITIES PRESENT..... AG PB BA AU CU MO F

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

QUARTZ VEINS

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
MINE SHAFT ON TOPO MAP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... GRANITIC GNEISS & SCHIST
IGNEOUS ROCK TYPES..... GRANITE PORPHYRY DIKES

GENERAL REFERENCES

1) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA

RECORD 00459

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... 4030302
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MINE

MINING DISTRICT/AREA/SUBDIST. MOHAWK DIST/E. MOHAWK MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 GRANITE MOUNTAINS, ARIZ

LATITUDE LONGITUDE
32-27-23N 114-26-01W

UTM NORTHING UTM EASTING UTM ZONE NO
3593500. 268120. 412

TWP..... 11S
RANGE.... 12W
SECTION.. 23 24
MERIDIAN. GILA & SALT R

ALTITUDE.. 800 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 25 MILES SE OF MOHAWK STATION

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MO AG

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
HOST ROCK TYPES..... GRANITE

IMPORTANT ORE CONTROL/LOCUS.. VUGGY QUARTZ VEINS CONTAIN SMALL AMOUNT OF WULFENITE IN THE SOUTHEAST PART OF THE
MOHAWK MTS

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 163.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 130, P. 148-154.
- 3) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

RECORD 00460

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030312
RECORD TYPE..... 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... PAPAGO MINE
SYNONYM NAME..... HELD BY W. M. WINN IN 1933

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ.-CALIF

LATITUDE LONGITUDE
33-05-30N 114-35-57W

TWP..... 04S
RANGE.... 23W
SECTION.. 11 C
MERIDIAN. GILA & SALT R, ARIZ. BASELINE

ALTITUDE.. 600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH OF RED CLOD MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN AG MN MO V F FE CE BN

MAIN ORE MINERALS:

CERARGURITE CERUSSITE, SMITHSONITE, PYROLUSITE

MINOR ORE MINERALS:

ANGLESITE WULFENITE, VANADINITE, VERY MINOR MALACHITE, ARGENTEFEROUS GALENA

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

ASSAYED UP TO 8% Pb & 180Z AG/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... N

DIP OF OREBODY..... E

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 250 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1978); AT ONE TIME A SMALL CRUDE TABLE & CYANIDE MILL WERE OPERATED HERE WITHOUT SUCCESS. WORKINGS INCLUDE SEVERAL SHAFTS (NOW FILLED WITH GRAVEL) FROM 125 TO 250 FEET DEEP & CONNECT WITH STOPS OF CONSIDERABLE EXTENT. (WILSON, 1933, P. 70)

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 177.

PRODUCTION COMMENTS.... DISCOVERED BY PLACER MINERS IN EARLY 1800'S & REPORTEDLY PRODUCED CONSIDERABLE SILVER ORE AT THAT TIME, UNDER A DIFFERENT NAME.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT

HOST ROCK TYPES..... VOLCANIC TUFFS & ANDESITE FLOWS

IGNEOUS ROCK TYPES..... FAULTED AGAINST GRANODIORITE

PERTINENT MINERALOGY..... GANGUE CONTAINS LIMONITE, HEMATITE, CALCITE, & 2 GENERATIONS OF QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR VEIN ALONG FAULT ZONE SEPARATING TERTIARY VOLCANIC TUFFS AND ANDESITE FLOWS FROM LARAMIDE GRANODIORITE. OUTCROPS MANTLED BY GRAVELS OF WASH (KEITH, 1978). ACCORDING TO ROBERT MORGAN THE VEIN WAS NARROW AT THE TOP BUT WIDENED DOWNWARD & THINS TO NOTHING AT THE SOUTHERN BANK OF THE WASH. (WILSON, 1933, P. 70)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE IS NORTH TRENDING, STEEPLY EASTWARD DIPPING

COMMENTS (GEOLOGY AND MINERALOGY):

MANTLED BY GRAVELS OF BLACK ROCK WASH

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 177.
- 2) WILSON, E.D., 1938 GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 104, P. 70.
- 3) PARKER, F.2., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS.
- 4) WILSON, E.D., 1951, SILVER AND EUREKA DISTRICTS. IN ARIZONA ZINC & LEAD DEPOSITS, PART II: ARIZ. BUR. MINES BULL. 158, P. 96.
- 5) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 6) ATOMIC ENERGY COMMISSION MICROFILM.

RECORD 00461

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030307
RECORD TYPE..... 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... POORMAN MINE
SYNONYM NAME..... DESERT DWARF/OWNERS EATON RYAN & SWENSON, HINDMAN

MINING DISTRICT/AREA/SUBDIST. WILLTON (LA POSA) DIST/WILLTON HILLS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

LATITUDE LONGITUDE
33-35-27N 114-05-45W

TWP..... 10S
RANGE.... 18W
SECTION.. 02 NW

COMMODITY INFORMATION

COMMODITIES PRESENT..... AU AG MO

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
NO ANOMALY

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: SPOTTY POCKETS

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 1.5 FT
 STRIKE OF OREBODY.... N56W
 DIP OF OREBODY..... 90

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1978, P. 160). THREE SHAFTS IN 1933 WERE 50, 100, AND 230 FEET DEEP WITH 90 FT OF TUNNELS ON THE 100 FT LEVEL OF THE 230 FT SHAFT WHICH WAS SUNK IN 1902 (WILSON, 1933, P. 174.)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERRUN.)

ITEM	ACC	AMOUNT	THOUS.	UNITS	YEAR	GRADE	REMARKS
15	ORE	EST	.1	TONS	1897-1940	0.25 OZ/T AU	0.1 OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1974, P. 160

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM 1897 THROUGH 1940, PRODUCING SOME 100 TONS OF ORE AVERAGING ABOUT 0.25 OZ AU/T & 0.1 OZ AG/T.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
 HOST ROCK TYPES..... GNEISS
 IGNEOUS ROCK TYPES..... APLITIC DIKES

PERTINENT MINERALOGY..... BANDED & IRON STREAKED QUARTZ, GAUGE & BRECCIA

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIA IN A FAULT ZONE STRIKING N 56 W WITH VERTICAL DIP

GENERAL REFERENCES

- 1) WALLABY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE
- 2) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 160.
- 3) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 174.
- 4) NEARBY AREAS & REGIONAL GEOLOGY: BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499.
- 5) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00462

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030308
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... PRINCESS MINE
SYNONYM NAME..... SURVEYED FOR PATENT EARLY IN 1880 FOR NORTON, CRAWFORD, & LAMBIE; IN 1933 WAS OWNED
BY MRS. ROSE LIVINGSTON

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ. - CALIF.

LATITUDE LONGITUDE
33-06-22N 114-35-02W

TWP..... 04S
RANGE.... 23E
SECTION.. 01 C
MERIDIAN. GILA & SALT R., ARIZ. BASELINE

ALTITUDE.. 840 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF RED CLOUD MINE

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG MO V BA ZN F SR FE

MAIN ORE MINERALS:
ANGLESITE CERUSSITE FLUORITE BARITE

MINOR ORE MINERALS:
YELLOW LEAD OXIDE SMITHSONITE VANADINITE, GALENA ARGENTITE, CERARGYRITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 2 FT
STRIKE OF OREBODY.... NNW
DIP OF OREBODY..... 30SW

DESCRIPTION OF WORKINGS UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

INCLINED SHAFT, ABOUT 100 FEET DEEP ON THE DIP OF THE VEIN, & OPEN STOPES WHICH EXTEND FOR A DEPTH OF 50 FT & A DISTANCE OF 25 TO 35 FEET SOUTH OF THE SHAFT. THESE WORKINGS INDICATE THE ORE SHOOT WAS FROM 1 1/2 TO 2 FEET WIDE IN PLACES BUT BRANCHED INTO SEAMS ONLY 1 OR 2 INCHES WIDE.

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1933, P. 63

PRODUCTION COMMENTS.... PRODUCED SILVER ORE DURING THE 1880'S, BUT HAS LONG BEEN IDLE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC
HOST ROCK TYPES..... SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES..... GRANITE & VOLCANICS

PERTINENT MINERALOGY..... 2 FOOT THICK CARBONATE VEIN IS HANGING WALL OF ORE SHOOT; FOOT WALL IS BRECCIATED, SILICIFIED ANDESITE ABOUT 4 FOOT THICK, CEMENTED WITH CARBONATE & BARITE. THE ORE SHOOT CONSISTS MAINLY OF MANGANESE STAINED BRECCIA CEMENTED BY CARBONATES. FINE-GRAINED VITREOUS QUARTZ & FLUORITE & IRREGULAR MASSES OF HEMATITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

MILE LONG CURVING FAULT SEPARATES GRANITE & VOLANICS FROM SCHIST

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 177.
- 2) WILSON, E.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 134, P. 63.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY,

ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS.

4) EMMONS, S.F., AND BECKER, G.F., 1885, STATISTICS AND TECHNOLOGY OF THE PRECIOUS METALS: CENSUS OFFICE REPORT, WASHINGTON, P. 52.

5) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

6) ATOMIC ENERGY COMM. MICROFILM.

RECORD 00463

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030323
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... RED CLOUD MINE
SYNONYM NAME..... OWNERS - RED CLOUD MG. CO., HORTON & KNAPP, HUBBARD & BOWERS, RED CLOUD CONSOLIDATED
MINES CO., HANNA, PENN METALS INC., RED CLOUD MG. & MLLG. CO., RILEY & HOLMES. SURVEYED FOR PATENT IN 1895 FOR
HORTON & KNAPP.

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ. - CALIF.

LATITUDE LONGITUDE
33-06-02N 114-35-57W

TWP..... 04S
RANGE.... 23W
SECTION.. 02 SW OF SE 02 S CENTER
MERIDIAN. GILA & SALT R., ARIZ BASELINE

ALTITUDE.. 1070 FT

POSITION FROM NEAREST PROMINENT LOCALITY: RED CLOUD WASH

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB ZN MN V MO CU F AG BA MN W FE CL BR

MAIN COMMOD..... PB ZN AG V MO MN FE
MINOR COMMOD..... CU MN BA F W CL BR

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA ANGLESITE, CERUSSITE, CERARGYRITE

MINOR ORE MINERALS:

WULFENITE PYROLUSITE, VANADINITE, MALACHITE, SILVER BROMIDE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:

AVE. GRADE = 5-6% PB & 10 OZ AG/T

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR MASSES & VUG LININGS

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 535 FT

MAX LENGTH..... 560 FT

STRIKE OF OREBODY.... N15W

DIP OF OREBODY..... 50E

COMMENTS(DESCRIPTION OF DEPOSIT):

THE VEIN CONTAINED 2 MAJOR ORES OF WHICH THE SOUTHERN ONE WAS FROM 35 TO 110 FT LONG BY 300 FT DEEP, & THE NORTHERN ONE FROM 25 TO 100 FT LONG BY 410 FT DEEP. IN THE VICINITY OF THESE SHOOTS THE VEIN SHOWS MORE IRON & MANGANESE MINERALIZATION & ITS WALLS ARE INTERSECTED BY ABUNDANT TRANSVERSE FRACTURES.

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 535 FT

LENGTH OF WORKINGS..... 560 FT

COMMENTS(DESCRIP. OF WORKINGS):

SHAFT OPERATIONS (KEITH, 1978) ONE OF EARLIEST OPERATIONS IN DISTRICT DATING BACK TO EARLY 1880'S AND PATENTED IN 1885 (KEITH, 1978). PRIOR TO 1881 THE RED CLOUD MINING CO. SANK AN INCLINE FOLLOWING THE DIP OF THE VEIN FOR 274 FEET & ERECTED A 20 TON FURNACE AT THE COLORADO RIVER & OPERATED IT INTERMITTENTLY FOR 3 YEARS. MINE IDLE FROM 1897 TIL 1917 WHEN THE RED CLOUD CONSOLIDATED MINES CO. INSTALLED A SMALL DRY-CONCENTRATOR WHICH BURNED DOWN AFTER ONLY A FEW TEST RUNS. LATER E.R. ROERICKE CO. RAN SOME DRIFTS, SANK SEVERAL DRILL HOLES & INSTALLED SOME SURFACE EQUIPMENT. UNDERGROUND IRREGULAR SHAFTS, DRIFTS & STOPES HAVE FOLLOWED THE VEIN FOR 560 FT & AN INCLINED DEPTH OF 535 FT WHICH WAS THE WATER LEVEL IN 1933.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OYFRBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	21	TONS	1880-1974	18 OZ/T AG, 5.5% PB, AU, ZN.

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 177

PRODUCTION COMMENTS.... THE TOTAL ESTIMATES & RECORDED PRODUCTION WOULD BE SOME 21,000 TONS OF ORE AVERAGING ABOUT 18 OZ AG/T AND 5.5% PB & MINOR AU. SOME PB, ZN, & AG RECOVERED FROM DUMPS IN 1949.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
 HOST ROCK TYPES..... ANDESITE BRECCIA, DACITE PORPHYRY, RHYOLITIC TO DACITIC TUFFS. & LAPILLI TUFFS
 IGNEOUS ROCK TYPES..... FAULTED AGAINST GRANODIORITE TO QUARTZ DIORITE

PERTINENT MINERALOGY..... GANGUE OF IRON OXIDES, QUARTZ, FLUORITE, CALCITE, GAUGE & BRECCIATED WALL ROCK

IMPORTANT ORE CONTROL/LOCUS.. VEIN OCCURS IN AN IRREGULAR FAULT ZONE BETWEEN TERTIARY ANDESITE BRECCIA, DACITE PORPHYRY, RHYOLITE TO DACITIC TUFFS AND LAPILLI TUFFS AND GRANODIORITE TO QUARTZ DIORITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

IRREGULAR FAULT ZONE; MOST PROMINENT FAULTS STRIKE NNW & FORM CONTACTS BETWEEN GRANITE & LAVAS

SIGNIFICANT ALTERATION:

WALL ROCKS SILICIFIED, SERICITIZED, & CARBONATIZED.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

BEST ORE AT INTERSECTIONS OF FAULT & CROSS FRACTURES

COMMENTS (GEOLOGY AND MINERALOGY):

"REGARDED BY MANY AS THE WORLD'S PREMIER WULFENITE LOCALITY FOR THE REMARKABLE CRYSTALS" THEY ARE A BRILLIANT ORANGE-RED COLOR & UP TO 2 INCHES ON AN EDGE.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 178.
- 2) WILSON, F.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 65-67.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS, 193 P., MAPS.
- 4) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, P. 207.
- 5) BLAKE, W.P., 1881, VANADINITE IN ARIZONA: AMER. JOUR. SCI., V. 22, 3RD SER., P. 235.
- 6) FLEISCHER, M., 1959, THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE: ECON. GEOL., V. 54, P. 1406-1413.
- 7) FOSHAG, W.F., 1919, FAMOUS MINERAL LOCALITIES: YUMA COUNTY, ARIZONA: AMER. MIN., V. 4, P. 149-150.
- 8) HAMILTON, P., 1881, THE RESOURCES OF ARIZONA: 1ST ED., PRESCOTT, ARIZ., P. 73.
- 9) HAMILTON, P., 1884, THE RESOURCES OF ARIZONA: 3RD ED., P. 238.
- 10) MINES HANDBOOK AND COPPER HANDBOOK, 1920, BY W.H. WEED.
- 11) PETERSON, R.G., HAMILTON, J.C., AND MYERS, A.T., 1959, AN OCCURRENCE OF RHENIUM ASSOCIATED WITH URANINITE IN COCONINO COUNTY, ARIZONA: ECON. GEOL., V. 54, P. 254-267.
- 12) THOMPSON, A.P., 1925, THE SILVER MINING DISTRICT IN YUMA COUNTY: ARIZ. MIN. JOUR., V. 8, NO. 16, P. 3-4.
- 13) SILLMAN, B., 1881, MINERALOGICAL NOTES: AMER. JOR. SCI., V. 22, 3RD SER., P. 198-205.
- 14) WILSON, E.D., 1951, SILVER AND EUREKA DISTRICTS, IN ARIZONA ZINC AND LEAD DEPOSITS, PART II: ARIZ. BUR. MINES BULL. 158, P. 90-93.
- 15) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 16) ATOMIC ENERGY COMM. MICROFILM.

RECORD 00464

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO..... M030319
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... RED KNGB MINE
MINING DISTRICT/AREA/SUBDIST. MUGGINS DIST/MUGGINS MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA
LAND CLASSIFICATION..... 50

QUAD SCALE QUAD NO OR NAME
1: 0024000 WELLTON, ARIZ.

LATITUDE LONGITUDE
32-44-30N 114-12- W

TWP..... 08S
RANGE..... 19W
SECTION.. 10
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES NW OF WELLTON

COMMODITY INFORMATION

COMMODITIES PRESENT..... U V MO CU

MAIN ORE MINERALS:
U-WEBSITE V VANADINITE, CU CUPRITE

MINOR ORE MINERALS:
WULFENITE, CARNOTITE OR TINYAMUNITE, URANOPHANE (?)

COMMODITY COMMENTS:

RADIOACTIVITY AVERAGES 5-10 TIMES BACKGROUND WITH MAXIMUM 100 TIMES BACKGROUND.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

BEDDED

FORM/SHAPE OF DEPOSIT: HIGH GRADE POCKETS

SIZE/DIRECTIONAL DATA

MAX LENGTH.....	100	FT
MAX WIDTH.....	3	FT
MAX THICKNESS.....	10	FT

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

PROSPECTED & SOME URANIUM MINERALIZATION STOCKPILED (KEITH, 1970, P. 257)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.....	TERT
HOST ROCK TYPES.....	OPALIZED MUDSTONE, VOLCANICS, & SANDSTONE

AGE OF ASSOC. IGNEOUS ROCKS..	TERT
IGNEOUS ROCK TYPES.....	VOLCANICS (22 M.Y.)

PERTINENT MINERALOGY..... CALCITE, & GYPSUM, CHALCEDONY OPAL

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE WITH WEEKSITE, VANADINITE, & CUPRITE; WULFENITE OCCURS WITH GASTUNITE COATING AND INTERGROWN WITH IT;
ALSO ASSOCIATED WITH VANADINITE, CUPRITE, CHALCEDONY, "LIMONITE".

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 207.
- 2) HONEA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
- 3) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 164.
- 4) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 218-220.
- 5) KEITH, STANTON B., 1970, URANIUM, IN PIERCE, H.W., KEITH, S.B. & WILY, J.C., 1970, COAL, OIL NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 103-159, 202-269.
- 6) REYREYNER, M.L., AND ASHWILL, W.R., 1955, PRELIMINARY RECONNAISSANCE REPORT ON URANIUM OCCURRENCES OF THE YUMA TEST STATION, YUMA COUNTY, ARIZONA: U.S. ATOMIC ENERGY COMMISSION P.R.R.-A-P-302 (RED KNOB CLAIMS), 1P.
- 7) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 8) OUTERBRIDGE, W.F., M.H. STAATS, R. MEYROWITZ, AND A.H. POMMER (1960) WEEKSITE, A NEW URANIUM SILICATE FROM THE THOMAS RANGE, JUAB COUNTY, UTAH. AMER. MIN. 45: 39-52.
- 9) LANCE, J.F., AND WOOD, P.A., 1958, NEW MIOCENE FOSSIL LOCALITY FROM SOUTHWESTERN ARIZONA (ABS.): GEOL. SOC.

AMERICA BULL. 69, NO. 12, P. 1694.

10)DAMON, P.E., AND OTHERS, 1968, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: U.S. ATOMIC ENERGY COMM. ANN. PROG. REP. NO. COO-689-100, P. 47.

NEARBY AREAS

11)BABCOCK, H.M., (AND BROWN, S.C., AND HEM, J.D.) 1947 GEOLOGY AND GROUND-WATER RESOURCES OF THE WELLTON-MOHAWK AREA. YUMA COUNTY, ARIZONA: USGS MIMED. REP., 22 P., MAPS

12)BABCOCK, H.M., (AND SOURDRY, A.M.,) 1948, WELLTON-MOHAWK AREA, YUMA COUNTY, ARIZONA: RECORDS OF WELLS, WELL LOGS, WATER ANALYSES, AND MAPS SHOWING LOCATIONS OF WELLS: USGS MIMED. REP., 39 P.

13)BROWN, R.H., (AND HARSHBARGER, J.W., AND THOMAS, H.E.) 1956 ANALYSIS OF BASIC DATA CONCERNING GROUNDWATER IN THE YUMA AREA, ARIZONA: USGS GROUND-WATER BRANCH MIMED. REP., 117 P., ILLUS.

14)DARTON, N.H., 1933, GUIDEBOOK OF THE WESTERN UNITED STATES, PART F. THE SOUTHERN PACIFIC LINES, NEW ORLEANS TO LOS ANGELES: U.S. GEOL. SURVEY BULL. 845, 304 P., P. 232-6.

15)EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.

16)KHALAF, J.M., 1951, THE WATER RESOURCES OF THE LOWER COLORADO RIVER BASIN: UNIV. CHICAGO, DEPT. GEOL. RESEARCH PAPER 22, V. 22, P. 2,234 P., ILLUS., MAPS

17)LEE, W.T., 1906, GEOLOGY OF THE LOWER COLORADO RIVER: GEOL. SOC. AM. BULL., V. 17, P. 275-285.

18)METZGER, D.G., 1952, WELLTON-MOHAWK AREA (GROUNDWATER), YUMA COUNTY: USGS OPEN-FILE REP., P. 165-176.

19)METZGER, D.G., 1961, GEOHYDROLOGIC INVESTIGATIONS OF THE LOWER COLORADO RIVER VALLEY: USGS OPEN-FILE REP., 8 P.

20)OLMSTED, F.H., LOELTZ, D.S., AND IRELAND, B., 1973, GEOHYDROLOGY OF THE YUMA AREA: U.S. GEOL. SURVEY PROF. PAPER 486-H, 227 P., MAPS.

20)PETERSON, DONALD L. (AND OTHERS) 1967, PRINCIPAL FACTS FOR GRAVITY STATIONS IN THE YUMA AREA, ARIZONA, AND BLYTHE, CALIFORNIA: USGS OPEN-FILE REP.

21)ROSS, C.P., 1922, ROUTES TO DESERT WATERING PLACES IN THE LOWER GILA REGION, ARIZONA: USGS WATER-SUPPLY PAPER 490-C, P. 1-4, 271-315, MAPS

22)ROSS, C.P., 1923, THE LOWER GILA REGION, ARIZONA; A GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC RECONNAISSANCE WITH A GUIDE TO DESERT WATERING PLACES: USGS WATER-SUPPLY PAPER 498, 237 P., MAPS

23)WOOD, P.A., 1956, A MIOCENE CAMEL FROM WELLTON, YUMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 37 P. (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 54-55 (1958)

RECORD 00465

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030325
RECORD TYPE..... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 05

NAME AND LOCATION

DEPOSIT NAME..... SONORA MINE GROUP
SYNONYM NAME..... LINDA GROUP ALSO ERRONEOUSLY REPORTED AS SONORA MINE GROUP; OWNERS DE LUCE, HAACK,
ESSENTIAL MINERALS LTD., CADWALLER, WALL, HOMESTAKE MG. CO.

MINING DISTRICT/AREA/SUBDIST. CASTLE DOME

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 CASTLE DOME MTNS, ARIZ.

LATITUDE LONGITUDE
33-01-50N 114-10-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3658150. 763950. +11

TWP..... 04S 05S
RANGE..... 19W 19W
SECTION.. 36 SE 01 NE
MERIDIAN. GILA & SALT R., AZ BASELINE

ALTITUDE.. 1320 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 MILES W OF THUMB PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F BA V MO ZN AU CU AS SE BE SB

MAIN COMMOD.....
MINOR COMMOD..... CU AS SE BE SB

MAIN ORE MINERALS:

ARGENTIFEROUS GALENA, FLUORITE

MINOR ORE MINERALS:

HYDROZINCITE, LEAD AND ZINC CARBONATES, ANGLESITE, RED LEAD OXIDES, CERUSSITE, WULFENITE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN

FORM/SHAPE OF DEPOSIT: IRREGULAR LENSING VEINS & MASSES

SIZE/DIRECTIONAL DATA

DEPTH TO BOTTOM..... 300 FT

MAX LENGTH..... 250 FT

MAX WIDTH..... 5 FT

STRIKE OF OREBODY.... N30W

DIP OF OREBODY..... 60E

COMMENTS(DESCRIPTION OF DEPOSIT):

VEIN STRIKES N20-40 W, DIPS 50-70 E; ON THE 100 FOOT LEVEL ZONES

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 250 FEET

COMMENTS(DESCRIP. OF WORKINGS):

ONE OF THE PRINCIPAL PRODUCERS OF THE DISTRICT FROM 1800'S TO RECENT YEARS. WORKED FROM SHAFTS & STOPED OUT DOWN TO ABOUT 250 FEET BELOW THE SURFACE. STOPE FILL AND DUMPS REWORKED FOR LEAD & SILVER AND GROUP WAS A MAJOR PRODUCER OF FLUORSPAR (KEITH, 1978, P. 121). WORKINGS IN 1933 ON THE SENDRA VEIN INCLUDED 3 SHAFTS IN THE SOUTH-CENTRAL PORTION. THE SOUTHERNMOST 2 SHAFTS, 250 FEET AND 300 FEET DEEP ARE 200 FEET APART AND MOSTLY CONNECTED BY STOPES. FROM THE BASE OF THE GRAVELS TO THE 200 FOOT LEVEL, THE VEIN HAS BEEN STOPED OUT OVER 100 TO 250 FEET FOR AN AVERAGE WIDTH OF 3 FEET. BELOW 200 FOOT LEVEL STOPING EXTENDS 50 FEET DEEP FROM A LENGTH OF 125 TO 150 FEET SOUTH OF THE DEEPER SHAFT. THE 300 FOOT LEVEL WAS RUN IN 1914, BUT THE UPPER WORKINGS ARE CONSIDERABLY OLDER.

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE	UNKNOWN			29 OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1933, P. 92

PRODUCTION COMMENTS.... HAS PRODUCED A LARGE, BUT UNKNOWN AMOUNT OF ORE. ACCORDING TO THE OWNER IN 1933, GALENA FROM THIS CLAIM AVERAGED ABOUT 29 OZ AG/TON

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MESOZOIC

HOST ROCK TYPES..... SHALE

IGNEOUS ROCK TYPES..... DIORITE PORPHYRY & QUARTZ PORPHYRY DIKES

PERTINENT MINERALOGY..... GANGUE OF BANDED, BLOCKY CALCITE, CRYSTALLINE FLUORITE, BLADED TO MASSIVE BARITE AND MINOR QUARTZ GYPSUM

IMPORTANT ORE CONTROL/LOCUS.. IN LENSING VEINS ALONG WAVY FAULT ZONES CUTTING BANDS OF STEEPLY DIPPING MESOZOIC SHALE, ALTERNATING WITH A SERIES OF DIORITE PORPHYRY & QUARTZ PORPHYRY DYKES. VEIN WORKINGS ABOVE 250 FOOT LEVEL ARE MAINLY IN DIORITE PORPHYRY, CUT BY QUARTZ PORPHYRY & BELOW 250 FOOT LEVEL ARE MAINLY IN QUARTZ PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

WALL ROCKS SILICIFIED, CARBONATIZED & SERICITIZED WITH ALTERED PYRITE METACRYOTS

COMMENTS (GEOLOGY AND MINERALOGY):

ALTERED, PLACER GALENA NODULES OCCUR IN THE VARIABLE DEPTH OF SURFACE GRAVELS OVER THE VEINS JUST ABOVE THE ROCK PEDIMENT SHOWING HIGH SILVER VALUES.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 121.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 92-95.
- 3) WILSON, E.D., 1951, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES, BULL. 158, P. 107-108.
- 4) BURCHARD, E.F., 1934, FLUORSPAR DEPOSITS IN WESTERN UNITED STATES: A.I.M.E. TRANS., V. 109, P. 370-373.
- 5) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 6) ATOMIC ENERGY COMMISSION MICROFILM DATA.

RECORD 00466

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030309
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... SILVER GLANCE CLAIMS

MINING DISTRICT/AREA/SUBDIST. SILVER

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ. - CALIF.

LATITUDE LONGITUDE
33-05-45N 114-35-40W

TWP..... 04S
RANGE..... 23W
SECTION.. 11 NE C 11 EC
MERIDIAN. GILA & SALT R, ARIZ BASELINE

ALTITUDE.. 720 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NORTH OF BLACK ROCK, EAST OF PACIFIC CLAIMS

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD AG MN FE

MAIN ORE MINERALS:

PARTLY OXIDIZED GALENA, ANGLESITE, CERUSSITE

MINOR ORE MINERALS:

LIMONITE, WULFENITE, YELLOW LEAD OXIDE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNERS-HELA BY S.P. HUSS IN 1933; JONES, GERONIMO MG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEIN
FORM/SHAPE OF DEPOSIT: IRREGULAR

SIZE/DIRECTIONAL DATA

STRIKE OF OREBODY.... S15W
DIP OF OREBODY..... 45SE

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 200 FT
LENGTH OF WORKINGS..... 250 FT

COMMENTS(DESCRIP. OF WORKINGS):

TUNNEL & SHAFT OPERATIONS (KEITH, 1978). TUNNEL DRIVEN WESTWARD INTO A LOW RIDGE TO INTERSECT VEIN. AT A DISTANCE OF 150 FT FROM POSTED IT CUTS A SMALL LEAD AND CONTINUES FOR 100 OR MORE FEET TO AN OLD 200 FT DEEP SHAFT ON THE MAIN LEAD, BUT WAS PARTLY FILLED WITH WASTE ROCK (WILSON, 1933, P. 70)

PRODUCTION

SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978, P. 178

PRODUCTION COMMENTS.... PATENTED IN 1831 AND MAY HAVE PRODUCED SOME SILVER ORE IN EARLY DAYS; NO DETAILS OF ITS PRODUCTION IS KNOWN (WILSON 1933)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MFS
HOST ROCK TYPES..... QUARTZ SERICITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS.. LAVAS & TUFFS

PERTINENT MINERALOGY..... QUARTZ, IRON OXIDE, MANGANIFEROUS CALCITE

IMPORTANT ORE CONTROL/LOCUS.. CAVITIES FILLED WITH LIMONITE & WULFENITE CRYSTALS IN A BROAD, BRECCIATED FAULT ZONE OFFSET BY TRANSVERSE FAULTS & WITH SILICEOUS CEMENT. WALL ROCKS ARE METAMORPHASED SCHIST.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BROAD, BRECCIATED FAULT ZONE SLIGHTLY OFFSET BY SEVERAL TRANSVERSE FAULTS, STRIKES S15 W & DIPS 45 SE, BUT STEEPENS SOMEWHAT IN DEPTH.

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 178.
- 2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, P. 68-70.

- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS.
- 4) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00467

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030310
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... SILVER KING CLAIM
MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO MTS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0024000 PICACHO, ARIZ. - CALIF.

TWP..... 04S
RANGE.... 23W
SECTION.. 01 NE
MERIDIAN. GILA & SALT R., ARIZ BASELINE

POSITION FROM NEAREST PROMINENT LOCALITY: JOINS PRINCESS & HAMBURG CLAIMS ON EAST

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB AG F MD MN CU FE V BA SR CU

MAIN COMMOD.....

MINOR COMMOD..... CU

MAIN ORE MINERALS:

GALENA, ANGLESITE, CERUSSITE, YELLOW LEAD OXIDE

MINOR ORE MINERALS:

WULFENITE, MANGANESE & COPPER STAIN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

PROPERTY IS INACTIVE

PRESENT/LAST OWNER..... OWNERS - HELD BY S.P. HUSS IN 1933; JONES, GERONIMO MG. CO.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

FISSURE VEINS

FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 50 FT

LENGTH OF WORKINGS..... 200 FT

COMMENTS(DESCRIP. OF WORKINGS):

TUNNELS & SHAFT OPERATIONS. PROBABLY FOUND EARLY BUT NOT WORKED EXTENSIVELY (KEITH, 1978). WORKINGS CONSIST OF A 50 FT SHAFT AND A FEW SHORT TUNNELS DISTRIBUTED OVER A LENGTH OF ABOUT 200 FT ON THE BRECCIATED ZONE (WILSON, 1933, P. 64)

PRODUCTION

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
15	ORE EST	.05	TONS	1923, 1949	27% PB, 9 OZ/T AG

SOURCE OF INFORMATION (PRODUCTION).. KEITH, 1978

PRODUCTION COMMENTS.... PRODUCED SOME 50 TONS OF ORE IN 1923 & 1946 AVERAGING ABOUT 27% PB, 9 OZ AG/T & MINOR AU

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... TERT
 HOST ROCK TYPES..... ANDESITE FLOWS

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
 IGNEOUS ROCK TYPES..... ANDESITE FLOWS & GRANITE

AGE OF MINERALIZATION..... MESOZOIC SCHIST

PERTINENT MINERALOGY..... NARROW POCKETY, QUARTZ-FLUORITE VEINS WITH IRREGULAR MASSES OF HEMATITE & ORE

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN ANDESITE FLOWS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

100 FOOT WIDE BRECCIATED FAULT ZONE

SIGNIFICANT ALTERATION:

SILICIFIED & CARBONATIZED, CONTACT METAMORPHASED TERTIARY VOLCANICS

GENERAL REFERENCES

- 1) KEITH, STANTON B. 1979, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 178.
- 2) WILSON E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 64.
- 3) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS, 193 P.
- 4) STEWART, L.A., AND PFISTER, A.J., 1960, BARITE DEPOSITS OF ARIZONA: U.S. BUR. MINES R.I. 5651.
- 5) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 6) ATOMIC ENERGY COMM. MICROFILM.

RECORD 00468

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030321
RECORD TYPE..... X1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... SMITH CLAIMS
SYNONYM NAME..... OWNERS BEFORE 1933 WERE PEOSTEL & EVERHARDY, BUT HELD IN 1933 BY C.A. SMITH

MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA) DIST/WESTERN FOOT OF COPPER MTS.

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 TINAJAS ATLAS, ARIZ.

LATITUDE LONGITUDE
32-28-54N 114-00-10W

UTM NORTHING UTM EASTING UTM ZONE NO
3597570. 781630. 11

TWP..... 11S
RANGE.... 17W
SECTION.. 12 NW OF SW
MERIDIAN. GILA & SALT R.

ALTITUDE.. 1040 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 18 MILES SOUTH OF WELLTON BY TULE WELL ROAD

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU FE AG MO AU

MAIN ORE MINERALS:
CHRYSOCOLLA, COPPER PITCH, HEMATITE

MINOR ORE MINERALS:
GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):
SHORT DRIFTS & SHALLOW WINZES (WILSON, 1933, P. 167)

PRODUCTION
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION).. WILSON, 1933, P. 167

PRODUCTION COMMENTS.... A FEW TONS OF GOLD ORE HAVE BEEN SHIPPED FROM THIS GROUND

GEOLOGY AND MINERALUGY

HOST ROCK TYPES..... GRANITE
IGNEOUS ROCK TYPES..... PIGMATITE DIKES & GRANITE INTERMINGLED WITH COARSE SERIC

PERTINENT MINERALOGY..... BRECCIATED, COARSE-GRAINED, VITREOUS GRAYISH QUARTZ; IN PLACES LARGE MASSES OF
LIMONITE, & SOME GYPSUM & JAROSITE, ARE ABUNDANT

IMPORTANT ORE CONTROL/LOCUS.. POCKETS OF QUARTZ CONTAIN FINELY DIVIDED GOLD IN BRECCIATED ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
A BRECCIATED ZONE STRIKES N33 W DIPS 60 E & IS UP TO 3 FT WIDE

GENERAL REFERENCES

- 1) WALLA BY ENTERPRISES, TUCSON, ARIZONA, MINING DISTRICT DATA BASE FILE.
- 2) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 160.
- 3) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P., P. 167.
- 4) NEARBY AREAS & REGIONAL GEOLOGY:
 - 5) BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOL. SURVEY WATER-SUPPLY PAPER 499
 - 6) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
 - 7) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.

RECORD 00469

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M030331
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER

NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... SUGARLOAF PEAK AREA
MINING DISTRICT/AREA/SUBDIST. MIDDLE CAMP (ORO FINO) DIST./DOME ROCK MTS.
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOME ROCK MTS, ARIZ. - CALIF

LATITUDE LONGITUDE
33-38-00N 114-19-00W

TWP..... 03N
RANGE..... 20W
SECTION.. 03
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE SOUTH OF INTERSTATE 10

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB MD BI W SN AL3

MAIN ORE MINERALS:
ALUNITE NATROALUNITE

MINOR ORE MINERALS:
LEAD, MOLYBDENUM, BISMUTH, TUNGSTEN, & TIN GEOCHEMICAL ANOMALIES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):

SEVERAL ANOMALIES HAVE BEEN DRILLED IN THE RECENT PAST (CROWL, 1979).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES
 HOST ROCK TYPES..... DOME ROCK METAMORPHIC FORMATION

IMPORTANT ORE CONTROL/LOCUS.. AN AREA OF POSSIBLY ECONOMIC QUANTITIES OF ALUNITE OCCUR BENEATH THE SILICIC CAP OF SUGARLOAF PEAK.

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:

INTENSE HYDROTHERMAL (?) QUARTZ-SERICITE - PYRITE ALTERATION. VERY STRONG SECONDARY SILICIFICATION OF THE QUARTZ -K-FELDSPAR-MUSCONITE SCHIST PRESENT AT THE TOP OF SUGARLOAF PEAK.

GENERAL REFERENCES

- 1) CROWL, W.J., 1979, GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS UNIV. ARIZ., 76 P.
 - 2) HEINEMAN, R.E.S., 1935, SUGARLOAF BUTTE ALUNITE: ENGR. MIN. JOUR., V. 136, P. 138-9.
 - 3) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 161-162.
 - 4) BANCROFT, H., 19118 RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 4518 130 P. P. 85-86.
 - 5) JONES, E.L., JR., 1916 GOLD DEPOSITS NEAR QUARTZSITE, ARIZONA: U.S. GEOL. SURVEY BULL. 620, P. 45-57.
 - 6) GARDNER, E.D., AND JOHNSON, C.H., 1934, PLACER MINING IN THE WESTERN UNITED STATES: U.S. BUR. MINES I.C. 6786.
 - 7) WILSON, E.D., 1961, GOLD PLACER AND PLACERING IN ARIZONA, 6TH ED., REVISED: ARIZ. BUR. MINES BULL. 168, P. 30-31.
 - 8) JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355, P. 78-80.
 - 9) HEIKES, V.C., AND YALE, C.G., 1913, DRY PLACERS IN ARIZONA, NEVADA, NEW MEXICO, AND CALIFORNIA: U.S. GEOL. SURVEY MINERAL RESOURCES (1912), PT. 1, P. 254-263.
 - 10) KEITH, STANTON B., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., & WILT, J.C., COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 289.
 - 11) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
 - 12) KEISER, W.G., 1916, DRY PLACER MINING ON A LARGE SCALE (QUARTZSITE, YUMA COUNTY): MIN. ENGR. WORLD, V. 44, P. 999-1000.
- RELATED AREAS:
- 13) MILLER, F.K., 1970, GEOLOGIC MAP OF THE QUARTZSITE QUADRANGLE, YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-841, SCALE 1:62,500, SECTIONS, TEXT.
 - 14) HARRER, C.M., 1964, RECONNAISSANCE OF IRON RESOURCES IN ARIZONA: U.S. BUR. MINES I.C. 8236.
 - 15) HALDERMAN, M.A., AND LAVIOLETTE, J.W., 1977, NORTHWEST-TRENDING, LEFT-SEPARATION FAULTS IN THE SOUTHERN DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 4, P. 384-385.
 - 16) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
 - 17) EBERLY, L.D., AND STANLEY, T.B., JR., 1978, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
 - 18) HAMILTON, WARREN, 1964, GEOLOGIC MAP OF THE BIG MARIA MOUNTAINS NE QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-350.
 - 19) MEITZER, D.G., LOELTZ, D.J., AND IRELAND, B., 1973, GEOHYDROLOGY OF THE PARKER-BLYTHE-CIBOLA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., MAPS.

- 20) MILLER, F.K., 1967, STRUCTURE AND PETROLOGY OF THE SOUTHERN PLOMOSA MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. PH.D. DISSERT., STANFORD UNIV., 107 P.
- 21) ROBISON, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.
- 22) THOMEN, J.R., 1941, ALUNITE RESOURCES OF THE UNITED STATES: U.S. BUR. MINES R.I. 3561, 48 P.

RECORD 00470

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030338
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... TOPAZ CLAIMS
SYNONYM NAME..... OWNER IN 1955 AE LOFTGRENN, L.E. FILLING
MINING DISTRICT/AREA/SUBDIST. ORD FINE, MIDDLE CAMP DIST/DOME ROCK MTS
CONTINENT OR GLOBAL AREA..... LIMONITE, MOLYBDENUM, SCHEELITE COPPER STAINING
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 DOME ROCK MTNS. ARIZ-CALIF.

LATITUDE LONGITUDE
33-40-10N 114-18-30W

TWP..... 04N
RANGE.... 20W
SECTION.. 22 SE
MERIDIAN. GILA & SALT R..

ALTITUDE.. 1200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR MARQUETTA PASS, AND MIDDLE CAMP MTN ABOUT 2 MILES NORTH OF
EHRENBERG-QUARTZSITE ROAD (U.S. 60-72)9

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU W MO U AU

MAIN ORE MINERALS:
GOLD IN QUARTZ

ANALYTICAL DATA(GENERAL)

.055 EU308; 2EU308; EU308 SELECT SAMPLES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

VFINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 3 FT

STRIKE OF OREBODY.... N25W

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS(DESCRIP. OF WORKINGS):

A FEW GOLD PROSPECT PITS IN 1955. MAP SHOWS 3 SHAFTS & PROSPECTS.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... MES

HOST ROCK TYPES..... MID-JURASSIC MIDDLE CAMP QUARTZ MONZONITE (CROWL, 1979)

AGE OF ASSOC. IGNEOUS ROCKS.. TERT. (?)

IGNEOUS ROCK TYPES..... DIABLO QUARTZ MONZONITE (CROWL, 1979)

AGE OF MINERALIZATION..... TERT (?)

PERTINENT MINERALOGY..... QUARTZ VEINS

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN SCHIST INTRUDED BY DIORITE ALONG CONTACT

GENERAL REFERENCES

- 1) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 2) WALLABY ENTERPRISES, TUCSON, ARIZ, MINING DISTRICT DATA BASE FILE.
- 3) ASHWILL, W.R., 1955, TOPAZ CLAIMS: ATOMIC ENERGY COMM. PRELIMINARY RECONNAISSANCE REPORT A-P-308, 1 P.
- 4) CROWL, W.J., 1979, GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS UNIV. ARIZ., 76 P.
- 5) KEITH, STANTON B., 1979, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 161-162.
- 6) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 451, 130 P. P. 85-86.
- 7) JONES, E.L., JR., 1916 GOLD DEPOSITS NEAR QUARTZSITE, ARIZONA: U.S. GEOL. SURVEY BULL. 620, P. 45-57
- 8) GARDNER, E.D., AND JOHNSON, C.H., 1934, PLACER MINING IN THE WESTERN UNITED STATES: U.S. BUR. MINES. I.C. 6786.
- 9) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA, 6TH ED., REVISED: ARIZ. BUR. MINES BULL. 168, P. 30-31.
- 10) JOHNSON, M.G., 1972, PLACER GOLD DEPOSITS OF ARIZONA: U.S. GEOL. SURVEY BULL. 1355, P. 78-80.
- 11) HEIKES, V.C., AND YALE, C.G., 1913, DRY PLACERS IN ARIZONA, NEVADA, NEW MEXICO, AND CALIFORNIA: U.S. GEOL. SURVEY MINERAL RESOURCES (1912), PT. 1, P. 254-263.

- 12) HEINEMAN, R.F.S., 1935, SUGARLOAF BUTTE ALUNITE: ENGR. MIN. JOUR., V. 136, P. 138-9.
 - 13) KEITH, STANTON R., 1970, URANIUM, IN PEIRCE, H.W., KEITH, S.B., & WILT, J.C., COAL, OIL, NATURAL GAS, HELIUM, AND URANIUM IN ARIZONA: ARIZ. BUR. MINES BULL. 182, P. 289.
 - 14) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
 - 15) KEISER, W.G., 1916, DRY PLACER MINING ON A LARGE SCALE (QUARTZSITE, YUMA COUNTY): MIN. ENGR. WORLD, V. 44, P. 999-1000.
- RELATED AREAS:
- 16) MILLER, F.K., 1970, GEOLOGIC MAP OF THE QUARTZSITE QUADRANGLE, YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-841, SCALE 1:62,500, SECTIONS, TEXT.
 - 17) HARKER, C.M., 1964, RECONNAISSANCE OF IRON RESOURCES IN ARIZONA: U.S. BUR. MINES I.C. 8236.
 - 18) BALDERMAN, M.A., AND LAVIOLETTE, J.W., 1977, NORTHWEST-TRENDING, LEFT-SEPARATION FAULTS IN THE SOUTHERN DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA (ABS.): GEOL. SOC. AMERICA, ABSTR. WITH PROGRAMS, V. 9, NO. 4, P. 384-385.
 - 19) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
 - 20) EBERLY, L.D., AND STANLEY, T.B., JR., 1979, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
 - 21) HAMILTON, WARREN, 1964, GEOLOGIC MAP OF THE BIG MARIA MOUNTAINS NE QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA AND YUMA COUNTY, ARIZONA: U.S. GEOL. SURVEY GEOL. QUAD. MAP GQ-350.
 - 22) METZGER, O.G., LOELTZ, D.J. AND IRENA, R., 1973, GEOTHERMOLOGY OF THE PARKER-BLYTHE-CIBOLA AREA, ARIZONA AND CALIFORNIA: U.S. GEOL. SURVEY PROF. PAPER 486-G, 130 P., MAPS.
 - 23) MILLER, F.K., 1967, STRUCTURE AND PETROLOGY OF THE SOUTHERN PLOMOSA MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. PH.D. DISSERT., STANFORD UNIV., 107 P.
 - 24) ROBISON, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.

RECORD 00471

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030301
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC..

REPORTER
NAME..... HILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... UNKNOWN PROSPECT
MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA)/WELLTON HILLS
COUNTRY CODE..... US
STATE CODE..... 04
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 WELLTON AR17

LATITUDE LONGITUDE
32-32-40N 114-06-10W

TWP..... 10S
RANGE.... 18W
SECTION.. 22 NC
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR DOUBLE EAGLE MINE, 8 MILES SOUTH OF WELLTON

COMMODITY INFORMATION

COMMODITIES PRESENT..... CU FE PB MO

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIP. OF WORKINGS):
SHAFT

GENERAL REFERENCES

- 1) WALLARY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE

RECORD 00472

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030328
RECORD TYPE..... K1
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C.
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... YELLOW BREAST PROSPECT
MINING DISTRICT/AREA/SUBDIST. GILA BEND MTS DIST/CLANTON HILLS
COUNTRY CODE..... US
COUNTY..... YUMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 0024000 EAGLETAIL MTS., ARIZ. EAGLETAIL MTS. SW, ARIZ.

LATITUDE LONGITUDE
33-15-15N 113-22-48W

TWP..... 02S
RANGE..... 11W
SECTION.. 15 SW
MERIDIAN. GILA & SALT R.,

ALTITUDE.. 1360 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MI 6 NE OF BILL TAFT WORKINGS; GILA BEND MTS., ABOUT 4 MILES ESE OF CLANTON WELL

COMMODITY INFORMATION

COMMODITIES PRESENT..... PB F MO AG

MAIN ORE MINERALS:
GALENA, ANGLESITE, CERUSSITE

MINOR ORE MINERALS:
WULFENITE, YELLOW LEAD OXIDE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA

MAX WIDTH..... 5 FT
STRIKE OF OREBODY.... S30W
DIP OF OREBODY..... 90

DESCRIPTION OF WORKINGS
UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE. 45 FT

COMMENTS(DESCRIP. OF WORKINGS):

TWO VERTICAL SHAFTS ABOUT 45 FT DEEP (WILSON, 1933, P. 45)

GEOLOGY AND MINERALOGY

HOST ROCK TYPES..... CALCAREOUS SCHIST

PERTINENT MINERALOGY..... GANGUE OF PALE-GREEN CRYSTALLINE FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. V. IN 5 FT. WIDE, OF BRECCIATED, IRON STAINED, DULL BROWN QUARTZ

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE STRIKES & DIP WITH SCHIST (S30W, ABOUT 90 DIP)

COMMENTS (GEOLOGY AND MINERALOGY):

GRAVEL MANTLED PEDIMENT

GENERAL REFERENCES

- 1) KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, BULL. 192, P. 150-151.
- 2) WILSON, E.O., 1933b GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL., 134, P. 146.
- 3) EBERLY, L.D., AND STANLEY, T.B., JR., 1978 CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA: GEOL. SOC. AMERICA BULL., V. 89, NO. 6, P. 921-940.
- 4) WILSON, E.O., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
- 5) SCARBOROUGH, R., AND WILT, J.C., 1979, A STUDY OF URANIUM FAVORABILITY OF CENOZOIC SEDIMENTARY ROCKS, BASIN & RANGE PROVINCE, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY, OPEN FILE REPORT, 101 P.
- 6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
- 7) CHEESMAN, R.J., 1974, THE GEOLOGY OF THE WEBB MOUNTAIN DISTRICT, GILA BEND MOUNTAINS, MARICOPA COUNTY, SOUTHWESTERN ARIZONA: UNPUB. THESIS, NORTHERN ARIZ. UNIV.

RECORD 00473

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M030303
RECORD TYPE..... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1
MAP CODE NO. OF REC..

REPORTER
NAME..... WILT, JAN C
DATE..... 79 06

NAME AND LOCATION

DEPOSIT NAME..... MELISSA MINE

MINING DISTRICT/AREA/SUBDIST. SILVER DISTRICT, TRIGO MTS

COUNTRY CODE..... US

STATE CODE..... 04

COUNTY..... YUMA CO

QUAD SCALE QUAD NO OR NAME
1: 0062500 PICACHO ARIZ-CALIF

POSITION FROM NEAREST PROMINENT LOCALITY: RED CLOUD AREA

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WULFENITE

LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):

WULFENITE SPECIMENS EXHIBITINGS UNUSUAL FORMS - (U.A. #4281)

GENERAL REFERENCES

- 1) ANTHONY, J.W., WILLIAMS, S.A., AND BIDEAUX, R.A., 1977, MINERALOGY OF ARIZONA: TUCSON, UNIV. ARIZ. PRESS, 255 P., P. 20M.
- 4) NEARBY AREAS & REGIONAL GEOLOGY: KEITH, STANTON B., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P.
- 5) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES. BULL. 134, 236 P.
- 6) PARKER, F.Z., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, MSC THESIS
- 7) THOMPSON, A.P., 1925C, THE SILVER MINING DISTRICT IN YUMA COUNTY: ARIZ. MIN. JOUR., V.8, NO. 16, P. 3-4
- 8) WILSON, E.D., 1951, SILVER AND EUREKA DISTRICTS, IN ARIZONA ZINC & LEAD DEPOSITS, PART II: ARIZ. BUR. MINES BULL. 158, P. 83-97.