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
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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
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PRI NCIPAL MINES IN THE GOLD BASIN DISTRICT INCLUDE THE ELDORADO, EXCELSIOR, GOLDEN RULE, JIM BLAINE, NEVER-GET-LAST, O.K., & CYCLOPIC.

GOLD BASIN DISTRICT/E. WHITE HILLS

EAST COODE............. US

STATE CODE............. 04

LATITUDE.............. 35°47'45"N

LONGITUDE.............. 114°12'20"W

UTM NORTHING........... 3965000

UTM EASTING............ 61000

UTM ZONE NO............ 11

TWP.............. 24N

RANGE.............. 11W

SECTION........ 22 21 20 29 30

MERIDIAN........... GILA & SALT R.

ALTITUDE........... 2900-5000 FT 3600 FT

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

AMIODITY INFORMATION

COMMODITIES PRESENT--.. Au Pb As Mo W Ag

PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS--. Au Ag

MINOR PRODUCTS--. Pb Cu

MAIN COMMODO--.. Au

OCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL... MO

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. 
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 (vore, commod., conc., overbur.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>DRE ACC</td>
<td>15.109 TONS</td>
<td>1904-1932</td>
<td>0.413 OZ/T AU, 0.335 OZ/T AG, 0.000008% CU, 0.00058% PB, VALUED AT $133,014.</td>
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<tr>
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<tr>
<td>17</td>
<td>AG ACC</td>
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<td>1904-1932</td>
<td>0.335 OZ/T</td>
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<td>CU ACC</td>
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<td>1904-1932</td>
<td>0.000039% CU</td>
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<td>19</td>
<td>PB ACC</td>
<td>1.765 TONS</td>
<td>1904-1932</td>
<td>0.00058% PB</td>
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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:
2) BLACET, P.M., 1972, LATE CRETACEOUS PLUTONISM AND METALIZATION SOUTH OF LAKE MEAD: U.S. GEOLOGICAL SURVEY PROF. PAPER 800-A, P. 44.
2) GOLD BASIN:
3) DALE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPA1, 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.
7) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
8) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
9) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
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) NILLIS, 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 MODRIF, R.T., 1937, ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
25) LONGWELL, C.R., 1929, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION THROUGH THE VIRGIN RANGE TO THE GRAND WASH CLIFFS IN ARIZONA: YALE UNIV. PH.D. THESIS.
26) LONGWELL, C.R., 1929, GEOLOGY OF THE MUDDY MOUNTAINS, NEVADA, WITH A SECTION THROUGH THE VIRGIN RANGE TO THE GRAND WASH CLIFFS IN ARIZONA: USGS BULL. 798, 152 P., MAPS.
28) LUCCHITIA, IVO, 1966, CENOZOIC GEOLOGY OF THE UPPER LAKE MEAD AREA ADJACENT TO THE GRAND WASH CLIFFS, ARIZONA: UNPUBLISHED PH.D. THESIS, PENNSYLVANIA STATE UNIVERSITY.
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<td>Wilt, Jan C.</td>
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RECORD IDENTIFICATION

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

REPORTER

NAME. WILLY, JAN C.
DATE. 02 02

NAME AND LOCATION

DEPOSIT NAME. 3 PROSPECT
MINING DISTRICT/AREA/SUBDIST. BLACK HILLS DST.
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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 1800112
RECORD TYPE. X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1, 2

NAME AND LOCATION
DEPOSIT NAME. AMOLE DISTRICT

GENERAL COMMENTS
CONTINUED REFERENCES FROM M030512

GENERAL REFERENCES
1) 03) FRADEL, C., 1935, CATALOG OF MINERAL PSEUDOMORPHS IN THE AMERICAN MUSEUM: BULL. AMER. MUS. NAT. HIST., LIV
2) 05) GUILD, F.N., 1910, THE MINERALOGY OF ARIZONA: THE CHEMICAL PUBLISHING CO., EASION, PA., 103 P.
3) 05) GUILD, F.N., 1915, PETROGRAPHY OF THE TUCSON MOUNTAINS AMER. JOUR. SCI., 4TH SER., V. 20, P. 313.
4) MINES HANDBOOK, 1918, OLD YUMA MINE: MINES HANDBOOK, V. 13, P. 554.
5) U.S. BUR. MINE, 1916, USAM BULL. 111.
GENERAL REFERENCES

8) KUSS, C.P., 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 771, 72 P.
12) MCCURRY, W.G., 1971, MINERALOGY AND PARAGENESIS OF THE ORES, CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNPUB. M.S. THESIS, AKIZ. STATE UNIV., 47 P.
18) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
21 ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES.
31 KING, R.H., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
35 KING, R.H., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 230-238, P. 236, #23
NAME AND LOCATION
DEPOT NAME: BLUE BELL GROUP
SYNONYM NAME: BELL 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/F SIDE HUALAPAI MTS

COUNTRY CODE: US
STATE CODE: 04

QUAD SCALE: 0024
QUAD NO OR NAME: DEAN PEAK, ARIZ

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

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

ALTITUDE: 4500 F

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

COMMODOITY INFORMATION
COMMODOITIES PRESENT: W MD BI PB CU AG AU

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS: W AU AG CU PB

MAIN COMMODO: W
MINOR COMMODO: MD BI

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

MAIN ORE MINERALS:

MINOR ORE MINERALS:
PYRITE, MOLYBDENUM, BISMUTHENITE HUEBNERITE, WOLFRAMITE, SCHELLEITE

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 .... M30W
DIP OF OREBODY ....... 75 SW

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENIS (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 (Ore, Commod., Conc., Overburd.)

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<th>ITEM</th>
<th>WO3 ACC</th>
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<td>2</td>
<td>1.3355</td>
<td>7,3453</td>
<td>1955</td>
<td>5,587</td>
<td>W03, D'AILE, 1961, p. 93</td>
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GEOLGY 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., 1951, 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
3) 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.
4) ARIZ. DEPT. MIN. RES., 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
6) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4-5, 32.
10) HOUSEHOLDER, C., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
13) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
16) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEO. SOC. AMERICA MEM. 15, 241 P.
17) KRIESSLER, 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.
18) VUCH, 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.
19) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 140, GEOL. SERIES 14, 54 P., P. 15
20) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF EASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 352, 96 P.
22) MALACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
23) MALACH, R., 1957, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
24) MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
25) MASON, W.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-629, MIN. AND SCI. PRESS.
27) MINING WORLD, V. 3, NO. 4, 1941.
30) KUMSL, V.H., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
BORIANA MINE

COUNTRY CODE: US

STATE CODE: 04

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

UTM NORTING: 3869730
UTM EASTING: 233770

UTM ZONE NO: 12

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

ALTIMETRY: 5100 FT

MAIN ORE MINERALS:
ADD-CUPROTUNGSTITE

MINOR ORE MINERALS:

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

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<th>AMOUNT</th>
<th>THOUS. UNITS</th>
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<th>GRADE, REMARKS</th>
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<tr>
<td>15</td>
<td>ORE EST</td>
<td>73.017</td>
<td>TONS</td>
<td>1934-1957</td>
<td>0.24% Cu, 0.148 oz Ag, 0.006 oz Au</td>
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<td>16</td>
<td>DUMP ACC</td>
<td>135</td>
<td>TONS</td>
<td>1950-55</td>
<td>1.7 lbs/t WO3 (DALE, 1961)</td>
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<td>17</td>
<td>W03 UNITS ACC</td>
<td>10.1</td>
<td>UNITS</td>
<td>1951-1956</td>
<td>DALE, 1961, P. 73</td>
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<td>18</td>
<td>W03 UNITS ACC</td>
<td>108</td>
<td>UNITS</td>
<td>1915-1943</td>
<td>HOBBS, P. 249</td>
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<td>19</td>
<td>W UNITS ACC</td>
<td>80</td>
<td>UNITS</td>
<td>1915-1930</td>
<td>WILSON, 1941</td>
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SOURCE OF INFORMATION (PRODUCTION): WILSON, 1941
**CRI8 MINERAL RESOURCES FILE 12**

**RECORD IDENTIFICATION**
- RECORD NO: 0000847
- RECORD TYPE: XI
- COUNTRY/ORGANIZATION: USGS
- INFORMATION SOURCE: 1
- MAP CODE NO.: DF REC

**REPORER**
- 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: 34°56'-15"N
- LONGITUDE: 113°54'-53"W
- UTM NORTHING: 3869730
- UTM EASTING: 233770
- UTM ZONE NO: 12
- TWP: 18N
- RANGE: 15W
- SECTION: 18 00 19 31 12 13
- ALTITUDE: 5,100 FT

**MAIN ORE MINERALS:**
- Cu
- Ag
- Au

**MINOR ORE MINERALS:**
- CUPROTUNGSTITE

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

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<td>0.24% Cu, 0.148 oz Ag, 0.006 oz Au</td>
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<td>16</td>
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<td>W UNITS ACC</td>
<td>80</td>
<td>UNITS</td>
<td>1915-1936</td>
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**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 FLOTATION CONCENTRATES IN 1919.

RESERVES AND POTENTIAL RESOURCES

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<td>2</td>
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<td>EST 44</td>
<td>TONS</td>
<td>1943</td>
<td>18 WO3</td>
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SOURCE OF INFORMATION (RESERVES/POT RESOURCES)... HOBBS, 1944

GEOLGY AND MINERALOGY

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

GENERAL REFERENCES

3) HOBBS, S. W., 1944, TUNGSTEN DEPOSITS IN THE GILA—YAVAPAI—MOHAVE DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES SURVEY BULL. 960-1, P. 247-264, MAPS.
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: 48 P.
9) AKIZ, BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
10) MINING WORLD, V. 3, NO. 4, 1941.
18) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES BULL. 752, 57 P.
19) KESSLER, K., 1976, RUBIDUM-STRONTIUM GECHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ., 73 P.
20) LEWIS, D. A., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 352, 96 P.
21) MASON, R. T., 1917, MINING IN NORTHEASTERN ARIZONA, PP. 627-628, MIN. AND SCIENCE PRESS.
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.


32) SCHRADE, 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.


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


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.

GENERAL REFERENCES


111) L I M I N G , RICHARD BRETT, 1974, GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE MARTINEZ RANCH AREA, PIMA COUNTY, ARIZONA. M.S. THESIS


124) M C K E N N A , JOHN J., BUEHMAN CANYON PALEOZOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P. (1965)

125) B E D O H I , P. K., 1964, A GEOLOGIC STUDY OF THE PONTIAC MINING AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS


127) M I L E S , CHARLES H., METAMORPHISM AND HYDROTHERMAL ALTERATION IN THE LECHEGUILLA PEAK AREA OF THE RIMCON MOUNTAINS, COCHISE COUNTY, ARIZONA: UNIV. ARIZ., PHD THESIS, 96 P. (1965); (ABs.); DISSERT. ABs., V. 26, NO. 9, P. 977 (1966)


164) Shride, W., 1967, YOUNGER PRECAMBRIAN GEOLOGY IN SOUTHERN ARIZONA: U.S. GEO. SURVEY PROFESSIONAL PAPER 566, 89 P.


168) Smith, Walter J. CENOZOIC STRATIGRAPHY NEAR REDINGTON, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 96 P. (1946)


170) Streitl, Robert SURFACE STRATIGRAPHY AND HYDROLOGY OF THE SANTA CATALINA MOUNTAIN AREA, SOUTHERN ARIZONA: (M.S. THESIS): TUCSON, UNIVERSITY OF ARIZONA, 165 P.


174) Tenney, J.B., 1936, GEOLOGICAL REPORT, APACHE PEAK GOLD PROSPECT, OLD HAT MINING DISTRICT, PINAL COUNTY, ARIZONA: PRIVATE REPORT, 4 P.

175) Voelker, Klaus CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1958)


180) Wilson, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL., 140, P. 34.


GENERAL REFERENCES


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82) Masters, Arizona (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.
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.


MINING DISTRICT/AREA/SUBDIST. COPPER CREEK DISTRICT

GENERAL REFERENCES FROM RECORD NUMBER 1000483

3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, Pt. 2: ARIZONA BUR. MINES BULL. 156, GEOLOG. 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, GEOLOG. SERIES 12, P. 127-130.
6) HASKETT, C.F., AND MEICH, W., 1940, DETERMINATION OF RHENIUM IN MOLYBDENITE MINERALS: INDUS. AND ENG. CHEMISTRY, ANAL. ED., V. 12, P. 503-506, TABLE 7.
9) KAISER, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.
7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
12) CREASEY, S.C., AND KRIEGER, M.H., 1979, THE GALIURU VOLCANSICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA:
Discusses briefly the general geology, and lists the properties, production, reserves, activities, equipment, and officers of the Copper State Mining Company.
RECORD IDENTIFICATION
RECORD NO. M030334
RECORD TYPE K1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1
MAP CODE NO. OF REC

REPORER
NAME WILT, JAN C.
DATE 79 06

NAME AND LOCATION
DEPOSIT NAME CINNABAR MINE
MINING DISTRICT/AREA/SUBDIST LA CHOLLA DISTRICT/EASTERN DOME ROCK MINS
COUNTRY CODE US
STATE CODE 04
LATITUDE 33-32-15N 114-19-18W
LONGITUDE 110A 02N 110A
09 NE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

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

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

GENERAL REFERENCES
1) KEITH, STANTON R., 1978, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 105 P., P. 156.
5) CRONL, N.J., 1979, GEOLOGY OF THE CENTRAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZONA.


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8) WILSON, E.O., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

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12) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.


17) METZGER, D.G., LOELTZ, O.J., AND IRELAND, B., 1973, GEOL. SURVEY PROF. PAPER 406-6, 130 P., MAPS.


NAME AND LOCATION
DEPOSIT NAME.................. CUPRITE MINE
SYNONYM NAME.................. COPPER COLLAR, MARBLE TIP, SIDE ISSUE, COPPER TOP, COPPER VISION, COPPER CHIEF, SOLO
MINING DISTRICT/AREA/SUBDIST. HELVETIA ROSIMONT
COUNTRY CODE.................. US
STATE CODE..................... 04
QUAD SCALE...................... 1: 0062500
QUAD NO OR NAME................ EMPIRE MOUNTAINS, ARIZONA
LATITUDE ....................... 31°55'31"N
LONGITUDE ...................... 110°42'30"W
UTM NORTHING .................. 3532250
UTM EASTING .................... 527500.0
UTM ZONE NO ................... +12
TWP .................. 17
RANGE .................. 16E
SECTION .................. 28 NW
MERIDIAN .................. GILA AND SALT RIVER
ALTITUDE ................... 4155 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3.85 KM NE WARM 5377, 7 MI NE OF HELVETIA
LOCATION COMMENTS: NW1/4 OF SEC 287

COMMODITY INFORMATION
COMMODITIES PRESENT........... CU AG NO ZN PB

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS............ CU
MINOR PRODUCTS............ AU AG

MAIN COMMODITY............ CU AG
MINOR COMMODITY: MO IN PB

MAIN ORE MINERALS:
CHALCOPYRITE PYRITE

MINOR ORE MINERALS:
MOLYBDENITE CHYSSOCOLLA, BORNITE, AZURITE, MALACHITE, CHALCOCITE, NATIVE COPPER SPHALERITE, GALENA

ANALYTICAL 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 (DESCRIPTION OF WORKINGS):
SHAFT AND TUNNEL WORKINGS (KEITH, 1974): SHAFT UP TO 120 FT DEEP WITH 200 FT OF WORKINGS (BROWNE, 1950)

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORE</td>
<td>EST</td>
<td>2 TONS</td>
<td>1899-1915</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORE ON DUMP</td>
<td>EST</td>
<td>1 TON</td>
<td>1915</td>
<td>2.5% CU (SCHRADER)</td>
<td></td>
</tr>
</tbody>
</table>

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 - WOLLASTONITE 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.
DEPOSIT NAME: DOYLE VANADUIM 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/DESCRIPTION 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
3) ARTILLERY GENERAL GEOLOGY:
4) HEAD, R.E. 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USGS, RI 3560, P. 6-7 (1941)
LASKY, S.C., AND WEBBER, B.N. 1949, MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOLOGICAL SURVEY BULL. 961, 86 P.


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POTTERSON, DONALD L., BOUGUER GRAVITY MAP AND PRINCIPAL FACTS FOR GRAVITY STATIONS OF THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA, MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA: U.S. GEOLOGICAL SURVEY OPEN-FILE REP., 2 P.

TABLÉ, M., MAP, SCALE 1:125,000 (1969).


MOUST, M.M., 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN M.S. THESIS.

ORE DEPOSITS & GEOLOGY OF MOHAVE CO.:

DALE, V.B., 1961, TUNGSTEN DEPOSITS OF CILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES INFORMATION CIRCULAR, 86 P.


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HOUSEHOLDER, F., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.

LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 352, 98 P.

MALACH, R., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.

MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 142 P.

MASON, D.A., 1917, MINING IN NORTHERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.


SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., V. 56, PP. 195-236.
RECORD IDENTIFICATION

RECORD NO............... 4000917
RECORD TYPE............. XII
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

IWP....... 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..... NO

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE
MINOR ORE MINERALS:
CHALCOCITE LOCALLY SIGNIFICANT, SOME OXIDE ORE - AZURITE, MALACHITE, CHRYSOCOLLA

ANALYTICAL DATA (GENERAL)
0.016 - 0.017% Mo

EXPLORATION AND DEVELOPMENT
STATUS: 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 1-613, SCALE 1:48,000
2) PERSONAL COMMUNICATION WITH JIM KELLY, ANAMAX MINING CO.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 0030363
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1
MAP CODE NO. OF REC.

REPTER
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/WALLAPA DIST/CERBAT MT.
COUNTRY CODE: US
STATE CODE: 04
QUAD SCALE: 1: 0024000
QUAD NO OR NAME: CHLORIDE, ARIZ.
LATITUDE: 39-25-25N
LONGITUDE: 114-10-31W
UTM NORTHING: 3923470
UTM EASTING: 756480
UTM ZONE NO: 11
JUPA: 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
COMMUNITIES PRESENT: AU AG MD 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.:
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 LOT & 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.
4) ARIZONA MINING JOURNAL, V. 8, 1920.
3. Molybdenum Occurrences in Wallapai District:
   Halach, R., 1974 Mohave County, Sketches of the Early Days: Kingman, Az. 142 P.

   Ariz. Mining Jour., 1920, v. 8
   Damon, P.E., and Giletti, B.J., 1961, The Age of Basement Rocks of the Colorado Plateau and Adjacent Areas:
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
4) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 135.
16) 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. COO-589-60: TUCSON, UNIVERSITY OF ARIZONA.


20) HILLMAN, BARRY, 1972, HYDROTHERMAL ACTIVITY AS REALTED TO ORE DEPOSITION AT THE SIERRITA PORPHYR COPPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI.


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 707, P. 47.


33) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS UNPUBLISHED REPORTS, AND FILE RECORDS.

34) WORLD MINING, JUNE 1972 SIERRITA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................. 4030542
RECORD TYPE.............. X1
COUNTRY/ORGANIZATION.... USGS
INFORMATION SOURCE...... 1,2
MAP CODE NO. OF REC.....

REPUKIER
NAME........................................ WALE, JAN C.
DATE........................................... 03 03

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

MAIN ORE MINERALS: GALENA, SPHALERITE AND CHALCOPYRITE AND PYRITE
MINOR ORE MINERALS: COPPER AND MOLYBDENUM SULFIDES

COMMODITY INFORMATION
COMMODITIES PRESENT............ Pb Zn Cu Ag Au Mo

MAIN COMMOD........ Pb Zn Cu Ag Au
MINOR COMMOD........ Mo

POSITION FROM NEAREST PROMINENT LOCALITY: NOW IN ESPERANZA PIT

ALTITUDE........ 3940 FT
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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 HAS 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 KAOLINIZED AND SERICITIZED, SLIGHTLY SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):
DISSEMINATED CHALCOPYRITE AND MOLYBDENITE IN SILICEOUS BRECCIATED INTRUSIVES AND CRETACEOUS ROCKS
RECORD IDENTIFICATION
RECORD NO. 00023
CRIB MINERAL RESOURCES FILE 12
RECORD IDENTIFICATION
RECORD NO. 00023
CRIB MINERAL RESOURCES FILE 12

NAME AND LOCATION
DEPOSIT NAME. GLOVE MINE GROUP
MINING DISTRICT/AREA/SUBDIST. TYNDALL DISTRICT

GENERAL COMMENTS
REFERENCES FROM RECORD NUMBER M030408

GENERAL REFERENCES
2) GLOVE MINE REFERENCES:
   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.
   ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 64 P., PLATES, MAPS.
   BAKIR, BUK. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
   KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 85.
   ELSING, M.W., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140, P. 81, 100.
   ARIZ. DEPT. MINERAL RESOURCES, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES. FILE DATA, PHOENIX.

REFERENCES FROM RECORD NUMBER M030408

REFERENCES FROM RECORD NUMBER M030408

REFERENCES FROM RECORD NUMBER M030408

REFERENCES FROM RECORD NUMBER M030408

REFERENCES FROM RECORD NUMBER M030408

REFERENCES FROM RECORD NUMBER M030408
10) Drewes, H., 1970, Structural Control of Geologic Anomalies in the Greater SIERRA MOUNTAINS, Arizona:
18) Geology of Molybdenum and of Santa Cruz Co.:
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 030527
RECORD TYPE XI
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 MT.
COUNTRY CODE US
STATE CODE 04
QUAD SCALE 1: 0062500
QUAD NO OR NAME EMPIRE MOUNTAINS, ARIZ.
LATITUDE 41-52-26 N
LONGITUDE 110-36-36 W
UTM NORTHING 3529950.0
UTM EASTING 533750.3
UTM ZONE NO 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(PA3T 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.: PROPERTY IS INACTIVE
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 "TOCKWORK")

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

DESCRIPTION OF WORKINGS
UNDERGROUND

INCLINE SHAFT OPERATIONS (KEITH 1974)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1974, P. 116

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, 1.502 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 DICHES; 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 TEND NE DIP STEEPLY W4 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. 118
3) ALBERTDING, 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
6) BRENNAN, O.R. 2. GEOLOGICAL RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABSTRACT): ARIZ. GEOLOG. SOC. DIG., V. 1, P. 41 (1956)
11) ELLISON, R.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
15) GALBRAITH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOLOGY AND MINERAL RESOURCES OF ARIZONA: BULL. 192, V. 51, P. 147.
16) GALBRAITH, F.W. 4. EMPIRE MOUNTAINS OVERTHrust: PAM-AM. GEOLOGY, V. 73, P. 377-378 (1940)
17) GALBRAITH, F.W., 1949, THRUST FAULTING IN THE EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOLOGY AND MINERAL RESOURCES OF ARIZONA: BULL. 192, V. 60, P. 189-190
20) MARVIN, T.C., 1942, THE GEOLOGY OF THE HILTON RANCH AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
21) MAYUGA, V.A., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 74 P.
22) MURTOZ, R. THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 66 P. (1963)


NAME AND LOCATION
DEPOSIT NAME: HUSKON #11
MINING DISTRICT/AREA/SUBDIST: CAMERON AREA
COUNTRY CODE: US
STATE CODE: 04
QUAD SCALE: 1:006250
QUAD NO OR NAME: CAMERON ARIZ.
LATITUDE: 35°45'13"N
LONGITUDE: 111°17'17"W
TWP: 28N
RANGE: 10E
SECTION: 33
MERIDIAN: GCS 1
ALTITUDE: 4050 FT
LOCATION COMMENTS: S. EDGE 33

COMMODITY INFORMATION
COMMODITIES PRESENT: U, CU, MO

MAIN COMMOD: U

MAIN ORE MINERALS:
- METATORBERNITE, METAUTINITE, URANINITE COFFESSITE

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

GEOLGY 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 (GEOLGY AND MINERALOGY):
ILSEMANNITE WITH MARCASITE IN AS INKY BLUE MASSES & STAINS

GENERAL REFERENCES
3) HINKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
8) FINCH, W.L. 1. GEOLOGY OF EPGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 530, 121 P. (1967)
11) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA,

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.


16) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLORADO.


4) PLATEAU URANIUM:


9) WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.


20) BOTINELLY, T. 1. (AND WEEKS, A.D.) MINERALOGY AND OXIDATION OF THE COLORADO PLATEAU URANIUM DEPOSITS: USGS
NAME AND LOCATION

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

COUNTRY/AREA/SUBDIST: WHEELER WASH AREA NORTHEAST HUALAPAI MTS

COUNTRY CODE: US

STATE CODE: 04

QUAD SCALE: 00240000

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

UTM NORTING: 3886800
EASTING: 2395000
ZONE NO: 12

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

ALTITUDE: 5600 FT

DESCRIPTION OF DEPOSIT

COMMODITY INFORMATION

COMMODITIES PRESENT: Cu Mo Pb Zn W

MAIN ORE MINERALS:

MINOR ORE MINERALS:

WOLFRAMITE, SCHELLEITE, CHALCOPYRITE, CHALCOCITE, MOYBDENITE, 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 ...... 70W

GEOLGENY AND MINERALLGOGY

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 .......... INTUDED BY LARGE STOCK OF GRANITOID (QUARTZ MONZONITE) ROCKS & ASSOC. APHITIE DIKES

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 ODELE RANCH) HAVE TUNGSTEN PRODUCTION

GENERAL REFERENCES
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:
5) ARIZ., DEPT. MIN. RES., 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
6) ARIZ. DEPT. MIN. RES., 1962, MOLYBDENUM DEPOSITS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
WENTER, 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
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: Cu

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
MOLYBDENITE, COPPER

COMMODITY COMMENTS:
WHALE VEIN AVERAGES ABOUT 2% MoS2, AND A TRIFLE OVER 2% Cu

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
1% Mo: 1% Cu IN CHALCOPYRITE, LESS Cu IN PYRITE

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

PRESENT/LAST OWNER:
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..... W3OE
DIP OF OREBODY......... 80W

DESCRIPTION OF DEPOSIT:

ON THE WHALE VEIN, THE OUTCROP IS STRUNG 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 0.96 OZ/1 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 WMI. OPERATIONS STOPPED 4/1943 USBM

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

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

2) LEVIATHAN MINE REFEREE: 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.
7) KERR, P., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOLOG. SOC. AMERICA MEM. 15, 241 P.
8) KESSEL, E.J., 1976, RUBIDIUM-STRONTIUM GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZA.: UNPUBL. M.S. THESIS, UNIV. ARIZ., 73 P.


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: 1: 0067500
QUAD NO OR NAME: CASTLE DOME MINS, ARIZ.
LATITUDE: 33-02-10N
LONGITUDE: 114-09-45W
UTM NORTHING: 3658600
UTM EASTING: 764950
UTM ZONE NO: 11

TWP: 04S
RANGE: 18W
SECTION: 31 WC NH 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 MD

MAIN COMMOD: PB AG F
MINOR COMMOD: BA V MD

MAIN ORE MINERALS: ARGENTIFEROUS GALINA, 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 (DESCRIPTION OF WORKINGS):
SMALL STOPES FROM NUMEROUS SHAFTS WORKED SPORADICALLY FROM 1880s (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.)

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
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<td>15</td>
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<td>EST</td>
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<td>1980-?</td>
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SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, P. 122

PRODUCTION COMMENTS:
WORKED SPORADICALLY FROM 1880s WITH TOTAL ESTIMATED & RECORDED PRODUCTION OF SOME 200 TONS OF ORE AVERAGING ABOUT 20% Pb, 6% Zn, Ag/1, 0.2 oz. Au/T AND 0.2% Cu

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.............. MESOSIDIC
HOST ROCK TYPES.............. SHALES
IGNEOUS ROCK TYPES.............. DIORITE PURPHYR & QUARTZ PURPHYR DIKES

POTENT MINERALOGY.............. GANUE OF CRYSTALLINE CALCITE, FLUORITE, & MINOR BARITE

IMPORTANT ORE CONTROL/LOCUS........... IRREGULAR, LENSING FISSURE VEINS IN MESOSIDIC SHALES BUT BY DIORITE PURPHYR & QUARTZ PURPHYR DIKES.

LOCAL GEOLOGY

COMMENT (GEOLGY AND MINERALOGY):
MINOR WULFENITE & VANADINITE IN VUGS & SOLUTION CHANNELS; GRAVEL-MANTLE

GENERAL REFERENCES
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... M030422
RECORD TYPE .......... XI
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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00032  MB99987

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 (DESCRIPTION OF WORKINGS):
OLD MIAMI UNDERGROUND WORKINGS: MIAMI FAST IS UNDER DEVELOPMENT WITH PLANNED PRODUCTION OF 2000 T/DAY

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

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SOURCE OF INFORMATION (PRODUCTION): ARIZ. MUR. GEOLOGY FILE DATA

GENERAL COMMENTS
REFERENCES FROM RECORD NUMBER M003085

GENERAL REFERENCES
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RECORD IDENTIFICATION
RECORD NO. 00034
CRIB MINERAL RESOURCES FILE 12

NAME AND LOCATION
DEPOSIT NAME: MISSION MINE
MINING DISTRICT/AREA/SUBDIST: PIMA DISTRICT

GENERAL REFERENCES
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GENERAL REFERENCES
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P., P. 121, 156, 205.
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12) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
13) BEEDER, J.R., "GEOLOGY OF THE MISSION COPPER MINING DISTRICT, PIMA COUNTY, ARIZONA:" U.S. GEOL. SURVEY
PROF. PAPER 658-D, P. 42.
14) LEGON, S.L., "DIAGNOSTIC CHARACTERISTICS OF THE PALEOZOIC FORMATIONS OF SOUTHEASTERN ARIZONA," SOUTHERN
15) COOPER, J.R., "SOME GEOLOGIC FEATURES OF THE MISSION COPPER MINING DISTRICT, PIMA COUNTY, ARIZONA," BULLETIN 1112-C,
PROF. PAPER 658-D, P. 42.
17) COOPER, J.R., "GEOLOGIC MAP OF THE TWIN BUTTES QUADRANGLE, SOUTHWEST OF TUCSON, PIMA COUNTY, ARIZONA:
U.S. GEOL. SURVEY MISC. GEOL. INV. MAP 1-74A.
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
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CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- M030550
RECORD TYPE-------- X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE #J. OF WEC.

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 VACA HILLS, ARIZONA
1: 0062500

LATITUDE LONGITUDE
32-24-52N 111-31-49W

UTM NORTING UTM EASTING UTM ZONE NO
3506350 450320 +12

THP------- 125
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 COMMODITY... CU AG
MINOR COMMODITY... PB ZN MO AU
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
   POTENTIAL: MD

MAIN ORE MINERALS:
   PYRITE, CHALCOPYRITE

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

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

YEAR OF DISCOVERY:
   1865 BODMIN MINE OPENED, FIRST IN SILVERBELL DIST.

PRESENT/LAST OWNER:
   HUACHUCA MNG. AND SMITG. CO., PIMA CO. MNG AND SMITG. 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, 10% AG/T

SOURCE OF INFORMATION (PRODUCTION):
   KEITH, 1974, p. 143

PRODUCTION COMMENTS:
   WORKED FROM 1870'S TO 1931 AND PRODUCED OVER 1 MILLION TOWNS OF ORE AVERAGING BETTER THAN 3% CU AND ABOUT 1 OZ AG/T WITH MINOR Pb, Zn AND Au

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
   PALEOZOIC

HOST ROCK TYPES:
   ALTERED OR CARMETIZED LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS:
   CRET-TERT

IGNEOUS ROCK TYPES:
   DACITE PORPHYRY AND MUNZONITE INTRUSIVES

AGE OF MINERALIZATION:
   CRET-TERT
IMPORTANT ORE CONTROL/LOCUS. FISSURE VEINS AND IRREGULAR DISSEMINATIONS IN PYROMETA SOMATIC 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
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4) RICHARD, K., AND COURTRIGHT, J.H., 1960, SOME CRETACEOUS-TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOLOG. SOC. DIGEST, V. III.
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); TRANS., V. 43, P. 240-290. (1912)
8) COPPER HANDBOOK, 1902, 1903, 1904, 1905. U.S. GEOLOGICAL SURVEY, MINERAL RESOURCES, 1905 ARIZONA BUREAU OF MINES, FILE DATA.
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GENERAL REFERENCES

GENERAL REFERENCES

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108) SI. GEOL. SURV. PHOENIX, ARIZ. USA GEOL. SOC. A.M., ABST. PROGRAMS (GAAPBC), VOL. 7, NO. 7, P. 1160, 1975 S (SERIAL); ANL (ANALYTIC) 77-00297 (BIBLIOGRAPHY AND INDEX OF GEOLOGY) 2-02 (GEOCHEMISTRY) ARIZONA: GEOLOGY: 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; SURFACE CONCENTRATION.
NAME AND LOCATION
DEPOSIT NAME: ORACLE DISTRICT

GENERAL COMMENTS
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2) LIVINGSTON, D.E., 1959, GEOCHRONOLOGY OF OLDER PRECAMBRIAN ROCKS IN GILA COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY, BULL. 1379, 27 P.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. M030434
RECORD TYPE............ XI
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 NJ
3656580. 517590. +12
TWP..... 04S
RANGE..... 15E
SECTION... 20
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, Descloiizite

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

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION)... BANKS AND DRIEGFR, 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 CONG.

PERTINENT MINERALOGY.......... MANGANESE OXIDES

GENERAL REFERENCES
NAME AND LOCATION
DEPOSIT NAME ............. PIMA DISTRICT

GENERAL REFERENCES
CONTINUED REFERENCES FROM M030535

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121) SEEGMILLER, B.E., 1974, HOW CABLE BOLT STABILIZATION MAY BENEFIT OPEN PIT OPERATIONS: MINING ENGINEERING, V. 26, NO. 12, P. 29-34.
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125) STECKLEY, R.C., LARSON, W.C., AND D'ANDÖREÈ, D.V., 1975, BLASTING TESTS IN A PORPHYRY COPPER DEPOSIT IN PREPARATION FOR IN SITU EXTRACTION: U.S. BUREAU MINES REPORT 119070, P. 47.
126) STEIGER, R.H., AND JAGER, E., 1977, SUBCOMMISSION ON GEOCHRONOLOGY: CONVENTION ON THE USE OF DECAY
128)STUDEBAKER, I.C., 1959, STRUCTURE AND Stratigraphy OF THE HELMET PEAK AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 26 P.
139)WORLD MINING, JUNE 1972, SIERRITA MINE.
141)WILLIAMS, R.R. 1965, STRUCTURAL INTERPRETATION OF THE RUBY STAR RANCH AREA, PIMA MINING DISTRICT, PIMA COUNTY, ARIZONA: UNIV. OF ARIZ., UNPUBL. HS THESIS, 74 P.
142)WILLIAMS, R.R. 1971, UPLIFT AND GRAVITATIONAL ADJUSTMENT RUBY STAR RANCH AREA, PIMA MINING DISTRICT, ARIZ.: ARIZ. GEOLOG. 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. GEOLOG. V. 24, P. 304-310.
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147)WILLIAMSON, D.R., MUELLER, E., 1979, ORE ESTIMATION AT CYPRUS PIMA MINE: ASTR. MIN. ENG. VOL. 27, NO. 12, P. 70.
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GENERAL REFERENCES


PORPHYRY COPPER SYMPOSIUM.


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84) KIDSDON, R.J. 5, INDIAN BURGUNDY IN SUPPORT OF GEOLOGIC MAPPING IN THE TWIN BUTTES QUADRANGLE, ARIZONA (ABS.): MIN. ENGR. V. 12, NO. 12, P. 1249 (1960).


88) KIDSDON, R.J., 1978, GEOLOGY OF THE SAN XAVIER PORPHYRY COPPER DEPOSIT, PIMA MINING DISTRICT, ARIZONA: ARIZ. BUR. MINES BULL. 199, 156 P.

89) KIDSDON, R.J., 1978, GEOLOGY OF THE SAN XAVIER PORPHYRY COPPER DEPOSIT, PIMA MINING DISTRICT, ARIZONA (ABS.): ARIZ. GEOL. SOC. UNIV. OF ARIZONA PORPHYRY COPPER SYMPOSIUM.

90) KIDSDON, R.J., 1969, MOLYBDENUM AND Rhenium: UNIV. ARIZ. M.S. THESIS, 70 P.

91) KIDSDON, R.J., 1969, MOLYBDENUM AND Rhenium: UNIV. ARIZ. M.S. THESIS, 70 P.

92) KIDSDON, R.J., 1976, PROBABLY ORIGIN OF MISSION COPPER DEPOSIT: J. MIN. I. MINIG. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-2, 14 P.

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94) KIDSDON, R.J., 1976, PROBABLY ORIGIN OF MISSION COPPER DEPOSIT: J. MIN. I. MINIG. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-2, 14 P.

95) KIDSDON, R.J., 1976, PROBABLY ORIGIN OF MISSION COPPER DEPOSIT: J. MIN. I. MINIG. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-2, 14 P.

96) KIDSDON, R.J., 1976, PROBABLY ORIGIN OF MISSION COPPER DEPOSIT: J. MIN. I. MINIG. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-2, 14 P.

97) KIDSDON, R.J., 1976, PROBABLY ORIGIN OF MISSION COPPER DEPOSIT: J. MIN. I. MINIG. PETROLEUM ENGINEERS TRANS., REPRINT NO. 631-2, 14 P.
MONZONITE PORPHYRIES. IN CORRELATION AND CHRONOLOGY OF ORE DEPOSIT AND VOLCANIC ROCKS: ANN. PROG. REPT., NO. COO-689-42 CONTRACT AT (11-1)-68 TO RES. DIV., U.S. STOMIC ENERGY COMM.

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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.)

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15 ORE</td>
<td>EST</td>
<td>146,000 TONS</td>
<td>1950-1978</td>
<td>LANGLOIS, 1978</td>
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<tr>
<td>18 ORE</td>
<td>ACC</td>
<td>193,509 TONS</td>
<td>1955-1978</td>
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<tr>
<td>19 CU</td>
<td>ACC</td>
<td>1,465,13, LBS</td>
<td>1955-1978</td>
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<tr>
<td>20 PB</td>
<td>ACC</td>
<td>29,900 LBS</td>
<td>1955-1978</td>
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<tr>
<td>21 ZN</td>
<td>ACC</td>
<td>343,400 LBS</td>
<td>1955-1978</td>
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<tr>
<td>22 AG</td>
<td>ACC</td>
<td>10,665 OZS</td>
<td>1955-1978</td>
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<tr>
<td>23 AU</td>
<td>ACC</td>
<td>8,567 OZS</td>
<td>1955-1978</td>
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<tr>
<td>24 MO</td>
<td>ACC</td>
<td>146,38 TONS</td>
<td>1967-1978</td>
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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

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
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<tr>
<td>1 COPPER ORE</td>
<td>EST</td>
<td>66,000 TONS</td>
<td>1978</td>
<td>0.48% CU</td>
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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-RENOLITE, 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 undergone 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 a "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 calcilicates 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 more-weakly 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. The quartz monzonite porphyry, 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 chalcocyprite increase. Molybdenite occurrence relative to chalcocyprite 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 rehealed clastics which have been pervasively altered to fine grained pink K-feldspar and quartz. The mineralization consisting of veinlet and disseminated chalcocyprite 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 skin 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 W002679.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M800120
RECORD TYPE A1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2
MAP CODE NO. OF RECORD

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 1: 0024000
QUAD NO OR NAME NEW RIVER MESA, ARIZ.
LATITUDE 33-46-37N
LONGITUDE 112-21-53W
UTM NORTHING 373620
UTM EASTING 373620
UTM ZONE NO +12

TWP 05N
RANGE 01W
SECTION 16
MERIDIAN G&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 NO AG AU
PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS PB
MINOR PRODUCTS AG AU

MAIN COMMODITY PB AG AU
MINOR COMMODITY: V MD ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL: V ZN
OCURRENCE: MD V

MAIN ORE MINERALS:
LEAD AND ZINC OXIDATION PRODUCTS

MINOR ORE MINERALS:
LEAD AND ZINC SULFIDES, HORN SILVER, RUBY SILVER VANADINITE, WULFINE, BISMUTH AND URANIUM OXIDES, DISCLOIZITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: 2
PROPERTY IS INACTIVE

YEAR OF DISCOVERY: 1901
CLAIMS STAKED IN 1901
BY WHOM: STAKED FIRST BY O.O. 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 (DESCRIPTION OF WORKINGS):
2 INCLINED SHAFTS ONE TO 40 FT, ANOTHER TO 120 FT ABOUT 1901: OPEN PITS OR SHALLOW BENCHES ABOUT 200 FT LONG

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.

GEOLGY 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
RECORD IDENTIFICATION
RECORD NO. .......... M003825
RECORD TYPE ........... AK1
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE ... ?
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./S. HUALAPAI MTS)
COUNTRY CODE .............. US
STATE CODE ................. 04

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

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

UTM NORTHING UTM EASTING UTMZONE 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+/-.5; MINERALIZED PART=73.1+/-.5MY
IGNEOUS ROCK TYPES ........ QUARTZ MONZONITE PORPHYRY STOCK IN AREA
AGE OF MINERALIZATION: CRETACEOUS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
NW SHEAR ZONE WITH OXIDIZED COPPER

GENERAL REFERENCES
2) ARIZ. BUR. GEOI. 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. 95-122.
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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) MALACHI, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, ARIZONA, 48 P.
17) RYMOSS, T. M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 4214, 14 P.
18) 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) DAVIDSON, B. W., 1973, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.
24) MORRISON, R. B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 6 P., MAP; U.S. GEOI. SURVEY MINE REP., 5 P.
26) MORRISON, R. B., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 20 P., MAPS.
ROCKS OF THE BIG SANDY FORMATION, MOHAVE COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY PROF. PAPER 830, P.
32) THENTER, F. R., 1962, GEOLOGY AND PROMISING AREAS FOR GROUND-WATER DEVELOPMENT IN THE HUALAPAI INDIAN
RESERVATION, ARIZONA: U.S. GEOLOGICAL SURVEY, WATER SUPPLY PAPER 1576-A, P. 1-37, ILLUSTRATIONS, TABLE, GEOLOGICAL MAP.
33) TOLL, R. H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MINING WORLD, V. 35, P. 243-244.
34) TOVIOLE, W. L., 1907, MOHAVE COUNTY, ARIZONA: AUSTRIAN GEOSOCIALISTIC 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: ARIZONA 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: ARIZONA BUR. MINES BULL. 148, GEOLOGICAL SERIES 14, 54 P.
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39) HOUSEHOLDER, E., 1940 GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIVERSITY OF MISSOURI, M.S. THESIS
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42) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS KINGMAN ARIZONA.
43) MASON, R. T., 1906, MINING IN NORTHERN ARIZONA, V. 627-628, MINING AND SCIENCE PRESS.
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AIME BULL. 124, P. 456-460.
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GENERAL REFERENCES


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7) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLODOENM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.


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


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


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NAME AND LOCATION
DEPOSIT NAME: REDDINGTON DIST.

GENERAL REFERENCES
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63)DAVIS, G.H., ANDERSON, J.L., FROST, E.G., AND SHAKEFDORD, T.G., THIS VOLUME, MYLONITIZATION AND DETACHMENT FAULTING IN THE SHIPLEY-BUCKSIN-FAWHIDE MOUNTAINS TERRANE, SOUTHERN CALIFORNIA AND WESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA MEMOIR.
66)SCRUTINY OF FOLDED GRAVITY-GLIDE SHEETS IN SAGUARO NATIONAL MONUMENT, ARIZONA ABSTRACT: DAVIS, G.H.; FROST, E.G.; SCHLODERER, J.P. IN ROCKY MOUNTAIN SECTION, 27TH ANNUAL MEETING, GEOL. SOC. AM. ABSTRACTS (GAAPBC) VOL. 6, NO. 5, P. 439, 1974
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178) VOGELER, KLAUS CENOZOIC DEPOSITS IN THE SOUTHERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS NEAR TUCSON, ARIZONA: UNIV. ARIZ., MS THESIS, 101 P. (1953)


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

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
3) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZONA, 63 P.
4) HEAD, R.E., 1941, ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYES): USBM, RI 3560, P. 6-7 (1941)
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16) SHACKELFORD, T.J., STRUCTURAL GEOLOGY OF THE RANHIDE MOUNTAINS, MOHAVE COUNTY, ARIZONA.
22) JOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
25) WILSON, E.O., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 140, GEOL. SERIES 14, 54 P.
26) DAVIDSON, E.S., 1975, WATER RESOURCES APPRAISAL OF THE BIG SANDY AREA, MOHAVE COUNTY, ARIZONAY: ARIZ. WATER COMM. BULL. 6, 40 P.
27) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVY BULL. 352, 96 P.
28) MALACH, K., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
29) MALACH, R., 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P.
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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:


9) SIMONS, F.S., 1974, GEOLOGIC AND MINERAL TECHNOLOGY FILE DATA. MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. BUR. MINES BULL. 140, P. 100.


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10) BRINSMAN, R.H., 1907, LEAD-SILVER DEPOSITS OF MOWRY, ARIZONA: MINES AND MINERALS, V. 27, NO. 12, P. 529-531.
11) YOUNG, N.C., 1969, SURFACE GEOLOGY AND SOIL GÉOCHÉMISTRY OF THE BUENA VISTA MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS.
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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. WEEDE, 1912-1914 HOUGHTON, MICHIGAN.
4) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):
NAME AND LOCATION
DEPOSIT NAME .................. SAN MANUEL-KALAMAZOO DEPOSIT
MINING DISTRICT/AREA/SUBDIST. SAN MANUEL DISTRICT

GENERAL REFERENCES
REFERENCES FROM RECORD NUMBER M000670

1) GENERAL REFERENCES:

2) CREESEY, S.C. AND J.O. PEELIER (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.


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


8) SAN MANUEL REFERENCES:


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

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


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


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CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ********** 4899990

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, GEOLOGICAL SERIES, NO. 11, BULL. NO. 144, 53 P.
4) GEOLOGY OF MAMMOTH MINE:
   - BLAKE, F.H. (1884) VANADINITE IN PINAL COUNTY, ARIZONA. AMER. JOUR. SCIENCE, 3RD SERIES: 153.
   - DEMPSEY, W.J. AEROMAGNETIC MAP OF THE MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS OPEN-FILE REP. (1952)
6) ELSING, M.J., AND HEINEMAN, R.E., 1936. ARIZONA METAL PRODUCTION: UNIV. ARIZ. BUR. MINES BULL. 140.
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10) HILLEBRANDT, JAMES, 1953. GEOLOGY AND ORE DEPOSITS OF THE VICINITY OF PUTNAM MINE, PINAL COUNTY, ARIZONA: UNIV. ARIZONA, M.S. THESIS.
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 ORAGAON, ARIZONA
LATITUDE LONGITUDE
32-05-44N 110-03-19W
UTM NORTHING UTM EASTING UTM12ONE 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 MD

MAIN COMMOD..... CU ZN
MINOR COMMOD..... W MD

MAIN ORE MINERALS:
CHALCOPYRITE, SMHALERITE, BORNITE
MINOR ORE MINERALS:
SCHEELITE, MOLYBDENITE, COPPER AND ZINC CARBONATES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: 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 (DILLCOX STAR, JULY 3, 1903 IN COOPER AND SILVER, 1964, P. 174)

GEOLGY 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 (GEOLGY AND MINERALOGY):
SCARCE SCHEELITE AND MOLYBDENITE IN GARNET AND LIME SILICATES
GENERAL REFERENCES


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 999999

NAME AND LOCATION
DEPOSIT NAME: TWIIN 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 002686

GENERAL REFERENCES
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12) SKILLINGS MINING REVIEW, V. 59, P. 36.
13) TABULATION OF ORE, COPPER, AND MOLYBDENUM PRODUCTION FROM ARIZONA MINING OPERATIONS, 1974, STATE OF ARIZONA, DEPT. OF MINERAL RESOURCES.
17) Knaebel, J.B., "DEVELOPMENT OF THE TWIIN BUTTE MINE FOR PRODUCTION," AIME PREPRINT 70A058, AIME ANNUAL
21) BAKER, R.C., "PRELIMINARY GEOLOGIC REPORT ON THE TWIN BUTTES MINES, PIMA COUNTY, ARIZONA," JUN. 1973, 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.
26) CUMMINGS, J.R. 3., (AND ROMSLO, T.M.) INVESTIGATION OF THE TWIN BUTTES COPPER MINES, PIMA COUNTY, ARIZONA; USBM, RI 4732, 12 P. (1950)
27) HEAVER, R.R., 1971, UPLIFT AND GRAVITATIONAL ADJUSTMENT, RUBY STAR RANCH AREA, PIMA MINING DISTRICT, ARIZONA; ARIZONA GEOLOGICAL SOCIETY, DIGEST, V. 9, P. 197-211.
29) LUTTEN, R.C., 1961, A LENSOIDAL RHYOLITE NEAR TWIN BUTTES, ARIZONA; ARIZONIAN GEOLOGICAL SOCIETY, DIGEST, V. 4, P. 43-49.
30) WHITCOMB, H.R. (1948) GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA; UNIV. ARIZONA M.S. THESIS, 83 P.
31) HOUSE, F.N. (1949) THE GEOLOGY OF THE CONTENTION MINE AREA, TWIN BUTTES, ARIZONA; UNIV. ARIZONA M.S. THESIS, 61 P.
32) WILSON, ELORED D., 57, GEOLOGIC MAPS OF COPPER GLANCE, COPPER QUEEN, MINNIE, COPPER, BULLION, AND COPPER BUTTE MINES, 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; MINING ENGINEERING, V. 26, NO. 12, P. 29-34.
34) SEEGMILLER, BEN L., 1972, ROCK STABILITY ANALYSIS AT TWIN BUTTES, IN STABILITY OF ROCK SLOPES; SYMPOSIUM ON ROCK MECHANICS, PROCEEDINGS, NO. 13, P. 511-536.
CRIB MINERAL RESOURCES FILE 1?

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

REPORTE
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 1: 0062500
QUAD NO OR NAME MT. UNION, ARIZ.
LATITUDE 34°23'40"N
LONGITUDE 112°25'02"W
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 TRUITT OF VENEZIA

LOCATION COMMENTS: SE 1/4

COMMODITY INFORMATION
COMMODITIES PRESENT NO

MAIN ORE MINERALS:
MINOR ORE MINERALS:
MOLYBDENITE

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

DEPOSIT TYPES:
QUARTZ VEIN

GEOLGY AND MINERALOGY

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

LOCAL GEOLOGY

COMMENTS (GEOLGY AND MINERALOGY):
MOLYBDENITE QUARTZ VEIN

GENERAL REFERENCES
3) JAGGER T.A., AND PALACHE C., 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOLOGICAL SURVEY ATLAS, FOLIO 126, 11 P.
4) ARIZONA BUREAU OF MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
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, Jl. Rucker, and T.O. Byrne on August 2, 1877. The Haleko 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. Sizable masses of other sulfides have been discovered in the underground workings. Veins of alabandite are occasionally found; bornite-chalcocite intergrowths are common, as is chalcopryite. Very nice pseudohexagonal chalcocite crystals have been found in the coll 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 oxide) 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 walls 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 chalcolumite, cyanotrichite, 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 volcomite, riemerite, rhomboclase, 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. (ANTHONY, WILLIAMS AND BIDEAUX, 1977)

GENERAL COMMENTS

CONTINUED REFERENCES FROM M030587

GENERAL REFERENCES

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 R1 5600
8) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
10) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
12) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
15) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
17) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
20) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
21) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
22) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
23) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
24) BONILLAS, Y.S., J.B. Tenny, AND L. FEUCHERE, 1917, GEOLOGY OF THE WARREN MINING DISTRICT: AIME TRANS., V. 55, P. 204-355
29) MELCHOW, G.J. (1920) VERTICAL EXTENT OF COPPER ORE MINERALS IN THE JUNCTION MINE, WARREN DISTRICT, ARIZONA. ENGR. MIN. JOUR. 109: 141.
30) MELCHOW, T. (1969) 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) KANSOME, F. L. 1903. THE COPPER DEPOSITS OF BISBEE, ARIZONA. ENGR. MIN. JOUR. 75: 444.
44) TRENCH, J.B. 1935. BISBEE DISTRICT: IN COPPER RESOURCES OF THE WORLD: 16TH INT. GEOL. CONG. V. 1, P. 221-228.
46) WILLIAMS, S.A.; MATHER, PHILIP. 1975. GRAFENITE, A NEW BISBEE MINERAL MINERAL. REC. V. 6, NO. 1, P. 32-34.
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. 1:0024000
QUAD NO OR NAME. DEAR PEAK/HUALAPAI PEAK
LATITUDE. 35-06-33N
LONGITUDE. 113-48-39W
UTM NORTHING. 3888575
UTM EASTING. 243800
UTM ZONE NO. 12
WHP.. 20N 20N
RANGE.. 15W 15W
SECTION.. 13 23 24 24 25 26 27
MERIDIAN.. GILA & SALT R.
ALTITUDE.. 5200 F1

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 IN

MAIN DRE MINERALS:
PYRITE, MOLYBDENITE CHALCOPYRITE

MINOR DRE MINERALS:
WOLFRAMITE SCHEELITE, GALENA, ZPHALERITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
(DISSEM.) PORPHYRY CU-MO; QUARTZ VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH............. 4 FT
STRIKE OF ORE BODY.... NW

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENISIS(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 GEOCHEMICAL & 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.......... BIOTITE 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 PYRITIC HALO WITH LATERAL ZONING OF POTASSIC, SERICITIC, ARGILLIC, PROPYLLITIC

COMMENTS (GEOLOGY AND MINERALOGY):
INNERMOST ZONE IS MD-VEINS, OUTWARD PROGRESSION IS TO Co-N0, Pb-Zn-Ag, AND Au

GENERAL REFERENCES
3) Malach, Komans, 1977, Mohave County Mines: Mohave County Board of Supervisors, Kingman, Az. 63 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.
25) Mining World, V. 3, No. 4, 1941.
38) Toll, R.H., 1911, Mining operations in Mohave County, Arizona: Min. Engr. World, V. 35, P. 243-244.

Geology of Valley near Hualapai Mts:
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.
DEPOSIT NAME: MONUMENT 02 MINE
MINE: 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°55'58"N
LONGITUDE: 109°53'06"W
TWP: 41N
RANGE: 23E
SECTION: 29 S
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): U V
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 N111 W.
MAX LENGTH: 2 MILES
MAX WIDTH: 700 FT
MAX THICKNESS: 50 FT
STRIKE OF OREBODY: N11B

COMMENTS (DESCRIPTION OF DEPOSIT):
CONSIDERABLE LOW GRADE ZONE SURROUNDS HIGH GRADE ZONE

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION 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.)

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

PRODUCTION COMMENTS:
MOST PRODUCITIVE 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, ILSENMANNITE, JARDosite, 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 ILCRMANNITE COATS AND IMPREGNATES FRIABLE CONGLOMERATE AND IS ASSOCIATED WITH CORVUSITE, NAVAJOITE, HEMEITITE, AND SOME URANITE 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
5) FINNELL, I.L. 1. STRUCTURAL CONTROL OF URANIUM ORE AT MONUMENT NO. 2 MINE, APACHE COUNTY, ARIZONA: ECON. GEOL., V. 52, NO. 1, P. 29-35, ILLUS. (1957); (DISCUSSION BY MITCHEL, 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)
11) BREED, C.S., AND BREED, W.J., EDS., 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.
16) JAMES, H.L., ED., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOL. SOC.

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


7) FINCH, W.I. 1. GEOLOGY OF EPGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- 4030566
RECORD TYPE.------- X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE N. OF REC.

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

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

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

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

UTM NORTHING
3530500.0
UTM EASTING
595350.5
UTM ZONE NO
+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 DRAGOON MTS.

COMMODITY INFORMATION
COMMODITIES PRESENT.... ZN CU PB AG AU MD BE LI CD GA

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

MAIN ORE MINERALS:
SPHALERITE, CHALCOPYRITE
MINOR ORE MINERALS:
GALENA, MOLYBDENITE, FERRIMOLYBDITE, SILVER VALUES

ANALYTICAL DATA (GENERAL)
0.004-0.02% REO; 0.0X% W

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. =
PROPERTY IS INACTIVE
PRESENT/LAST OWNER = BARGIN MINES INC., SHATTUCK DENN MG. CO.

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
TACTITE; REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
ADITS, DRIFTS, RAISES

PRODUCTION
YES
SMALL PRODUCTION

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

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SOURCE OF INFORMATION (PRODUCTION) = KEITH, AMF FILE PAGES

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

CU ACC 188.162 LBS 1947
ZN ESI 2435.91 LBS 1947
PB ACC 12,725 LBS 1947
AG ACC 3,508 OZ 1947
AU ACC 0.026 OZ 1947

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS = MISSISSIPPI
HOST ROCK TYPES = ESCARROSA METAMORPHOSED LIMESTONE TO HORNFELS, MARBLE
AGE OF ASSOC. IGNEOUS ROCKS = TFRT
IGNEOUS ROCK TYPES = STRONGHOLD GRANITE
AGE OF MINERALIZATION........ 25.9 (MARVIN ET AL 1973); 22 M.Y. DAMON AND BIKERMAN, 1964)


LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FRACTURE FILLING: A N 30-45 W FAULT DIPPING 50-60 NE BRINGS QUARIZITE ON SW AGAINST LIMESTONE ON NE.

REFERENCES
1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 60
2) WILSON, E.O., 1950, DRAGON MOUNTAINS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 150, P. 10-29, P. 23-26
5) UNITED STATES ATOMIC ENERGY COMMISSION, GRAND JUNCTION OFFICE, PRELIMINARY RECONNAISSANCE REPORTS. OPEN FILE REPORTS AVAILABLE FOR INSPECTION ON MICROFICHE OF ARIZONA BUREAU OF MINES.
6) ARM, BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
10) PERRY, D.V., 1964, GENESIS OF THE CONTACT ROCKS AT THE ARRAH MINE, COCHISE COUNTY, ARIZONA: MASTER'S THESIS, UNIV. ARIZ.
CRI8 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4016133
RECORD TYPE K2
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. DF 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/SUBDIVISION WARREN
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1:0024000
QUAD NO OR NAME BISBEE, ARIZONA
LATITUDE 27-30-00N
LONGITUDE 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
MOYBDENITE PYRITE POWELLITE
EXPLORATION AND DEVELOPMENT

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

GEOLGY AND MINERALOGY

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

LOCAL GEOLOGY

COMMENTS (GEOLGY AND MINERALOGY):

POWELLITE AT BISBEE QUEEN SHAFT E OF WARREN

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4) MIN. MINE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
5) KISCH, STANTON R.A. 1979, INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZ. BUR. MINES BULL. 187, 98 P.
10) KANSOM, R.L. 1920, DEPOSITS OF MANGANESE OR BISBEE IN ARIZONA: BISBEE AND TOMBSTONE DISTRICTS: U.S. GEO.
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11) TRISCHKA, C. 1931, BISBEE ORE DEPOSITS REVIEWED: ECON. MIN. JOUR., V. 131, P. 500-505
12) TRISCHKA, C. 1938, BISBEE DISTRICT IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 145, P. 32-41
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15) BURNHAN, C.W. 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
16) GILLILY, JAMES, COOPER, J.R., AND WILLIAMS, J.S. 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEO. SURVEY PROF. PAPER 266
17) JOHNSON, W.P. 1961, GEOLOGY AND ORIGIN OF MINERALIZED BRECCIA PIPES IN COPPER BASIN, ARIZONA: ECON.
GEOLGY, V. 56, P. 916-940
20) KEITH, STANTON A. 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 187, 98 P
21) THE COPPER HANDBOOK, VOL. 1 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.K. 1962, BISMUTH IN THE UNITED STATES: U.S. GEO. SURVEY MAP MR-22
23) BAIN, C.W. 1961, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES RE 1650


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. (1969) 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.


35) RANSOME, F.L. (1903) THE COPPER DEPOSITS OF BISBEE, ARIZONA. ENGR. MIN. JOUR. 75: 444.


45) TENNEY, J.E., 1935, BISBEE DISTRICT: IN COPPER RESOURCES OF THE WORLD: 16TH INT. GEOL. CONG., V. 1, P. 221-228.


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: I: 0062500
QUAD NO OR NAME: CHIRICAHUA PEAK AND PROTAL, AZ
LATITUDE: 31-59-08N
LONGITUDE: 109-17-20W
TWP: 15S 17S
RANGE: 29E 31F
MERIDIAN: GILA AND SAL1 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 COMMODITY: Pb Zn Cu Ag Au
MINOR COMMODITY: 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, SCHELLELITE, POWELLITE, GOLD VALUES

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS, PYROMETAMORPHIC REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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, COMM. CONF., CONC.)

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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 DIOBIT 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

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CRIP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.  M030588
RECORD TYPE.  X1
COUNTRY/ORGANIZATION.  JSGS
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.  1:0024000
QUAD NO OR NAME.  BISBEE, ARIZONA
LATITUDE.  31-25-28N
LONGITUDE.  109-53-23W
UTM NORTING.  3477000.0
UTM EASTING.  596050.0
UTM ZONE NO.  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 MEMITITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER CALOMET AND ARIZONA MNG. CO., PHELPS DODGE CORP.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- REPLACEMENT

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
- SHAFT

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

PRODUCTION COMMENTS:
- SEVERAL HUNDRED THOUSAND TONS

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
- CAMB., DEV. MISS.

HOST ROCK TYPES:
- ABRIGO LIMESTONE, MARTIN FORMATION, ESCABROSA LIMESTONE

AGE OF ASSOCIATED IGNEOUS ROCKS:
- JUR. (18 MY CREASEY'S KISTLER 1962)

IGNEOUS ROCK TYPES:
- PORPHYRY DIKES AND SILLS

AGE OF MINERALIZATION:
- JUR (N/80 MY)

IMPORTANT ORE CONTROL/LOCUS:
- WULFENITE ASSOCIATED WITH COPPER, MALACHITE, GERUSSITE, SMITHSONITE, AZURITE, AND MEMBRITE

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

3) BURNHAM, C.W., 1959, METALLOGENIC PROVINCES OF THE SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO: NEW MEXICO BUR. MINES AND MINER. RES. BULL. 65
5) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
6) KRISCHKA, C., 1939, BISBEE DISTRICT IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 145, P. 32-41
7) KEITH, STANTON D., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.
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: 1:0067900
QUAD NO OR NAME: DRAGON, ARIZ.
LATITUDE: 32-06- N
LONGITUDE: 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 HUERNERITE, SCHEFLITE FLUORITE, AZURITE MALACHITE, SMITHSONITE BORNITE, GALENA, CUPRO-TUNGSTITE, SILVER VALUES, CHRYSOCOLLA, MOYDBDENITE, MAGNETITE, GOLD VALUES, CHALCOCITE, CERUSSITE, ANGLESITE, TETRACYANITE, BERYL, WOLFENITE 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. 
PROPERTY IS ACTIVE
YEAR OF DISCOVERY........... FIRST LOCATIONS MADE IN EARLY 1870'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PYROMETASOMATIC, REPLACEMENT, QUARTZ VEINS.

FORM/SIZE OF DEPOSIT: TABULAR, VEINS OR CHIMNEYS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENT(S) (DESCRIPTION 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.)

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
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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 ETAL 1967)
IGNEOUS ROCK TYPES............... TEXAS CANYON QUARTZ MONZONITE, APLITE AND LAMPROPHYRE.

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

PERTINENT MINERALOGY............ QUARTZ CALCITE JAROSITE; SKARNS=GARNET, WOLLASTONITE, DIOPSIDE, EPIDOTE, TRIMOLITE
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 SUSCEPTIBLE TO METAMORPHISM AND SILICIFICATION THAN OTHER BEDS. SHALY 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:
- PYROMETAMORPHIC ALTERATION;
- WIDER ARGILLIC ALTERATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
- THERMAL METAMORPHISM, 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
3) COOPER, JR., 1959, SOME GEOLOGIC FEATURES OF THE DRAGOON QUADRANGLE, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK II.
4) EINLEWS, R.E., 1939, GEOLOGY AND ORE DEPOSITS OF THE LITTLE DRAGOON MOUNTAINS: UNIV. ARIZ., PHD THESIS.
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) HENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUBLISHED MANUSCRIPT, SPECIAL COLLECTIONS, UNIVERSITY OF ARIZONA LIBRARY AND ARIZ. BUR. MIN. LIBRARY, TUCSON, 514 P.
12) SCOTT, W., 1916, MINING OPERATIONS AT JOHNSON, ARIZONA: MIN. ENGR. WORLD, V. 45, P. 141-143.
15) KEMSBO, T.M., 1949, INVESTIGATION OF KEYSTONE AND ST. GEORGE COPPER-ZINC DEPOSITS, COCHISE COUNTY, ARIZONA: U.S. BUR. MINES RESEARCH BULLETIN 4504, 21 P.
16) THE MINES HANDBOOK, VOL. XV-XVII, 1926-1926 BY W.H. WEED: PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK.
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ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.

STANTON, R. L., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MIN. BULL. 187, 98 P.


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KANTOR, J.A., 1975, SUBSURFACE STRUCTURE AND ALTERATION ON THE FLANKS OF THE LITTLE DRAGOON 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... M030502
RECORD TYPE .......... X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REC.

REPORTER
NAME ...................... WILT, J.C.
DATE ........................ BD 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 I: 0062500 GLEESON, ARIZ.
LATITUDE LONGITUDE 31-44-37N 109-49-19W
TWP ....... 19S
RANGE ....... 25E
SECTION ....... 32
MERIDIAN ....... GILA C SALT R.
ALTITUDE .... 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR TOWN GLEESON ON GLEESON RIDGE 900 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
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES: REPLACEMENT ALONG FAULT FISSURES
FORM/SHAPE OF DEPOSIT: SCATTERED

DESCRIPTION OF WORKINGS

COMMENTS OF WORKINGS:
TUNNEL AND STOPING (IN 1924 TUNNEL WAS 125 FT LONG) TUNNEL

CUMULATIVE PRODUCTION (ORE, COMM. CONC., OVERBURR.)

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SOURCE OF INFORMATION (PRODUCTION): KEITH, 1973, P. 83

PRODUCTION COMMENTS: 1923-24 300 TONS 8-14% Pb, 4-7 oz Ag, In

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PENN - PERMIAN
HOST ROCK TYPES: NACO LIMESTONE GROUP (HORQUILLA AND ESCABROSA)


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, KADLIN

IMPORTANT ORE CONTROL/LOCUS: NACO LIMESTONE IN CONTACT WITH QUARTZ MONZONITE. PROMINENT FAULT-FISSURE ZONE. VERY IRREGULAR ORE BODIES AS REPLACEMENTS ALONG FRACURES AND FAULTS. ORE OXIDIZED. SCATTERED ORE BUNCHES ALONG FAULT. ORE BODIES OCCURRING IN LIMESTONES AS REPLACEMENTS ALONG FRACURES AND FAULTS ARE LARGEST AND RICHEST WHERE FRACURES 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 THUST, NUMEROUS BEDDING PLANES (N30°, 45 E DIPPING) FAULTS, AND CROSS FAULTS OF NEARLY VERTICAL DIPS. THE THICK, BRECICATED, LIMONITIC AND SILICIFIED FAULT ZONES ARE MINERALIZED (WILSON, 1927, MCRAE, 1956)
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 HELACONITE ALONG WITH OXIDES OF MANGANESE. THE OXIDIZED MASSES ARE POROUS, OFTEN SILICEOUS, BROWN, YELLOW, OR DARK MASSES OF LIMONITES AND BLACKS COLOR OF MANGANESE AND COPPER.

COMMENTS (GEOLOGY AND MINERALOGY):
WILDFIR IN TERMS OCCUR AS CRYSTALS LINING SOLUTION CAVITIES OR SCATTERED THROUGH MASSES OF OXIDIZED LEAD ORE AND MANGANITE MATERIAL. SILVER PROBABLY OCCURS AS CERARGYRITE DISSIMULATED WITHIN ANGLESITE OR CERUSITE AND ELSEWHERE. THE SMALL AMOUNT OF SILVER PRESENT MAY BE CONTAINED BOTH IN THE SILVER AND FINELY DISSIMULATED 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. GEOLOGICAL SURVEY Prof. Paper 281, P. 152-157, MAP.
6) CONLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.N. THESIS, UNIV. ALASKA.
RECORD IDENTIFICATION
RECORD NO. 4030571
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OF RECORD

REPORTER
NAME WILT, J.C.
DATE 80 01

NAME AND LOCATION
DEPOSIT NAME DONNA ANNA WORKINGS
MINING DISTRICT/ARFA/SUBDIST. COCHISE DIST./LITTLE DRAGOON MTS
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1: 0062500
QUAD NO OR NAME DRAGOON, ARIZONA
LATITUDE 32-05-41N
LONGITUDE 110-04-57W
UTM NORTHING 32-05-41N
UTM EASTING 110-04-57W
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:
LUEBERITE

MINOR ORE MINERALS:
SCEHELITE, 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 OREBOD... 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(DESCRIPTION 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 CANYON 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. 107, 98 P., P. 56
2) COOPER, J.R. AND L.T. SILVER (1964) GEOLGY AND ORE DEPOSITS OF THE DRAGOON QUADRANGLE, COCHISE COUNTY, ARIZONA.
U.S. GEOLOGICAL SURVEY PROF. PAPER 410, 196 P., P. 187-188.
CRI8 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- 4030562
RECORD TYPE-------- AZ
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
IWP------- 13S 15S
RANGE---- 26E 26E
MERIDIAN-- GILA AND SALT R.
ALTITUDE.. 5050 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NORTH OF TDWN OF DOS CABEZAS

COMMODITY INFORMATION
COMMODITIES PRESENT----- CU AU PA 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 A.U/T

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
FISSURE VEINS, CONTACT METAMORPHIC, PLACER

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
NUMEROUS MINES AND PROSPECTS, MOSTLY RELATIVELY SMALL

PRODUCTION
YES
SMALL PRODUCTION

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

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<th>GRADE</th>
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<td>EST 100</td>
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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:
MACOSIT, SILVER CAMP COWBOY AND MAVERICK STOCKS, RHYDLITE 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
5) WILSON, E.O., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
7) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. WEEE; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK
8) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
9) KEITH, STANLEY B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P.
10) COOPER, JOHN R., 1959, RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213
11) TAYLOR, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUBL. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
13) COLL., A., 1910, THE CALIFORNIA DISTRICT, ARIZONA: MIN. WORLD, V. 33, P. 503
14) ARM. DEPT. OF MIN. RES. FILE DATA, ARIZONA DEPARTMENT OF MINERAL RESOURCES MISCELLANEOUS UNPUBLISHED REPORTS AND FILE RECORDS
18) ERICKSON, R.C., 1969, PETROLOGY AND GEOCHEMISTRY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: UNPUB. PHD. THESIS, UNIV. ARIZONA, 441 P.
20) SHIELDS, J.C., JR., 1940, GEOLOGY AND ORE DEPOSITS OF THE DIVES AND GOLD RIDGE GROUPS, DOS CABEZAS: UNIV. ARIZ. MS THESIS
RECORD IDENTIFICATION
RECORD NO. 030563
RECORD TYPE A
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
MAP CODE NO. 00072

REPORTER
NAME WOOD, N (WILT, J.C.)
DATE 80 04

NAME AND LOCATION
DEPOSIT NAME ELMIA MINE
MINING DISTRICT/AREA/SUBDIST. DOS CABEZAS
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1: 0062500
QUAD NO OR NAME DOS CABEZAS, ARIZONA
LATITUDE 32-14-52 N
LONGITUDE 109-35-40 W
UNIT NORTING 145
UNIT EASTING 09
UNIT MILEAGE N
TWSP 145
RANGEP 27E
SECTION 09
MERIDIAN GILA AND SALT RIVER
ALTITUDE 6,200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.8 KM NE VABM 8363 NORTH OF MASCOT MINE

COMMODITY INFORMATION
COMMODITIES PRESENT

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, P. 61
2) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK 1925, P. 278; 1926, P. 739
4) ARIZ. DEPT. OF MIN. RES., FILE DATA, ARIZ. DEPARTMENT OF MINERAL RESOURCES MISCELLANEOUS UNPUBLISHED REPORTS AND FILE RECORDS
5) ARIZ. DEPT. OF MIN. RES., FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
6) ARIZ. DEPT. OF MIN. RES., SPECIAL COLLECTIONS, UNIV. ARIZON
7) TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUBL. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZON
8) BIDALE, V.P.; L.A. STEWART; AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. BUR. MINES RI 5650
12) JERICKSON, R.C., 1969, PETROLOGY AND GEOCHEMISTRY OF THE DOS CABEZAS MOUNTAINS, COCHISE COUNTY, ARIZONA: UNPUBL. PHD. THESIS, UNIV. ARIZONA, P. 491
14) SHIELDS, J.C. JR., 1940, GEOLOGY AND ORE DEPOSITS OF THE DIVES AND GOLD RIDGE GROUPS, DOS CABEZAS: UNIV. ARIZ. MS THESIS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030584
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 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 1: 0024000
QUAD NO OR NAME TOMSTONE, ARIZONA

LATITUDE 31-41-10N
LONGITUDE 110-04-15W

UTM NORTHING 3500860.0
UTM EASTING 587100.0
UTM ZONE NO 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 MILL (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.:
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 (DESCRIPTION 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 788 FT DEPTH. BUTLER ET AL. 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 HOLEA 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
3) CHURCH, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AIME TRANS., V. 33, P. 3-37, P. 6, 29
6) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
RECORD IDENTIFICATION
RECORD NO. 9030585
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2

REPORTER
NAME WILT, J.C.
DATE 80 04

NAME AND LOCATION
DEPOSIT NAME EMPIRE MINE
MINING DISTRICT/AREA/SUBDIST. TOMBSTONE
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1:0024000
QUAD NO OR NAME TOMBSTONE, ARIZONA
LATITUDE 31-42-23N
LONGITUDE 110-03-11W
UTM NORTHING 3500225.0
UTM EASTING 588940.0
UTM ZONE NO 12

TWP 20S
RANGE 22E
SECTION 11 SE
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 MILL AND MFG. 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 BIDDEN
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., OVERBUR.)
ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE REMARKS
IS 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............. CRETE
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
P., P. 121, 156, 205.


3) Church, J.A., 1903, The Tombstone, Arizona, Mining District: AIME Trans., V. 33, P. 3-37


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: 1: 0024000
QUAD NO OR NAME: HAY MOUNTAIN, ARIZONA
LATITUDE: 31-41-31N
LONGITUDE: 109-53-16W
UTM NORThING: 3500405.0
UTM EASTING: 599400.0
UTM ZONE NO: +12
TWP: 20S
RANGE: 24E
SECTION: 15 16
MERIDIAN: GILA AND SALT RIVER
ALTITUDE: 4895

POSITION FROM NEAREST PROMINENT LOCALITY: 4.15 KM NW WARM 5306 (HAY MT.)

COMMODITY INFORMATION

COMMODITIES PRESENT: Cu Pb Au Ag Mo

MAIN COMMODITY: Cu Pb Au Ag Mo

MAIN ORE MINERALS: OXIDIZED Cu, Pb MINERALIZATION
MINOR ORE MINERALS:
GOLD AND LEAD AND MOLYBDENUM VALES

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS
FORM/SHAPE OF DEPOSIT: SPOTTY, IRREGULAR

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
A FEW SHALLOW SHAFTS AND TUNNELS

PRODUCTION

YES
SMALL PRODUCTION

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

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

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<td>0.144 TONS</td>
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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

IGNEOUS ROCK TYPES........... GLEESON QUARTZ MONZONITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
OXIDIZED
GENERAL REFERENCES


2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, PHOENIX NEWSPAPER AUGUST 15, 1939.


**CRIB MINERAL RESOURCES FILE 12**

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**REPORTER**

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**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 |

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<td>17</td>
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<th>TWP</th>
<th>RANGE</th>
<th>SECTION</th>
<th>MERIDIAN</th>
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<tbody>
<tr>
<td>16S</td>
<td>30E</td>
<td>28 34</td>
<td>GILA AND SALT R.</td>
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</tbody>
</table>

| ALTITUDE | 5360 FT |

**POSITION FROM NEAREST PROMINENT LOCALITY:**

| 3.8 KM NW VABM 773D (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 |

<table>
<thead>
<tr>
<th>MAIN COMMOD</th>
<th>PB AG MO</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MINOR COMMOD</th>
<th>CU ZN AU</th>
</tr>
</thead>
</table>
MAIN ORE MINERALS:
BASE METAL SULFIDES AND CARBONATES

EXPLORATION AND DEVELOPMENT
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMEN1S (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% ZN 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
9) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.


HILLTOP MINE

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

UTM NORTHING 3539930
UTM EASTING 661650
UTM ZONE NO 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 VADM 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: WOLFRAMITE, SCHEELITE, PYRITE, ANGLESITE, SMITHSONITE, MAGNETITE, AZURITE, CHRYSCOLLAR, COPPER, MALACHITE, PSILOMELANE, PYROLUSITE, ARSENOPYRITE, SOME SILVER AND GOLD IN ANALYSES
ANALYTICAL DATA (GENERAL)
2-5 OZ AG/1, 10-25% PB, 5-15% ZN, 0.1-5.6% CU, 10-12% FE, 2-10% MN.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.
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 SHAFT
PRESENT/LAST OWNER........ AMERICAN ZINC, LEAD AND SMELTING 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

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 (DESCRIPTION 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 (OKE, COMMOD., CONC., OVERRBUR.)

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 PB EST 5000 LBS 1924-1928 (HCH EXTEN)
16 AG EST 78 OZ 1924-1928 (HCH. 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 1800'S BY APACHES. AREA ACTIVE AGAIN DURING 1902-1906 WHEN SEVERAL CARLOADS WERE SHIPPED TO EL PASO. DURING 1911-18, 1924-27, AND 1930-54 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 DIES (MONZONITIC TO DIDRITIC, STOCK IN JHUS CANYON IS 1 1/2
MILES, TO SE

PERTINENT MINERALOGY......... garnet, epidote, chlorite, calcite, and clinozoisite (bruttain) quartz,
wollastonite, gypsum, tremolite, limonite

IMPORTAINT ORE CONTROL/LOCUS.. ORE CONTROLLED BY BRECIIATION 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) KEE 111, SANTANIO B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 107, 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) DOREE, ES. H. WILLIAMS, F.E., 1973, MINERAL RESOURCES OF THE CHIRICAHUA WILDERNESS AREA, COCHISE COUNTY,
5) MOORE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P.
6) JAHM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
P., 205.
8) BEEGE, S.S., 1911, THE CHIRICAHUA MOUNTAINS: ENGR. M11. JOUR., V. 91, P. 663
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
12) COOPER, JOHN K. S., RECONNAISSANCE GEOLOGIC MAP OF SOUTHEASTERN COCHISE COUNTY, ARIZONA: USGS MAP MF-213
(1960)
COUNTIES, ARIZ. U.S. BUR. MINES R1 5650, P. 17-18.
14) THE MINES HANDBOOK, VOL. XV-XVII, 1929-1926 BY W.H. WEE, PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK
15) SABINS, F.F., 1955, GEOLOGY OF THE COCHISE HEAD AND WESTERN PART OF VANAR QUADRANGLES, ARIZONA: YALE UNIV.,
PHD THESIS
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.
21) ENLOWS, H.E. 3. THE IGNEOUS GEOLOGY OF CHIRICAHUA NATIONAL MONUMENT, ARIZONA: TULSA GEOL. SOC. DIG., V. 19, P. 105-107, ILLUS. (1951)
26) SAUER, CARL, BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6, P. 339-414 (1930)
**Name and Location**
- **Deposit Name**: Johnson Camp
- **Synonym Name**: Climax Shaft; Johnson Mine, Cypress Johnson Deposit
- **Mining District/Area/Subdist.**: Cochise Dist, Dragoons
- **Country Code**: US
- **State Code**: 04
- **County**: Cochise
- **Quad Scale**: 1:62500
- **Quad No or Name**: Dragoon, Arizona
- **Latitude**: 32°06'34"N
- **Longitude**: 110°03'50"W
- **UTM Northing**: 4947
- **UTM Easting**: 155
- **Zone**: 22E
- **Section**: 23
- **Meridian**: G & SW
- **Altitude**: 4950 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 Commodity**: Cu Ag
- **Minor Commodity**: 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 (DESCRIPTION OF WORKINGS):
SHAFT WORKINGS ORIGINALLY: OPEN PIT

PRODUCTION

YES

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

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
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CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

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<td>1956-1978</td>
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SOURCE OF INFORMATION (PRODUCTION)... KEITH, P. 57
RESERVES AND POTENTIAL RESOURCES

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<td>1974</td>
<td>0.5% ACID SOLUBLE CU</td>
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<td>2</td>
<td>MIXED</td>
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<td>TOO000 TONS</td>
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SOURCE OF INFORMATION (RESERVES/POTENTIAL RESOURCES). GREELEY, 1979, P. 84

GEOL OGY AND MINERALOGY

AGE OF HOST ROCKS.............. CAMBO, MISS., PENN
HOST ROCK TYPES................. ABRIGO FM, ESCABROSA LS, HORQUILLA LS.
AGE OF ASSOC. IGNEOUS ROCKS.... TERT. (53 M.Y. LIVINGSTON ET AL 1967)
IGNEOUS ROCK TYPES............. TEXAS CANYON QUARTZ MONZONITE
AGE OF MINERALIZATION........... TERT (53 M.Y. LIVINGSTON ET AL. 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 BIDIOTE 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 KADLINTITE 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 SUPERGEENE PROCESSES.

GENERAL REFERENCES
6) COOPER, J.R. AND L.T. SILVER (1954) GEOLOGY AND ORE DEPOSITS OF THE DRAGOON QUADRANGLE, COCHISE COUNTY,


Crib Mineral Resources File 12

Record Identification
Record No.: 030573
Record Type: X1
Country/Organization: USGS
Information Source: 1, 2
Map Code No. of Rec:

Reporter
Name: Wilt, Jan C.
Date: 01 01

Name and Location
Deposit Name: Keystone Mine
Synonym Name: Hagerman Mine, Bannon Group
Mining District/Area/Subdist: Cochise Dist/L Dragoon Miss
Country Code: US
State Code: 04
County: Cochise
Quad Scale: 0062900
Quad No or Name: Dragoon, Ariz.
Latitude: 32-05-33N
Longitude: 110-03-34W
UTM Northing: 1120N
UTM Easting: 1130W
UTM Zone No:

Town: 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 Commodity: Cu Zn Ag
Minor Commodity: 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. ON DEV.:
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOT

DEPOSIT TYPES:
PYROMETASOMATIC

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 650 FT

COMMENTS (DESCRIPTION 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......... CARNELIATION, 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


5) ABM FILE DATA, ARIZ. BUR. MINES RE-5650.


NAME AND LOCATION
DEPOSIT NAME: AINSWORTH COPPER CO. 1925. KING COPPER CO., COCHISE COPPER CO, CORONADO COPPER CORP. 1929, PORTAL MINES DEVELOPMENT CO., ARIZONA
CONSOLIDATED METAL PRODUCERS CORP.
SYNONYM NAME: COCHISE MINE, OREGON GROUP, OLD COCHISE CONSOLIDATED COPPER CO., CLAIMS, AINSWORTH COPPER CO., KING COPPER CO., COCHISE COPPER CO., CORONADO COPPER CORP., PORTAL MINES DEVELOPMENT CO., ARIZONA
CONSOLIDATED METAL PRODUCERS CORP.
MINING DISTRICT/AREA/SUBDIST: CALIFORNIA
COUNTRY CODE: US
STATE CODE: 04
COUNTY: COCHISE
QUAD SCALE: 1:240000
QUAD NO OR NAME: PORTAL, ARIZONA
LATITUDE: 31-58-36N
LONITUDE: 109-11-04W
UTM NORTHING: 3539150
UTM EASTING: 671525
UTM ZONE NO: 12
TWP: 17S
RANGE: 31E
SECTION: 04 05
MERIDIAN: GILA SALI RIVER
ALTITUDE: 4960 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 3.3 KM NW YARN 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 COMMODITY: PB ZN W
MINOR COMMODITY: CU AU AG MO

MAIN ORE MINERALS:
- Galena, Chalcopyrite

MINOR ORE MINERALS:
- Scheelite, Powellite (?)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: PROPERTY IS INACTIVE
PRESENT/LAST OWNER:

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/DESCRIPTION OF WORKINGS:
- 200 FT SHAFT, 3000 +/- FT WORKINGS; AINSWORTH SHAFT 310 FT, KING SHAFT 210 FT, TREASURY TUNNEL 800 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): A84 FILE GAPES

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, 1910, 1927-29, 1948; RFC LOAN, 1942

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS: ?? CAMBREA
HOST ROCK TYPES:
- Limestone; Quartzite and Silicified and Marbleized Limestone
IGNEOUS ROCK TYPES:
- Granite
PERTINENT MINERALOGY:
- Epidote, Calcite, MNO, FED
IMPORTANT ORE CONTROL/LOCUS: REPLACEMENT IN LIMESTONE; CAMBRIAN QUARZITE AND SILICATED AND MARBLEIZED LIMESTONE, ALSO FISSURE VEINS, HIGH GRADE PB

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICIFIED

COMMENTS (GEOLOGY AND MINERALOGY):
SCHEELITE SHOWS A MARBLED YELLOW FLUORESCENCE INDICATING A HIGH MOLYBDENUM CONTENT (DALE, ET AL 1960, P. 16)

GENERAL REFERENCES

P., P. 53


3) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926 BY W. H. WEED; PUBLISHED BY THE MINES HANDBOOK COMPANY, NEW YORK, 1926, 1931

4) AMB 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


7) ATOOMIC ENERGY COMM., 1953, PRELIM. RECONN. REPT A-P-47

8) TENNEY, J.B., 1929, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, ARIZ. BUR. MINES, 401 Po, P. 227-233


10) MURDOE, R.T., 1969, LEAD AND ZINC, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 180, P. 182-205, P. 189

11) CHAKARUN, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.


17) PALGE, S., 1909, MARBLE PROSPECTS IN THE CHIRICAHUA MOUNTAINS, ARIZONA: U.S. GEO. SURVEY BULL. 380, P. 299-211

18) SAUER, CARL, BASIN AND RANGE FORMS IN THE CHIRICAHUA AREA: UNIV. CALIF. PUB. GEOG., V. 3, NO. 6, P. 339-414 (1930)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030574
RECORD TYPE K1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 1980 04

NAME AND LOCATION
DEPOSIT NAME MAMMOTH MINE
SYNONYM NAME CONNECTED WITH MOORE SHAFT
MINING DISTRICT/AREA/SUBDIST. COCHISE DIST/L. DRAGOON MTS
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1: 0062500 DRAGOON, ARIZONA
LATITUDE 32-06-35N
LONGITUDE 110-04-37W
UTM NORTHING 1155
UTM EASTING 22E
UTM ZONE 23
TWPN 23
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 DRAGOON)

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 USE MINERALS:
CHALCOPYRITE AND SPHALERITE

MINOR ORE MINERALS:
BORNITE, CHALCOCITE, COVELLITE, MOLYBDENITE, PYRITE, AZURITE, MALACHITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.*:
PROPERTY IS INACTIVE

YEAR OF DISCOVERY:
BEGAN PRODUCING IN 1992

PRESENT/LAST OWNER:
BLACK PRINCE COPPER CO., ARIZONA CONSOLIDATED MNG. CO., ARIZONA UNITED MNG. CP., COBRAZ
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 (DESCRIPTION OF WORKINGS):
EXTENSIVE SHAFT WORKINGS: PARITY CAVED INCLINES AND UNDERHAND STOPEs FOLLOWING DOWN DIP OF FAVORABLE BEDS.

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMM., CONC., OVERBURD.):

ITEM
BLACK COPPER 88000060 LBS

CUMULATIVE PRODUCTION (ORE, COMM., CONC., OVERBURD.):

ITEM
15 ORE EST 200 TONS

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 ET AL., 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
3) BAKER, ARTHUR II, 1952. PYROMETASOMATIC ORE DEPOSITS AT JOHNSON CAMP, ARIZONA: PH.D. THESIS, STANFORD UNIVERSITY, 101 P.
5) COOPER, J.R., 1950, JOHNSON CAMP AREA, COCHISE COUNTY, ARIZONA IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 150, P. 30-39, P. 39
6) THEINEN, 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. GEOLOG., V. 1, P. 651-659
9) TITENNY, J.R., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
11) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPING, UNPUBLISHED REPORTS, AND FILE RECORDS
CMB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030567
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 MIDDEMARCH MINE
SYNONYM NAME MISSOURI
MINING DISTRICT/AREA/SUBDIST MIDDLE PASS
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1: 0062500
QUAD NO OR NAME PEARCE
LATITUDE 31-52-41N
LONGITUDE 109-56-54W
UTM NORTHING 3527450.0
UTM EASTING 599495.5
UTM ZONE NO +12
TWP 18S
RANGE 23E
SECTION 12
MERIDIAN GILA AND SALT RIVER
ALTITUDE 5485 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 100 METERS WEST OF MIDDEMARCH 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, CHALCOPRITRE, 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, CHALCOCENITE

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
CONTACT METAMORPHIC

PRODUCTION
YES
SMALL PRODUCTION

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.............. LOW PALEOZ. CRETI.
HOST ROCK TYPES.............. CARBONATES AND GLANCE CONGLOMERATE (LIMESTONE CLASTS) OF BISBEE GROUP
IGNEOUS ROCK TYPES.............. TERT. (259 M.Y., MARVIN ETAL, 1973) 22 M.Y., DAMON AND BICKMAN, 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:

SIGNIFICANT ALTERATION:
PYROMEIASOMATIC 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 (GEOLGY 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 TENDING 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.
4) DREWES, M., 1975, LARAMIDE TECTONICS FROM PARADISE TO HELL S GATE, SOUTHEASTERN ARIZONA: ARIZONA GEOLOGICAL SOCIETY DIGEST, V. 10, P.
6) GILLULY, J. 1968, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 281, 169 P.
8) JONES, R.W., 1969, A STRUCTURAL SYNTHESIS OF PART OF SOUTHEAST ARIZONA: UNPUBLISHED PH.D. DISSERTATION, UNIVERSITY OF CHICAGO, 198 P.
13) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
NAME AND LOCATION

DEPOSIT NAME: MIDDLE PASS DISTRICT

MINING DISTRICT/AREA/SUBDIST: MIDDLE PASS DISTRICT/S. DRAGOON MTs

COUNTRY CODE: US

STATE CODE: 04

COUNTY: COCHISE

QUAD SCALE: 1:0062500

QUAD NO OR NAME: PEARCE, ARIZ.

LATITUDE: 31-52-00N

LONGITUDE: 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. DRAGOON 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, RA

MAIN COMMODITY: ZN, PB, CU

MAIN ORE MINERALS:

Sphalerite, Chalcopyrite, Galena

MINOR ORE MINERALS:
BORNITE, ARGENTITE MALACHITE AZURITE, CERUSSITE ANGLESITE HEMIMORPHITE SCHEELITE, POWELLITE, MULFENITE, 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 (DESCRIPTION OF WORKINGS):
NUMEROUS SCATTERED MINES AND PROSPECTS

PRODUCTION

YES

SMALL PRODUCTION

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

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15 ORE EST 76 TONS</td>
<td>1900-</td>
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SOURCE OF INFORMATION (PRODUCTION): KEITH, 1973, P. 67

PRODUCTION COMMENTS.... BASE METAL SULFIDE ORE AND SMALL TONNAGE OF TUNGSTEN CONCENTRATES AND BARITE PRODUCED INTERMITTENTLY.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.............. PALEOZ.
HOST ROCK TYPES................. LIMESTONES, QUARTZITES
AGE OF ASSOC. IGNEOUS ROCKS... TERT (75-9 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 VE FISSURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
COMPLEX FOLDING FAULTING
GENERAL REFERENCES


4) GILLILLY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEO. SURVEY PROF. PAPER 281, 169 P.

5) GILLILLY, J., COOPER, J.R., AND WILLIAMS, J.S., 1954, LATE PALEOZOIC STRATIGRAPHY OF CENTRAL COCHISE COUNTY, ARIZONA: GEO. SURVEY PROF. PAPER 266, 49 P.


7) WILSON, F.D., 1951, DRAGOON MOUNTAINS IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, 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.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO. M030575
RECORD TYPE. 01
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1, 2
MAP CODE.

REPORTER

NAME. WILT, JAN C.
DATE. 08 04

NAME AND LOCATION

DEPOSIT NAME. MOORE MINE
MINING DISTRICT/AREA/SUBDIST. COCHISE
COUNTRY CODE. US
STATE CODE. 04
COUNTY. COCHISE
QUAD SCALE

LATITUDE. 32-06-40N
LONGITUDE. 110-04-29W

UTM NORTHING. TWP. 15S
UTM EASTING. RANGE. 22E
SECTION. 23
MERIDIAN. GILA AND SALT RIVER
ALTITUDE. 5100 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1.8 KM SE JOHNSON PEAK (LITTLE DRAGOON) 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: 1947 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: NIOW

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 800 FT
COMMENTS: DESCRIPT. 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: CAMB. DEV.
HOST ROCK TYPES: ABREGO LIMESTONE, MARTIN FORMATION
PERTINENT MINERALOGY: LIME SILICATES, FELDSPAR, CHLORITE AND QUARTZ GANQUE
IMPORTANT ORE CONTROL/LOCUS: FAULTS, FISSURES AND FOLDS IN LIMESTONES NEAR THE TOP OF THE MIDDLE MEMBER OF THE
ABRIGO FM IN AN IRRA TICALLY 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 THE 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 99 FAULT AND EAST 90 FAULTS ARE IMPORTANT. COMPLEX BLOCK FAULTING OF EASTERS, 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
2) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 187, 98 P., P. 58
3) BAKER, A. 3RD, 1953, 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030581
RECORD TYPE. A
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1.2
MAP CODE NO. OF REC. 12

REPORTER
NAME. WILT, J.C.
DATE. BD 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. 0062500 GLEESON, ARIZ.
LATITUDE. 31-44-39N
LONGITUDE. 109-49-06W
TWP. 19N
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:
WOLFSNITE, Cu MINERALIZATION PYRITE CHALCOPYRITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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 (DESCRIPTION OF WORKINGS):
TUNNEL WORKINGS

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMM. COMMOD., CONC., OBERBURD.):

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
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<td>ACC</td>
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<td>1924</td>
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CUMULATIVE PRODUCTION (ORE, COMM. COMMOD., CONC., OBERBURD.):

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<td>16 ORE EST</td>
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<td>1942</td>
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SOURCE OF INFORMATION (PRODUCTION):
KEITH, 1973, P. 84

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
PENN - PERM.

HOST ROCK TYPES:
MACO GROUP LIMESTONE

AGE OF ASSOCIATED 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 DIERES AND SMALL
IRREGULAR MASSES OF HORNBLERDE ANDESITE PORPHYRY, LAMPROPHYRE AND APLITE INTRUDE THE GLEESON QUARTZ MONZONITE
(MCRAE, 1966). THE APLITE DIERES ARE RELATED TO THE SUGARLOAF QUARTZ LATITE DIERES.

AGE OF MINERALIZATION........ CRET. (75 M.Y., MARVIN AND OTHERS, 1978) MCRAE (1966) SUGGESTS TWO PERIODS OF
MINERALIZATION - ONE PRE-CRETACEOUS (PROBABLY NEVADA) 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 FRAClURES AND FAULTS ARE
LARGEST AND RICHEST WHERE FRACtURES INTERSECT, CHANGE DIP 3R TURN AND WHERE FISSURING OCCURRED PARALLEL TO
BEDDING.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

- COMKICLATE FAULTING IN GLEESON RIDGE INCLUDES N TO NNW TRENDING GLEESON RIDGE OVER THRUST, NUMEROUS BEDDING
  PLANE (N90W, 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 POLVERULENT, OFTEN SILICEOUS, 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,
   SOC. DIGEST, 3: 53-56.
   P., P. 121, 156, 205.
5) ABIR 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, O.H., 1966, GENERAL GEOLOGY AND SOME STRUCTURAL FEATURES OF THE COURTLAND-GLEESON AREA, COCHISE COUNTY,
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ........................ MD30568
RECORD TYPE. ......................... X7
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 ......................... JS
STATE CODE ............................ 04
COUNTY ................................. COCHISE

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

LATITUDE .............................. 31-54-02N
LONGITUDE ............................. 109-48-52W

UTM NORTHING ................. 3529050.
UTM EASTING ................. 612180.
UTM ZONE NO ......................... 12

T&P ................. 175 185
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 MD

PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS ........................ AU AG
MINOR PRODUCTS .................. F

MAIN COMMOD ................ AU AG F
MINOR COMMODITY: 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, iodrite, chalcocite, galena, chalcopyrite, proustite, tetrahedrite

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- Replacement veins and breccia zones

PRODUCTION

YES
- SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOU. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15 ORE EST</td>
<td>1300 TONS</td>
<td>1895-1940</td>
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</tbody>
</table>

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 GROUP

AGE 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
5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
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.
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 030569
RECORD TYPE. X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF REC.

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

NAME AND LOCATION
DEPOSIT NAME. PEARCE MINE
SYNONYM NAME. COMMONWEALTH MINE COMMONWEALTH MINE INCLUDES THE EISENHART VEIN, NORTH VEIN, RINAUD VEIN, SMITH VEIN, FOOTWALL 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
I: 0062500
PEARCE, ARIZ.
LATITUDE. LONGITUDE
31-54-02N 109-48-52W
UTM NORTHING. UTM EASTING. UTM ZONE NO
3529850. 612180. +12
TNP. 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 COMMODITY NO

MAIN ORE MINERALS:
CERARGYRITE EMBOLITE SILVER AND GOLD HALIDES

MINOR ORE MINERALS:
PYRITE WULFENITE, SULFO-SALTS, FREE GOLD, CHRYSOCOLLA, NATIVE SILVER, ARGENTITE, ALUNITE,
RHODOCHROMITE, IDIOYRITE, CHALCOCITE, GALENA, CHALCOPYRITE, PROUSTITE TETRAHEDRITE, TRACES OF MOLYBDENITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>1000 TONS</td>
<td>1895-1942</td>
<td></td>
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</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1973, P. 69

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. TERT.
HOST ROCK TYPES.................. RHOLITE AND ANDESITE (PEARCE VOLCANICS)

AGE OF ASSOC. IGNEOUS ROCKS.... TERT
IGNEOUS ROCK TYPES............... RHOLITE AND ANDESITE (PEARCE VOLCANICS)

AGE OF MINERALIZATION........... TERT.

PERTINENT MINERALOGY.............. VUGGY QUARTZ-CALCITE VEINS; FRACTURES FILLED WITH QUARTZ, SIDERITE, MANGANIFEROUS CALCITE, ALUNITE, SERICITE AND KADIN 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 Ores

COMMENTS (GEOLOGY AND MINERALOGY):
Wulfenite Lining Cavities with Emblite

GENERAL REFERENCES
CR10 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ************ D000757
RECORD TYPE ********** XI
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 DRAGOON MTS
COUNTRY CODE ********** US
STATE CODE *********** 04
COUNTY *************** COCHISE

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

LATITUDE
32-05-24N
LONGITUDE
110-03-35W

UTM NORTHING
155
UTM EASTING
22E
UTMZONE NO
36

MERIDIAN
GILA AND SALT RIVER

ALTITUDE
5,650 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5.5 MI. NNW FROM DRAGOON 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 MD

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 0.1% W (POST 1940)

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

PRESENT/LAS 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 (DESCRIPT. 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 MAMMOTTE 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 WIGE 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 BENDS. 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, 165-0).

LOCAL GEOLOGY
SIGNIFICANT LOCAL STRUCTURES:
FAULTED AND FISSIONED; NORTHEASTER AND FASTER FAULTS — REPUBLIC FAULT

SIGNIFICANT ALTERATION:
GARNETITIZED, SILICATED AND MAROMLIZED

GENERAL REFERENCES


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


6) HFINEMAN, R.E.S. (1927) THE GEOLOGY AND ORE DEPOSITS OF THE JOHNSON MINING DISTRICT, ARIZONA. UNV. ARIZONA M.S. THESIS, 45 P., P. 39

7) KELLOGG, L.O., 1906, SKETCH OF THE GEOLOGY AND ORE DEPOSITS OF THE COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZONA: ECON. GEOL., V. 1, P. 50-59


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.


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


5) BLAKE, W.P., 1899, HUEBNERITE IN ARIZONA: AIME TRANS., V. 28, P. 543-546


7) COOPER, J.R. 1957, METAMORPHISM AND VOLUME LOSSES IN CARBONATE ROCKS NEAR JOHNSON CAMP, COCHISE COUNTY, ARIZONA: AIME GEOL. SOC. AMER. BULL. 60: 577-610.

8) COOPER, J.R., 1959, SOME GEOLOGIC FEATURES OF THE DRAGOON QUADRANGLE, ARIZONA: ARIZ. GEOL. SOC. GUIDEBOOK II S
14) Kentor, J.A., 1975, Subsurface structure and alteration on the flanks of the Little Dragoon 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.
CRIEB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... M03580
RECORD TYPE.......... P
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE .. 102
MAP CODE NO. OF REC. 

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

NAME AND LOCATION
DEPOSIT NAME............... SILVER BELL MINE
SYNGAMY NAME............... COSTELLO GROUP
MINING DISTRICT/AREA/SUBDIST. TURQUOISE DIST./GLEESON
COUNTRY CODE............... US
STATE CODE............... 04
COUNTY....................... COCHISE
QUAD SCALE............ 1: 0062500
QUAD NO OR NAME........ GLEESON, ARIZ.
LATITUDE.................. 11-44-34N
LONGITUDE................ 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, MELAYONITE (?), AURICHALCITE, SMITHSONITE, CALAMINE, PYROLUSITE, MINOR PYRITE, CHALCOPYRITE, GALENA  

EXPLORATION AND DEVELOPMENT  
STATUS OF EXPLOR. OR DEV.  
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 (DESCRIPTION OF WORKINGS):  
271 FT SHAFT INCLINED, 525 FT DRIFTS, RAISES, MINES, 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.)  

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>6.57</td>
<td>TONS</td>
<td>1922-1930, 1930-1941</td>
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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  

GEOLGY AND MINERALOGY  
AGE OF HOST ROCKS: PERM - PENN  
HOST ROCK TYPES: NACO LIMESTONE  

AGE OF ASSOC. IGNEOUS ROCKS: CRET. (75 M.Y.)  
AGE OF MINERALIZATION........ CRET. (75 M.Y.)

PERTINENT MINERALOGY........... HEMATITE, LIMONITE, JAROSITE, CALCITE, ARAGONITE, AND KAOLIN.

IMPORTANT ORE CONTROL/LUCUS... 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 MELANCONITE 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 CERUSITE 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.O., 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.
5) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
6) CUNLEY, L.J., 1958, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA; E.M. THESIS, UNIV. ALASKA.
CRI8 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00090
COUNTRY/ORGANIZATION USGS
MAP CODE No. US
INFORMATION SOURCE 1-2

RECORD NOAM030564
RECORD TYPEAK1
COUNTRY/ORGANIZATION A
USGS
INFORMATION SOURCE A
1,2
MAP CODE No. OF REC.

REPORTER
NAME WILT, J.C.
DATEABO 04

NAME AND LOCATION
DEPOSIT NAME SILVERBELL
MINING DISTRICT/AREA/SUBDIST. DOS CABEZAS DIST
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE 1:14S
QUAD NU OR NAME
I: COCHISE HEAD
J: 29E
SECTION 29 30 C
MERIDIAN G6SR

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

GEOLGY AND MINERALOGY
AGE OF HOST ROCKS MISS-PENN
HOST ROCK TYPES LIMESTONE ESCABROSA-HORQUMALLA
IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS IN LS HOST

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
WO LLASIONIZATION 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030577
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OP REC.

REPORTER
NAME WILT, J.C.
DATE 80 01

NAME AND LOCATION
DEPOSIT NAME STANDARD PROSPECT
MINING DISTRICT/AREA/SUBDIST. COCHISE DIST. (JOHNSON)/LITTLE DRAGOON MTS.
COUNTRY CODE US
STATE CODE 04
COUNTY COCHISE
QUAD SCALE QUAD NO OR NAME
1: 0062500 DRAGOON, ARIZONA
LATITUDE 32-03-58N
LONGITUDE 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 MD

MAIN COMMOD ZN CU W BE MD
MINOR COMMOD ZN CU W BE MD

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 DRAGOON

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
PYROMETAMORPHIC
FORM/SIZE OF DEPOSIT: MANTOS

SIZE/DIRECTIONAL DATA
DEPTH TO TOP .......... UNDER ALLUVIUM

DESCRIPTION OF WORKINGS
COMMENTS/DESCRIPTION OF WORKINGS:
SHAFT WORKINGS AND DIAMOND DRILL HOLES

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS.......... CAMBRIAN
HOST ROCK TYPES.......... ABRIGO LIMESTONE
AGE OF ASSOCIATED IGNEOUS ROCKS TERT (53 M.Y., LIVINGTON)
TERT (53 M.Y.)
AGE OF MINERALIZATION........ TERT (53 M.Y.)
PERTINENT MINERALOGY......... CRYSTALLIZED LIMESTONE, GARNET, LIME SILICATES, ORTHOCLASE, 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
4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4001252
RECORD TYPE K2
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
MAP CODE NO. OF REC. 80 01

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 006 500
QUAD NO OR NAME SWISSHELM MTN., A-12.

TWP. 20S
RANGE 27F
SECTION 12 01
MERIDIAN GILA AND SALT RIVER
ALTITUDE 5520 FT

POSITION FROM NEAREST PROMINENT LOCALITY 5 MILES SOUTH OF RUCKER CANYON ROAD AND WHITESTONE DAM

COMMODITY INFORMATION
COMMODITIES PRESENT PB ZN AG CU AU

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, SCHELITE
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.: PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
NUMEROUS ADIT AND SHAFT WORKINGS

PRODUCTION

YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 ORE</td>
<td>EST</td>
<td>49</td>
<td>TONS</td>
<td>1937-1953</td>
<td></td>
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<tr>
<td>16 Pb</td>
<td>ACC</td>
<td>9271.217</td>
<td>LBS</td>
<td>1918-1949</td>
<td>GALBRAITH AND LORING, 1951</td>
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<tr>
<td>17 Ag</td>
<td>ACC</td>
<td>244.78</td>
<td>OZ</td>
<td>1918-1949</td>
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<tr>
<td>18 Au</td>
<td>ACC</td>
<td>2.687</td>
<td>OZ</td>
<td>1918-1949</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Zn</td>
<td>ACC</td>
<td>197.5</td>
<td>LBS</td>
<td>1918-1949</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Cu</td>
<td>ACC</td>
<td>49.318</td>
<td>LBS</td>
<td>1926-1949</td>
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</table>

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: NACO GROUP LIMESTONES

AGE OF ASSOCIATED 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 FRACURES WITH THE FAVORABLY FRACURED 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.
   DEBIEU, H.O., 1964, PETROGRAPHY AND PETROGENETIC HISTORY OF A QUARTZ MONZONITE INTRUSIVE, SWISSHELM MOUNTAINS, COCHISE COUNTY, ARIZONA: M.S. GESIS, UNIV. ARIZ., 100 P.
   LORING, W.B., 1947, GEOLOGY AND ORE DEPOSITS OF THE MOUNTAIN QUEEN AREA, NORTHERN SWISSHELM MOUNTAINS, ARIZONA: M.S. THESIS, UNIV. ARIZ.

4) NEARBY CHIRICAHUA MTS:
   ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
   CHAKURUK, J.D., 1973, GEOLOGY, MINERALIZATION AND ALTERATION OF THE JHUS CANYON AREA, COCHISE COUNTY: M.S. THESIS, UNIV. ARIZONA, P.


CRIP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030579
RECORD TYPE. K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1,2
MAP CODE NO. 00093

REPORTER
NAME. WILT, JAN C.
DATE. 04 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. 0062500
QUAD NO OR NAME. GLEESON, ARIZ.
LATITUDE. 31°44'24"N
LONGITUDE. 109°49'15"W
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, MELAONITE (?), AURICHALCITE, SMITHSONITE, CALAMINE, PYROLUSITE, MINOR PYRITE, CHALCOPYRITE, GALENA

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. %
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 (DESCRIPTION OF WORKINGS):
- TUNNEL WORKINGS

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>1 PB-AG ORE EST</td>
<td>TONS</td>
<td>1925</td>
<td></td>
<td></td>
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CUMULATIVE PRODUCTION (ORE, COMM., CONC., OVERBURD.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 ORE</td>
<td>.44</td>
<td>TONS</td>
<td>1929-1933</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 ORE</td>
<td>.89</td>
<td>TONS</td>
<td>1943-1947</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17 ORE</td>
<td>.17</td>
<td>TONS</td>
<td>1954</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>19 ORE EST</td>
<td>2.5</td>
<td>TONS</td>
<td>WORLD WAR II, 2000 AG/T, 71/2% Pb, 31/2% Cu, $2.25 Au/oz, Wilson, P. 73</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

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......................... NACO GROUP LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS...
- CRET (75 M.Y., MARVIN ET AL 1979)

IGNEOUS ROCK TYPES.................... SUGARLOAF QUARTZ LATITE PORPHYRY

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 NW trending Gleeson Ridge over thrust, numerous bedding plane (N30W, 45° E dipping) faults, and cross faults of nearby units, 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 melanite 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
5) ABM FILE DATA. ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
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

TMP: 205 215
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 Cd Sn Te MECA CLAY, AS

MAIN COMMOD: AG PB Mn
MINOR COMMOD: CU Zn Au Mo V MECA CLAY, AS Cd Sn Te

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA AND TETRAHEDRITE

MINOR ORE MINERALS:
PYRITE, SPHALERITE, CHALCOPYRITE, CERUSSITE, WULFENITE, BROMYRITE, CERARGYRITE, SMITHSONITE, MALACHITE, NATURE GOLD AND SILVER, CHALCOCITE AND ARGENTITE, ALBANITE, PSILOMELANE, ALABANDITE, ANGLESITE, AURICHALCITE, TENDORITE, AZURITE, BEAVERITE, BINEHEIMITE, BORNITE, BOURNITE, VANADINITE, BROCHANTITE, COPPER, CALCAME,

MECA CLAY, AS
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS ACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
REPLACEMENT, FISSURE VEIN

DESCRIPTION OF WORKINGS
COMMENTS (DESCRIPT. OF WORKINGS):
NUMEROUS SHAFT MINES AND PROSPECTS

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC.</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>PB-AG</td>
<td>ORE</td>
<td>EST 15000</td>
<td>TONS</td>
<td>1878-1970</td>
<td>SMELTER FLUX</td>
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<td>16</td>
<td>MN</td>
<td>CONCENT</td>
<td>EST 500</td>
<td>TONS</td>
<td>1878-1970</td>
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<tr>
<td>17</td>
<td>PB</td>
<td>EST</td>
<td>15000</td>
<td>LBS</td>
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</tr>
<tr>
<td>18</td>
<td>CU</td>
<td>EST</td>
<td>1.5</td>
<td>TONS</td>
<td>1900-1970</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>PB</td>
<td>EST</td>
<td>22.5</td>
<td>TONS</td>
<td>1900-1970</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>ZN</td>
<td>EST</td>
<td>0.59</td>
<td>TONS</td>
<td>1900-1970</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>AU</td>
<td>EST</td>
<td>2.50</td>
<td>OZ</td>
<td>1900-1970</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>AG</td>
<td>EST</td>
<td>30000</td>
<td>OZ</td>
<td>1900-1970</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1973, P. 73 13

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PALEOZ. CRET.
HOST ROCK TYPES: NAČO GROUP AND BISBEE FORMATION

AGE OF ASSOC. IGNEOUS ROCKS: CRET. TERT.
IGNEOUS ROCK TYPES: DIKES, UNCLE SAM QUARTZ LATITE PORPHYRY AND TUFF.

PERTINENT MINERALOGY: LIMONITE


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

SEVERAL ORE-BODIES 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. ORE-BODIES 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.


SIGNIFICANT ALTERATION:


GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:


COMMENTS (GEOLOGY AND MINERALOGY):


GENERAL REFERENCES

3) BUTLER, B.S., E.O. WILSON, 1942, ORE DEPOSITS AT TOMBSTONE, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES, P. 201-203; PRINCETON UNIV. PKESS
4) BUTLER, B.S., E.O. WILSON, AND C.A. RASOR, 1938, GEOLOGY AND ORE DEPOSITS OF THE TOMBSTONE DISTRICT, ARIZ.: ARIZ. BUR. MINES BULL. 143
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
113-119.
21) Spangler, Daniel P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 0030586
RECORD TYPE 1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. 4030586

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 1: 0024000
QUAD NO OR NAME TOMSTONE, ARIZONA
LATITUDE 31°42'09"N
LONGITUDE 100°04'10"W
UTM NORTHING 3500645.0
UTM EASTING 584205.0
UTM ZONE NO 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 NICE
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 GRANDDiorite 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 WE FISSURES

GENERAL REFERENCES

3) 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.
SIUCHUR, J.A., 1903, THE TOMBSTONE, ARIZONA, MINING DISTRICT: AIME TRANS., V. 33, P. 3-37
BUTLER, B.S., E.O. WILSON, AND C.A. RASOR, 1938, GEOLOGY AND ORE DEPOSITS OF THE TOMBSTONE DISTRICT, ARIZONA:
ARIZ. BUR. MINES BULL. 143
IDALE, V.B., L.A. STEWART, AND W.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ
COUNTIES, ARIZ. U.S. BUR. MINES R15850
COUNTRY/ORGANIZATION: USGS

INFORMATION SOURCE: 1, 2

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

NAME AND LOCATION
DEPOSIT NAME: TUNGSTEN KING
SYNONYM NAME: BLACK ROCK GROUPS, TUNGSTEN QUEEN GROUP.
MINING DISTRICT/AREA/SUBDIST: COCHISE DIST/LITTLE DRAGOON MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: COCHISE
QUAD SCALE: 1: 0062500
QUAD NO OR NAME: DRAGOON, ARIZONA
LATITUDE: 32-04-34N
LONGITUDE: 110-08-57W
UTM Northing: 16S
UTM Easting: 22E
UTM Zone: 5250 FT - DALE 4,900 FT

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:
  TETRAHYDITE, BERYL, CHALCOPYRITE, WULFENITE, COPPER STAIN, BERYL

ANALYTICAL DATA (GENERAL)
GRADE OF ORE, WHEN MINED AVERAGED FROM ABOUT 0.3 TO 0.6% WO3 (DALE ET AL., 1960); BETWEEN 0.0008 AND 0.052% BAO

EXPLORATION AND DEVELOPMENT
YEAR OF DISCOVERY-------- located in 1913
BY WHOM--------------------- located by J. J. WEN 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 (DESCRIPTION OF WORKINGS):
  OPEN PITS, SHORT ADIT; 35 FT ADIT, 180 FT DRIFT WITH 260 FT OF CROSSCUTS

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)
ITEM AMOUNT THOUS. UNITS YEAR GRADE REMARKS
15 W CONCENTRATES 500,012 TONS 1913-1954

SOURCE OF INFORMATION (PRODUCTION) -- ARM FILE PAGES

PRODUCTION COMMENTS.... 0.1-1 TO 2% WO3; AVE 0.5% WO3; 1913 SCHEELITE DISCOVERED; WHI = 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 = POPLERINE GRAVITY MILL 1953 - STANDARD TUNGSTEN CORP. NEW MILL PRODUCED 2000 LBS OF CONCENTRATES FROM 200 TONS OF ORES; 1952 OCT. 1954 = 12,650 LBS CONC.; TOTAL 11 3/4 TONS CONCENTRATE CONTAINING 750 UNITS WO3; MILL RECOVERY WAS 6.6 - 8 LBS OF CONCENTRATE PER TON FOR A RECOVERY 60% NO3 CONCENTRATES

GEOLGY AND MINERALOGY
AGE OF HOST ROCKS--------- PRE CAMB.
HOST ROCK TYPES--------- SCHIST
IGNEOUS ROCK TYPES--------- GRANITE AND APLITE DIES
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 LAMPROPHYRI DIKE

GENERAL REFERENCES

1) KEITH, STANTON B., 1973, INDEX OF MINING PROPERTIES IN COCHISE COUNTY: ARIZ. BUR. MINES BULL. 197, 98 P., P. 50
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 R.I. 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 DRAGOON QUADRANGLE, COCHIS COUNTY,
   ARIZONA. U.S. GEOL. SURVEY PROF. PAPER 416, 196 P., P. 188-189, 7, 26, 32-35, 39, 41, 84, 134, 135, 155, 159,
   188-189.
5) ABA FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
   UNITED STATES: U.S. GEOL. SURVEY PROFESSIONAL PAPER 31A
7) MEEVES, H.C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR
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, CHALCOCITE, 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, VANADISIDERITE, 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 (DESCRIPTION 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 88,880 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCK............. 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.


3) PLATT, J.K., 1909, THE TURQUOISE MINING DISTRICT, ARIZONA: ENGR. MIN. JOUR., V. 87, P. 213

4) GILLULY, J., 1956, GENERAL GEOLOGY AND STRUCTURAL CONTROL AT THE SHANNON AND COSTELLO GROUP MINES, ARIZONA: E.M. THESIS, UNIV. ALASKA.


7) JAMES FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS


12) PERRY, D.V., 1964, GENESIS OF THE CONTACT ROCKS AT THE ABRIL MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.


16) DAVIS, W.L., A.B. STEWART, AND M.A. MCKINNEY, 1960, TUNGSTEN DEPOSITS OF COCHISE, PIMA, AND SANTA CRUZ COUNTIES, ARIZ. U.S. BUR. MINES R1 5650


17) CEDERSTROM, O.D., 1946A, GEOLOGY OF THE DRAGOON MOUNTAINS, ARIZONA: UNIV. ARIZ., PhD THESIS.


19) SOUSA, FRANCIS X., 1979, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.


22) GILLULY, J., 1956, GENERAL GEOLOGY OF CENTRAL COCHISE COUNTY, ARIZONA: U.S. GEOLOGY SURVEY PROFESSIONAL PAPER 281, 169 P.


28) SOUSA, FRANCIS X., 1979-80?, GEOLOGY OF THE MIDDLEMARCH MINE, COCHISE COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIV. ARIZ.

29) RUSHING, J.A., 1978, CONTACT METAMORPHISM AND METASOMATISM OF PALEOZOIC ROCKS NEAR STRONGHOLD CANYON, DRAGOON MOUNTAINS, ARIZONA: M.S. THESIS (UNPUBLISHED), UNIV. OF ARIZONA.
MINERAL RESOURCES FILE 12

RECORD NO. 00095
RECORD IDENTIFICATION
RECORD TYPE: AX2
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE: 1.2
MAP CODE NO. OF RECORD:

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

NAME AND LOCATION
DEPOSIT NAME: WARREN DIST.
MINING DISTRICT/AREA/SUBDIST.: WARREN DIST./BISBEE AREA/MULE HTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: COCHISE
LATITUDE: 27-30- N
LONGITUDE: 109-55- W
TWP: 22S
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: Aikinite, Alabandite, Bornite, Chalcocite, Chalcopyrite, Cinnabar, Covellite, Digenite, Djurleite, Enargite, 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: Albite, Anglesite, Anthonyite, Antlerite, Atacamite, Aurichalcite, Azurite, Basaluminite, Bayleyite, Bismuthite, Bisbeeite, Botryogen, Braunite, Brochantite, Bromargyrite, Carbonate-Cyanotrichite, Cerussite, Chalcanthite, Chalcoalumite, Chalcopyhalite, Chalcopyllite, Chalcosiderite, Chlorargyrite, Chryscolla, Conichalcite, Connellite, Copiapite, Copper, Coquimbite, Cuprite, Cyanotrichite, Delafossite, Descliozite, Devilline, Dioptase, Embolite, Epsomite, Gibbsite, Goethite, Graenite, Grodtite, Gypsum, Hausmannite, Hlmorphite, Heterolithite, Hisingerite, Hydrobasaluminite, Hydrobetaolite, Jarosite, Kornelite, Langite, Leadhillite, Lepidocrocite, Malachite, Malaniterite, Metavoltine, Mimetite, Mottramite, Murodochite, Paramelaconite, Paratacamite, Pharmacosiderite, Plattnerite, Psilomelane, Pyrolusite, Pyromorphite, Ransomite, Rhomboclase, Roemerite, Rosasite, Sengierite, Shattuckite, Silver, Smithsonianite, Smaltite, Stannicite, Talmageite, Tetraedrite, Titanopyrites, Uralite, Vallerite, Wittenite.
SPANGOLITE, STIBICONITE, SULFUR, SZOMOLNOKITE, TENDORITE, TILASITE, TURQUOISE, TYUYAMUNITE, URANINITE, VARISCITE, VOLTAITE, WILLEMITE, WULFENITE, ILSOMANNITE. (ANTHONY ET AL., 1977)

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. %
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 SILER)
AGE OF MINERALIZATION.......... JUR. 2180

PERTINENT MINERALOGY........... ROCK-FORMING, GANGUE, AND ALTERATION MINERALS FOUND AT BISBEE INCLUDE: ALANITE, ALLOPHANE, ALUNITE, APATITE, ARAGONITE, AUGITE, BARITE, BIOTITE, CALCITE, CELADONITE, CHROMITE, CLINOCLORE, CLIUCHROSICITE, DELESIITE, DIASPOR, DICKITE, DIOPSIDE, DOLOMITE, ENSTATITE, EPIDOTE, FLUORITE, GRAPHITE, GROSSULAR, HADDOYSITE, HEMATITE, KENNOLENDE, HYDROBIODITITE, KADOLINITE, MAGNETITE, METAHALDOYSITE, MICROcline, OLVINE, ORTHODIACLASE, PENNINITE, PLAGIOCLASE, PUMPellylite, PYROPHYLITE, RHODOCHROSITE, RUTILE, SANIDINE, SERICITE, SIDERITE, SPHENE, STEVENSITE, THOMSONITE, TOURMALINE, TREMOLITE, ZIRCON. (ANTHONY, WILLIAMS AND BIDEAUX, 1977)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
The N 73° W TRENDELING 70° S DIPPING DIVIDEND FAULT SPLIT S 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 PITAL 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 1/2 MILES EASTWARD AT THE SAGINAW SHAFT. ORE OCCURRENCE IS INTIMATELY ASSOCIATED WITH THESE NORTHEAST FAULTS. 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 DOWNTHROWN 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, ORTHOCLOASCE, PLAGIOCLASE, BIOTITE) HAVE BEEN DESTROYED, AND THE ROCK IS RECRYSTALLIZED BEYOND RECOGNITION. USUALLY THE ALTERED ROCK CONSISTS OF GRANULAR QUARTZ ENCLOSING PYROPHYLITE (LOCALLY SERICITE) SCALES LOOSELY BUNCH 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 INVADED 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 GROSSULAR-ANDRADITE), DIOPSIDE, AND TROILITE. (ANTHONY ET AL. 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 600 FEET THICK. THE UPPER SURFACE OF THE BLANKET IS IRREGULAR AND UNDULATES CONFORMABLY TO THE EROSION SURFACE UPON WHICH THE CRETACEOUS GLACIAL CONGLOMERATE WAS DEPOSITED. (BRYANT AND METZ, 1967)

GEOLGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
THE COPPER ORES AT BISBEE WERE INTRODUCED BY AN INTRUSIVE PORPHYRITIC IGNEOUS ROCK APPROXIMATELY 100 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 ET AL. 1977) THE DEFORMATION, POSSIBLY INITIATED BY INTRUSION OF THE JUNIPER FLAT GRANITE, COMMENCED WITH EXTENSIVE SHATTERING AND FAULTING WITH DOMINANT NORTHEASTERLY AND NORTHWESTERLY TRENDS.


THE STAGE OF LEAD-ZINC MINERALIZATION TERMINATED THE MAJOR MAGMATIC ACTIVITY IN THE BISBEE DISTRICT.


GENERAL COMMENTS
SEE RECORD M800113 FOR FURTHER REFERENCES
DEPOSIT NAME: ESCAPULE PROPERTY
SYNONYM NAME: GARNET AND MOONLIGHT GROUPS
MINING DISTRICT/AREA/SUBDIST: MIDDLE PASS DIST/DRAGOON MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: COCHISE
QUAD SCALE: 0067500
LATITUDE: 31°51'02"N
LONGITUDE: 109°56'30"W
UTM NORTHING: 3524200.0
UTM EASTING: 600115.0
UTM ZONE NO: 12
TWP: 18S
RANGE: 23E
SECTION: 24
MERIDIAN: GILA AND SALT RIVER
ALTITUDE: 66120 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 4 KM NE VARA 7143 EAST OF THE SAN JUAN MINE

COMMODITY INFORMATION
COMMODITIES PRESENT: Pb in Ag Cu Au Mo V

MAIN COMMODO: Pb AN Ag
MINOR COMMODO: 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 (DESCRIPTION OF WORKINGS):
ADIT WORKINGS

PRODUCTION
YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15 ORE EST</td>
<td>0.05</td>
<td>TONS</td>
<td>1938-1955</td>
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</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH 1973 P. 68

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.............. CAMB
HOST ROCK TYPES................ ABRIG LIMESTONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FOLDED AND FAULTED

GENERAL REFERENCES
2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
4) EDARSTROM, D.J., 1946, GEOLOGY OF THE CENTRAL DRAGOON MOUNTAINS, ARIZONA: UNIV. AZ, PH.D. THESIS, P. 86.
Cameron District includes: Max Johnson 1, 10 Jack Daniels 1, Alyee Tolino 1, Huskien 2, Yazzi 101, Huskien 12, Huskien 1, Yazzi 312, Huskien 3, Yazzi 102, Huskien 10, Huskien 11, Ramco 21, Ramco 20 & 22, 23, 24, Huskien 17, E. Lee 1, 3; & J. Chee 4, 3, 2, Huskien 4, Huskie 5, Huskien 5, Shadow Mountain Collapse, Huskien 6, Lemuel Little-Man No. 1, 2, 3, 6, 7, Jeepster No. 1, Montezuma Group, Casey No. 3, Kadina No. 6, Charles Huskien 19, 20, Eldood Canyon Shaft, Boyd Tsi No. 1, 2, Juan Horse No. 3, 4, Huskien 14, Montezuma No. 1, Evans Huskien No. 34, 35, Charles Huskien, A & B No. 2, 3, Manuel Denetsone No. 2, Jefferson Canyon, Jack Huskien No. 3, Jack Huskien No. 1, Paul Hukie 162, Yazzi No. 105, Huskien No. 8, Taylor Reid No. 2, Mel Gardner Prospect, Ryan No. 1, Ada & Norrell, Liba Group (Pretty Girl), Howard No. 1, Section 1, Section 9, Ryan No. 2, Navajo 26, Lister No. 1, Grub No. 14, Murphy Group (Black Point), Yazzi No. 1, 2, Jackpot No. 40, 1, 5, Arms No. 8, Max Johnson No. 7, Charles Huskien No. 9, 18 Riverview Group.

Country Code: US
State Code: 04
County: Coconino
Quad Scale: 1:0062500
Quad No or Name: Cameron, Ariz.
Latitude: 35°45' N
Longitude: 111°04' W
Twp.: 28N 27N
Range: 10E 09E
Meridian: G C Lk
Position from nearest prominent locality: Near Little Colorado R. East of Cameron

Commodity Information
Commodities Present: Cu Mn
Main Commodity: Cu
Minor Commodities: Mn

Main Ore Minerals:
- Metatorbernite
- Meta-Autinite
- Uraninithe
- Coffinite
MINOR ORE MINERALS:
UKANOPHANE, SAHNGALITE, METAZEUNERITE, ZIPPEITE, ANDERSONITE, AUTUNITE, BETA-URANOPOHANE, BETA ZIPPEITE, BOTTWOODITE, CARNOTITE, GUMMITE, META-AUTUNITE, META-TORBERNITE, METAURANOCIRCITE, PHOSPHURANYLITE, SCHNICKINGERITE, SCHDEPITE, TORBERNITE, TYNYAMUNITE, 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: TR
HOST ROCK TYPES: PETRIFIED FOREST MEMBER OF CHIMNE FORMATION (SANDY AND SILTY MUOSTONE)

PERTINENT MINERALOGY:
GANGUE MINERALS ARE MONTMORILLONITE, QUARTZ, KAOLIN, SERICITE, GYPSUM, LIMONITE, JAROSITE, PYRITE, CALCITE, BARITE, SMALITE, SPHEROCOBALTITE. OTHER NON-URANIAN PRIMARY MINERALS ARE: BORNEITE, CHALCOPYRITE, COVELLITE, OXIDITE, OXALATE, GALEMA, GREENACKITE, HEMATITE, MARCASITE, PYRITE. NON-URANIAN SECONDARY MINERALS INCLUDE: ALUNITE, ATACAMITE, AZURITE, BIEBERITE, CHALCEDON, COPPERITE, FERRIMOLYBDITE, HALOTRICHITE, ILSEMAMITE, JOROSITE, MALACHITE, METASIDEROMARIE, OPAL, PYROLUSITE, AND A MINERAL SIMILAR TO UMAHORITE.

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 SHINARUPM 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 (SPHEROCOBALTITE) AND TRACE MOLYBDENUM INCREASE NEAR ORE

GENERAL REFERENCES


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.


4) Plateau Uranium:


5) Everhart, D.L. (See also McKelvey, V.E., 3) 1) Reconnaissance examinations of copper-uranium deposits west of the Colorado River: USAEC, RMO-559, 19 p., Maps (1950).


12) OSTERWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTINUOUS UNITED STATES: U.S. GEOF. SURVEY, PROF. PAPER 455-G, 146 P.


17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.) 1954, MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHINARUMP FORMATION: USAEC, RME-566, PT. 3 (1952)


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- M030429
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............... ALICE TOLINO MINE
SYNONYM NAME............... MAX JOHNSON NO. 3

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

TMP....... 29N
RANGE.... 09F
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, MO

MAIN COMMODITY ...... U

MAIN ORE MINERALS:
URANIUM MINERALS
MINOR ORE MINERALS:
UMOHOITE; 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: TRI
HOST ROCK TYPES: LOWER PETRIFIED FOREST MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY: SOTTY 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
3) HINCKLEY, D.N., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
1075-1109.


RECORD IDENTIFICATION
RECORD NO. M030426
RECORD TYPE. XI
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, #7, #10, VIZZIE 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

TP........ 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:
METAZERMERITF, META-AUTINITE, AND URANINITE

MINOR ORE MINERALS:
URANOPHANE, SABUGALITE, METAZERMERITF, AND ZIPPEITE, COFFINITE, CARNOTITE, SCHRAECKINGERITE, BECOQUELITE.
TORBERNITE, ILSEMANNITE, MALOTRICHITE, SPAERO Cobaltite (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 OREBODY: NE

COMMENTS (DESCRIPTION OF DEPOSIT):
HUSKON 2 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 C7 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 MUOSTONE

PERTINENT MINERALOGY .......... GANGUE MINERALS ARE MONTMORILLONITE, QUARTZ, KAOLIN SERICITE, GYPSUM, LIMONITE, JAROSITE, PYRITE, CALCITE, BARITE, SMALTITE, AND SPAERO Cobaltite

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 MUOSTONE 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 (GEOLGY AND MINERALOGY):
ILSEMANNITE STAINING HALUTRICHITE A DEEP INKY BLUE (ANTHONY ETAL., 1977, 121) AEC, GRAND JCT MINE. COLBALT BLOOM AND MOLYBDENUM TRACE AMOUNTS INCREASE NEAR ORE (ISACHSEN AND EVENSEN, 1956)

GENERAL REFERENCES
3) HINKKLEY, D.N., 1970, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMERON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.
6) GRUNER, J.W., GARDNER, L., AND SMITH, D.K., 1954, MINERALS ASSOCIATED IN URANIUM DEPOSITS, COLORADO PLATEAU: U.S. ATOMIC ENERGY COMM.,
8) FINCH, H.L., 1. GEOLOGY OF EPICENOMIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. (1967)
11) WILLIAMS, FLOYD J., AND BARRETT, DONALD C., 1953, PRELIMINARY REPORT OF RECONNAISSANCE IN THE CAMERON AREA, ARIZONA: U.S. ATOMIC ENERGY COMM.,
12) AUSTIN, RALPH, 1957, RECENT URANIUM REDISTRIBUTION IN THE CAMERON, ARIZONA DEPOSITS: ASME 2ND NUCLEAR ENG. AND SCIENCE CONFERENCE, PAPER NO. 43, 8 P.
16) U.S. ATOMIC ENERGY COMM., 1959, GUIDEBOOK TO URANIUM DEPOSITS OF WESTERN UNITED STATES: U.S. ATOMIC ENERGY COMM., GRAND JUNCTION, COLO.
4) PLATEAU URANIUM:
9) WILSON, ROBERT, 1956, STRATIGRAPHY AND ECONOMIC GEOLOGY OF THE CHINLE FORMATION, NORTHEASTERN ARIZONA: PH.D. THESIS, UNIVERSITY OF ARIZONA.
12) PEETERSON, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTINENTAL UNITED STATES: U.S. GEOL. SURVEY, PROF. PAPER 455-6, 146 P.
17) GRUNER, JOHN W. (SEE ALSO KOSENZWEIG, 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)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... 4016027
RECORD TYPE ............. XI
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 ... VERMILLION 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 .. 66SR

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/Mr NO 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. Z
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).

GEOLGY 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
4) HELEN AND TIVITCHELL, 1955, JASPER GROUP: U.S. ATOMIC ENERGY COMM., P. 64, R-R 275, 1 P.
9) FINCH, W.L., GEOL. SOC. AMERICA BULL., V. 74, P. 609-629.
17) GRUNER, JOHN W. (SEE ALSO ROSENZWEIG, A.L.) 1. MINERAL ASSOCIATION IN THE URANIUM DEPOSITS OF THE COLORADO AND ADJACENT REGIONS WITH SPECIAL EMPHASIS ON THOSE IN THE SHI44RUMP FORMATION: USAEC, RMD-566, PT. 3 (1952)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. W016025
RECORD TYPE. XI
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: 1: 0062500
QUAD NO OR NAME: BRIGHT ANGEL, ARIZ.

LATITUDE: 36-04-17N
LONGITUDE: 112-09-00W

UTM NORTHING: 3992260
UTM EASTING: 396260
UTM ZONE NO: 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, J, Sn, Co, Cu, Au, Fe, Pb, Mg, Mn, Mo, Ni, Ag, Tl, Zn, As, Hg, Se, S, V

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS: U, Cu
MAIN COMMODO...... U CO CU P6 MO NI AN
MINOR COMMODO...... S8 AU FE MG MN AG

MAIN ORE MINERALS:
TORBERNITE, METATORBERNITE URANIUM URANINITE, PYRITE, URANINITE

MINOR ORE MINERALS:
URANIUM: URANIUNITE-PITCHBLENDE, COFFINETE, TOBERNITE, META-TOBERNITE, AEUERIITE, META-ZEUMERITE, GUMMITE,
HYDROUS URANIUM SULPHATE (?), URANOASPINITE, URANOPILITE (?), ZIPPEITE (?), JOHANNITE (?), CUPITE (?),
URANOPHANE, SURDECKINGERITE; COPPER: TENNANTITE, TETRACOPPER, BORNITE, CHALCOPYRITE, CHALCOTIE, DIGENITE
(?) CUVELLH, MALACHITE, AZURITE, BROCHANTITE, CUPRITE, NATE COPPER; MOLYBDENUM: MOLYBDENITE,
LLSEMMANITE, WLUFENITE, LEAD: GALEMA, WULFENITE, ANGLESITE, B1NDBEHEITE (?); ZINC: SPHALERITE, MARMATITE
SPHALERITE, S1MITSONITE; NICKEL; COBALT: SIEGENITE, NICKEL-SKUTTERUDITE (?), BRAVOITE (?), MILZKITE (?),
ZARATITE (?), ANNABERGITE (?), ERTHRITE: ANTIMONY: TETRAHERDITE, STIBNITE, B1NDBEHEITE (?); ARSENE: TETRANITE, ARSENO-PYRITE, URANOARSPINITE, ORPIMENT, REALGAR (?); SILVER: PROUSITE: SELENIUM; (UNKNOWN); VANADIUM: HEMETITE; MAGNESIUM: ODOMITE; MAGNESIENSE: RHODOCROSITE,
PYROUSITE (?); GOLD: NATIVE (?); IRON: PYRITE, HEPATITE, SIDERITE, ANKERITE, JAROSITE, MELANERITE,
GOETHITE, LIMONITE, MARCASITE.
Elements indicated by spectrographic analysis. Minerals unknown: CODMUR, COLUMBIUM (?), GALLIUM,
GERMANIUM, TANTALUM, TIN, TITANIUM, YTTRIUM. (KOFFORD, 1969)

ANALYTICAL DATA (GENERAL)
CHIP SAMPLES RAN 0.56, 1.0, 0.21, 0.006, 0.086% 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). ONE IS HIGH
GRADE. AVERAGE SAMPLES RUNNING UP TO OVER 1.0% U3O8

EXPLORATION AND DEVELOPMENT
YEAR OF DISCOVERY........ CLA1M LOCATED IN 1891, FILED IN 1993, PATENTED IN 1906 (PRE-DATING ESTABLISHMENT OF
NATIONAL MONUMENT IN 1908)
BY WHO.................. DISCOVERED BY DANIEL L. HOGAN
PREVIOUS/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 (DESCRIPTION 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.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>Grade</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>1 ORE</td>
<td>EST 500 TONS</td>
<td>1970</td>
<td>0.30% U3O8</td>
<td></td>
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</tbody>
</table>

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% U3O8; BY APRIL 1969 ORPHAN LODE HAD PRODUCED $10 MILLION IN URANIUM (GRUNDY, 1977)

RESERVES AND POTENTIAL RESOURCES

<table>
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<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>Grade or Use</th>
</tr>
</thead>
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<tr>
<td>1 ORE</td>
<td>EST 100 TONS</td>
<td>1970</td>
<td>0.30% U3O8</td>
</tr>
</tbody>
</table>

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

PERSPECTIVE MINERALOGY .......... SOME BLACK ASPHALTIC BLEBS; NON-METALLIC EPIGENETIC MINERALS INCLUDE: BARITE, BARYOCALCITE, CALCITE, DOLOMITE, ARAGONITE, SIDERITE, ANDESINE, LABRADORITE, QUARZ (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 LOODE FORMATION IN PIPE. STRONGEST MINERALIZATION IS IN MOST PERMEABLE AREAS AROUND THE PERIPHERY, CONSISTING OF DISSEMINATIONS AND VEIN-LIKE STRINGERS OF URANINIT.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

BRECCIA PIPE (FRACTURES) IS A COLLAPSE BRECCIA AND ANNULUS 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 (CONTRACTION) OF PIPE SEDIMENTS. REMOVAL OF CARBONATES FROM LOWER FORMATIONS AND REDEPOSITION IN THE SUPAI SECTION OF THE PIPE, WHICH MAY HAVE BEEN ACCOMPLISHED BY SOLUTIONS RICH IN HCO3 ORIGINATING AT DEPTH. (4) TELESCOPED HYDROTHERMAL DEPOSITION (XENOHERMAL) 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.

(KOFFORD, 1969)

GENERAL REFERENCES
4) GORDON, J., 1969, MINERALIZATION, ALTERATION, AND MECHANISM OF EMPLACEMENT, ORPHAN ORE DEPOSIT, GRAND CANYON, ARIZONA: UNPUBL. PH.D. THESIS, COLUMBIA UNIV.
8) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
12) BRUNOY, C.M., 1977, ORPHAN WITH A MINING TOUCH: EMPIRE MAGAZINE, NOV. 27, 1977, P. 12-17, SUPPLEMENT TO THE DENVER POST.
14) U.S. GEOLOGICAL SURVEY, 1972, GRAND CANYON NATIONAL PARK AND VICINITY, ARIZONA: U.S. GEOLOGICAL SURVEY TOPOGRAPHIC MAPS.
15) OSWALD, F.W., 1964, STRUCTURAL CONTROL OF URANIUM-BEARING VEIN DEPOSITS AND DISTRICTS IN THE CONTERMINOUS UNITED STATES: U.S. GEOLOGICAL SURVEY, PROF. PAPER 455-G, 146 P.
20) MINING WORLD, JAN., 1959, P. 32-35.
21) GALRANG, H.C., 1951, ORPHAN CLAIM: U.S. ATOMIC ENERGY COMMISSION, PRELIM. RECON. REPORT., 1 P.
22) MILLER, R.D., AND WEATHERS, G., 1953, ORPHAN LODGE CLAIM: U.S. ATOMIC ENERGY COMMISSION, PRELIM. RECON. REPORT., A P.52, 1 P.
23) KOFFORD, M.E., 1956, THE ORPHAN ORE DEPOSIT: UNPUBLISHED GOLDEN CROWN MINING CO. REPORT.
24) STILL, ARTHUR R., 1954, THE ORPHAN LODGE URANIUM DEPOSIT: PRIVATE REPORT TO GOLDEN CROWN MINING CO.
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
11 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 Cd Pb Zn

MAIN COMMOD..... U

MAIN ORE MINERALS:
URANINITE URANIUM, PHOSPHATE ZIPPEITE

MINOR ORE MINERALS:
ILSEMANNITE; 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 et al., 1959). Average grade may be around 0.20% U3O8 (Keith, 1978, p. 210).

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.  Property is inactive

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

CHANNEL

FORM/SHAPE OF DEPOSIT: U shaped bend of Palusstream 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

GEOLGY 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 Palusstream 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):

Ilshmannite forms on walls of older mine workings of U. Mine; Uraninite occurs as interstitial material and as rounded grains; Ilshmannite is associated with rhenium oxide.

GENERAL REFERENCES


ON PEACEFUL USES OF ATOMIC ENERGY, GENEVA, V. 2, P. 330-334.


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.


17) GRUNER, JOHN W. (SEE ALSO ROSENHEW, 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, RMO-3092 (1954)


RECORD IDENTIFICATION
RECORD NO. ................ M030429
RECORD TYPE ................ AI
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............... 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 EMMEIT 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 EMMEIT 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

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

GEOLGY 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 MOEKAPI AT OR NEAR CONTACT

GENERAL REFERENCES


4) HULLEN AND TWITCHELL, 1955, JASPER GROUP: U.S. ATOMIC ENERGY COMM. P.R.R., R-R-275, 1 P.

5) JUCKNICK, D.A., 1957, AN INVESTIGATION OF THE OCCURRENCE OF URANIUM AT CAMEDON, ARIZONA: M.S. THESIS, UNIVERSITY OF UTAH, 67 P.


10) FINCH, W.L. 1. GEOLOGY OF EPGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............ M030446
RECORD TYPE ............ 11
COUNTRY/ORGANIZATION . USGS
INFORMATION SOURCE .... 1,2
FILE LINK ID ............ USBM-004 007 0132
MAP CODE NJ. 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
**MINOR COMBO**

**MAIN AMMO**

### OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
- **POTENTIAL:**

### MAIN ORE MINERALS:
- CERUSSITE

### MINOR ORE MINERALS:
- GALENA, MASSICOT, HEMIMORPHITE, DESCLOIZITE, VANADINIT, WULFENITE

### EXPLORATION AND DEVELOPMENT

#### STATUS OF EXPLOR. OR DEV.
- **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:** 75°N

#### DESCRIPTION OF WORKINGS

##### UNDERGROUND
- **DEPTH OF WORKINGS BELOW SURFACE:** 140 ft
- **LENGTH OF WORKINGS:** 700 ft

#### COMMENTS (DESCRIPTION OF WORKINGS):
- 2 AUNIS WITH DRIFTS AND CROSSCUTS

### PRODUCTION

- **YES**
- **SMALL PRODUCTION**

### ANNUAL PRODUCTION (ORE, COMMOD., CONC., OBERBURD.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ORE ACC</td>
<td>0.254</td>
<td>TONS</td>
<td>1944</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 PB ACC</td>
<td>40.577</td>
<td>LBS</td>
<td>1944</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 AG ACC</td>
<td>1,441</td>
<td>OZ</td>
<td>1944</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 ORE ACC</td>
<td>0.769</td>
<td>TONS</td>
<td>1945</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Cumulative Production (Ore, Commod., Conc., Overbur.)

<table>
<thead>
<tr>
<th>Item</th>
<th>ACC</th>
<th>Amount</th>
<th>Thous. Units</th>
<th>Year</th>
<th>Grade</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE ACC</td>
<td>1,231</td>
<td>TONS</td>
<td>1941-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>CU ACC</td>
<td>0.995</td>
<td>LBS</td>
<td>1941-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>PB ACC</td>
<td>298.901</td>
<td>LBS</td>
<td>1941-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>AG ACC</td>
<td>8.765</td>
<td>OZS</td>
<td>1941-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>AU ACC</td>
<td>0.034</td>
<td>OZS</td>
<td>1941-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>ORE ACC</td>
<td>1.2</td>
<td>TONS</td>
<td>1944-1946</td>
<td>12% PB, 4% ZN, 0.10% CU, 0.012 OZ AU/T, 6.7 OZ Au/T</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>PB ACC</td>
<td>232.250</td>
<td>LBS</td>
<td>1944-1946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>AG ACC</td>
<td>7.5</td>
<td>OZ</td>
<td>1944-1946</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**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:** Cret.-Terti.
- **Pertinent Mineralogy:** Limonite and manganese oxides (psilomelane) abundant on hingeing 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 talus. 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 Cret.-

**General References**

1. ABM File Page
3. ABGTM-USBM File Data
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00112
RECORD TYPE P 4030444
COUNTRY/ORGANIZATION PUSGS
INFORMATION SOURCE P1,2
FILE LINK 10. USBM-004 007 0281
MAP CODE NO. OF REC.

REPRESENTATIVE
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 I: 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: MO ZN CU

MAIN ORE MINERALS:
VANADINITE, CERUSSITE, ANGLESITE

MINOR ORE MINERALS:
MATLUCKITE, CERUSSITE, BROCHANTITE, ROILEITE; DESCLOIZITE, MOTTRAMITE, WILLEMITE, GALENA, WULFENITE, 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. ON DEV.
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, SPRIK, HUNTER (1974)

EXPLOR. AND DEVELOP. COMMENTS:
PROPERTY INCLUDES 8 CLAIMS AND 7 FRACTIONS. PREVIOUS OWNERS AND OPERATORS INCLUDE PFEISER 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..... N 35E
DIP OF OREBODY........ 80 SE

COMMENTS (DESCRIPTION OF DEPOSIT):
VEIN IS BOUNDED ON TOP BY DRAINAGE FLOW AND ON BOTTOM BY A BEDDING PLANE FAULT.

DESCRIPTION OF WORKINGS
UNDERGROUND
LENGTH OF WORKINGS............. 1400 FT

COMMENTS (DESCRIPTION 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 (PETEKRSON, 1962, p. 126)

PRODUCTION
YES
SMALL PRODUCTION
### ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 V Conc.</td>
<td>EST</td>
<td>0.020 TON</td>
<td>1930</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2 V</td>
<td>ACC</td>
<td>5.577 LBS</td>
<td>1930</td>
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</tr>
<tr>
<td>3 ORE</td>
<td>ACC</td>
<td>0.040 TON</td>
<td>1936</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 PB</td>
<td>ACC</td>
<td>22.248 LBS</td>
<td>1936</td>
<td></td>
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<tr>
<td>5 AU</td>
<td>ACC</td>
<td>0.012 OZ</td>
<td>1936</td>
<td></td>
<td></td>
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<tr>
<td>6 AG</td>
<td>ACC</td>
<td>0.316 OZ</td>
<td>1936</td>
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</table>

### CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 PB ORE</td>
<td></td>
<td>1.3 TONS</td>
<td>1936-1948</td>
<td>SOME AU AG</td>
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<td></td>
</tr>
<tr>
<td>16 PB</td>
<td>ACC</td>
<td>424.637 LBS</td>
<td>1936-1948</td>
<td></td>
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<tr>
<td>17 AG</td>
<td>ACC</td>
<td>3.755 OZ</td>
<td>1936-1948</td>
<td></td>
<td></td>
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<tr>
<td>18 AU</td>
<td>ACC</td>
<td>0.227 OZ</td>
<td>1936-1948</td>
<td></td>
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</table>

### SOURCE OF INFORMATION (PRODUCTION): WILSON, 1971, P. 253

### PRODUCTION COMMENTS.... ORE ACC 0.091 TONS 1940

<table>
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<tr>
<th>PB</th>
<th>ACC</th>
<th>43.978 LBS</th>
<th>1940</th>
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<tbody>
<tr>
<td>AU</td>
<td>ACC</td>
<td>0.041 OZ</td>
<td>1940</td>
</tr>
<tr>
<td>AG</td>
<td>ACC</td>
<td>0.535 OZ</td>
<td>1940</td>
</tr>
<tr>
<td>ORE</td>
<td>ACC</td>
<td>0.156 TONS</td>
<td>1941</td>
</tr>
<tr>
<td>PB</td>
<td>ACC</td>
<td>85.282 LBS</td>
<td>1941</td>
</tr>
<tr>
<td>AG</td>
<td>ACC</td>
<td>1.165 OZ</td>
<td>1941</td>
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<tr>
<td>ORE</td>
<td>ACC</td>
<td>0.151 TONS</td>
<td>1942</td>
</tr>
<tr>
<td>PB</td>
<td>ACC</td>
<td>89.458 LBS</td>
<td>1942</td>
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<td>0.014 OZ</td>
<td>1942</td>
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<td>0.543 OZ</td>
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<tr>
<td>PB</td>
<td>ACC</td>
<td>39.278 LBS</td>
<td>1943</td>
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<tr>
<td>AU</td>
<td>ACC</td>
<td>0.010 OZ</td>
<td>1943</td>
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<tr>
<td>AG</td>
<td>ACC</td>
<td>0.216 OZ</td>
<td>1943</td>
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<tr>
<td>ORE</td>
<td>ACC</td>
<td>0.143 TONS</td>
<td>1944</td>
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<tr>
<td>PB</td>
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<td>0.233 OZ</td>
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<td>ORE</td>
<td>ACC</td>
<td>0.090 TONS</td>
<td>1945</td>
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<td>PB</td>
<td>ACC</td>
<td>29.646 LBS</td>
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<td>0.276 TONS</td>
<td>1947</td>
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<td>53.665 LBS</td>
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</tr>
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<td>0.334 OZ</td>
<td>1947</td>
</tr>
<tr>
<td>ORE</td>
<td>ACC</td>
<td>0.099 TONS</td>
<td>1948</td>
</tr>
</tbody>
</table>
PAGE 0312

GEOLGY 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-TEKT
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 REDDING PLANE FAULT, POSSIBLY BECAUSE OF FAULT OBSTRUCTED MINERALIZING SOLUTIONS.

SIGNIFICANT ALTERATION:
CHLORITIC ALTERATION; CLAY, SERICITE, AND FINELY DISSEMINATED CALCITE

COMMENTS (GEOLGY AND MINERALOGY):
BLOOD RED VANADINITE OF STOCKY HABIT ON A BACKGROUND OF RICH, BLACK MOTTRAMITE AND MOOTTLED, META-SEDIMENT MATRIX;
RICH, BLACK DRUSES OF SOOTY TO SPARKLING MOTTRAMITE; VANADINITE, DESCLDIZITE AND MOTTRAMITE ARE MOST ABUNDANT IN FRACTURED QUARTZITE; LEAD ORE OCCURRED AS MASSES OF CERUSSITE SURROUNDING SMALL KERNALS OF GALENA ENCLOSED IN SHELLS OF ANGLESITE. MINERALIZATION ASSOCIATED WITH LCRET-

GENERAL REFERENCES
4) THOMSON, R., 1997, MICROMOUNTS FROM THE APACHE MINE: THE MINERAL EXPLORER, V. 1, NO. 1
8) AMDR DEFIANCE FILE
9) ABGMT CLIPPING FILES (DEFIANCE, APACHE)
10) ABGMT-USBM FILE DATA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.................. 4016093
RECORD TYPE............... A2
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 33-04-00N
LONGITUDE 110-45-00W

COMMODITY INFORMATION
COMMODITIES PRESENT......... AU AG CU Pb Mo Zn V Be Fe W

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS... CU
MINOR PRODUCTS... AU AG Pb Zn

MAIN COMMODITY... CU
MINOR COMMODITY... AU AG Pb Zn

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL................. MO
OCCURRENCE................ V

MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, BORNITE, GALENA, SPHALERITE, CERUSSITE.

MINOR ORE MINERALS:
CHALCOCITE, MOLYBDENITE, TETRAHEDRITE, SILVER PROBABLY CARRIED IN GALENA; SECONDARY MINERALS INCLUDE
COVELLITE, CHALCOCITE, SULFUR, COPPER, TENORITE, GOETHITE, HEMATITE, MURDOCHITE, PLATTNERITE, HETEROLITE,
CUPRITE (?), MALACHITE, SMITHSONITE, AURICHALCITE, ROSASITE, AZURITE, HYDROZINCITE, CHALCANTHITE, ANGLESITE,
PISANITE, PLUMBOJAROSITE, BROCHANTITE, LINARITE (?), WULFENITE, MINETITE, DESCLOIZITE, MUTTRAMITE, OLIVENITE, 
CLINOCLASA, AUSTINITE (?), PYROMORPHITE, VANADIITE, HEMIMORPHITE, CHRYSOCOLLA, WILLEMITE, DIOPTASE, ALSO 
TEMNANTITE AND BORNITE; NATIVE GOLD; SPHALERITE, GALEN, MOLYBDENITE; OXIDIZED ZONE INCLUDES COVELLITE, 
CUPRIDE, NATIVE COPPER, MALACHITE, AZURITE, TETR (T)E, DIOPTASE, BROCHANTITE, CHALCANTHITE, PYRRHOTITE, 
CUBANITE, RINGITE, RAJITE, RUZITE, JENIDITE; RHODOCHRASITE

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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS YEAR</th>
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<tr>
<td>7 Ag</td>
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<td>10.932 OZ 1951</td>
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CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

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SOURCE OF INFORMATION (PRODUCTION).-- EASTLICK, 1968, P. 1193
PRODUCTION COMMENTS....

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(EASTLICK, 1968, P. 1193); $26 MILLION TO 1964

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, IDOCASSE, EPIDOTE, QUARTZ, AND LIMESTONE: MAGNETITE, SPECULAR HEMATITE; CHONDRODITE, DIOPSIDE, ACTINOLITE, SERICITE, CHLORITE, HEDENBERGITE, BARITE, FELDSPAR, ANHYDRITE, GYPSUM, BRUCITE, ZOISITE, ANTHORITE, WALLASTONITE, HEMATITE AND GOETHITE, WAD (A MIXTURE OF HOLLANDITE MANGANITE, AND PYKOLUSITE), LEPIODROCITE, CALCITE, SIDERITE, DOLOMITE, HALORICHITE, MELANTERITE, JAROSITE, SCRODITE; MONTORRILLONITE, SAUCONITE (?), KAOULITE, 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:
PERSISTENT NORTHEAST SHEAR ZONES STRIKE N55 TO 65 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 SHERARS 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:

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, dioptase, chalcanthic, native copper, anglesite, cerussite, and hemimorphite. Small amounts of manganese oxide, chalcanthic, covellite, turquoise, hydrozincite, and plumbojarosite are generally present in certain oxidized zones, and local occurrences of mottramite, vanadinite, wulfenite, smithsonite, and brochantite have been reported in various workings. (EASTLICK 1968). The Christmas area and Chilito-London-Arizona area are aligned east-west. Ores are localized by E-W fractures and dikes.

GENERAL COMMENTS
SEE RECORD NUMBER M899986 FOR REFERENCES
CRIS MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4001974
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 BRONX MINE PROPERTY
SYNONYM NAME GLOBE-MIAMI DISTRICT

MINING DISTRICT/AREA/SUBDST. SUMMIT
COUNTRY CODE US
STATE CODE 04
COUNTY GILA

QUAD SCALE 1: 0024000
QUAD NO OR NAME PINAL -ANCH

THP 01S
RANGE 14E
SECTION 06
MERIDIAN G65R

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 COMMODITY MO

MAIN ORE MINERALS MOLYBDENITE

MINOR ORE MINERALS:
PYRITE, CHALCOPYRITE, FERRIMOLYBDITE CERUSITE, 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: 655E

COMMENTS (DESCRIPTION OF DEPOSIT):


DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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. MINES FILES, REEL 20.1)

PRODUCTION

YES

SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMOD. CONC., OVERR. UR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>EST. 200 TONS</td>
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SOURCE OF INFORMATION (PRODUCTION). PETERSON, 1963, P. 16

PRODUCTION COMMENTS.... DURING EARLY MONTHS OF WORLD WAR I 50 TONS OF HIGH-GRADE MOLYBDENITE WAS STOCKPILED BUT WAS WASHED AWAY BY A FLASH FLOOD (PETE-Se). 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


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).


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 SWEDEN 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

5) ARIZ. BUR. MINES FILE PAGE ATOMIC ENERGY COMM. P.R.R.
RECORD IDENTIFICATION
RECORD NO. 4030438
RECORD TYPE. 11
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. 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. 1: 0024000 EL CAPITAN, ARIZ.
LATITUDE. 33-07-58N
LONGITUDE. 110-49-57W
UTM NORTHING. 3665830.
UTM EASTING. 515650.
UTM ZONE NO. 12
TWP. 035
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 COMMODITY: V, Pb
MINOR COMMODITY: Mo, Cu, Zn, Ag

MAIN ORE MINERALS:
- Vanadinite, Descliozite

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, 1.97% 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
- In 1925 (Ross) had a 20 ft shaft and 2 tunnels 30 and 60 feet long with a 10 foot mine 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, 1971)

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: Late Cretaceous
PERTINENT MINERALOGY

CALCITE QUARTZ

IMPORTANT ORE CONTROL/LOCUS:
CONTACT BETWEEN LIMESTONE AND DIABASE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
N10W TO N35E EAST DIPPING FRACUTURE ZONES (ONE IS N50E DIPPING 45S, THE OTHER IS N-S AND DIPS 50E.

SIGNIFICANT ALTERATION:
SOME SILICIFICATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
GENERAL GENETIC SEQUENCE IS VANADINITE-MIMETITE-DESCLOIZITE-CALCITE

GENERAL REFERENCES
5) Ross's report was from notes by F.L. Hess of the U.S. Geological Survey taken in April, 1917.
REPORTER
NAME: Wilt, Jan C.
DATE: 01-01

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: 1:24000
QUAD NO OR NAME: INSPIRATION, ARIZ.

LATITUDE: 33-23-03N
LONGITUDE: 110-58-54W

UTM NORTHING: 3693660
UTM EASTING: 501840
UTM ZONE NO: 12

TWP: 01
RANGE: 13E
SECTION: 36
UNSURVEYED
SECTION FRACTIONS: C2
MERIDIAN: GILA AND SALT R.

ALTITUDE: 3650 FT-3750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ON PINO CREEK NEAR SOUTHWEST CORNER OF INSPIRATION QUADRANGLE JUST WEST OF MANITOU HILL.

COMMODITY INFORMATION
COMMODITIES PRESENT: CU, MO, AU, AG, PB, ZN

MAIN COMMODITY: CU, MO, AU, AG
MINOR COMMODITY: PB, ZN
MAIN ORE MINERALS:
CHALCOCITE

MINOR ORE MINERALS:
PYRITE, COPPER CARBONATES AND SILICATES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 
PROPERTY IS INACTIVE
YEAR OF DISCOVERY ........ 1905
PRESENT/LAST OWNER ........ PROPERTY ACQUIRED BY CASTLE DOME COPPER CO. IN 1940.

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
DISSIMINATED COPPER
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT ......... SMALL
COMMENTS (DESCRIPTION OF DEPOSIT):
FAULTED TOP OF OREBODY

DESCRIPTION OF WORKINGS
COMMENTS (DESCRIPTION OF WORKINGS):

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 CHALCOCITE BLANKET FORMED BY SUPergene enrichment. OUTCROP IS OVERLAPPED BY DACITE (204 Yrs) AND GILA CONGLOMERATE. CHALCOCITE 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. PROTORE 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.

SIGNIFICANT ALTERATION:
FINAL 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. MD30432
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.............. CHILID
SYNONYM NAME............... VELASCO PIT (?) SCHNEIDER GROUP
MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT
COUNTRY CODE.............. US
STATE CODE................. 04
COUNTY....................... GILA
QUAD SCALE............... 1: 0024000
QUAD NO OR NAME........... HAYDEN ARIZ
LATITUDE.................... 33-03-57N
LONGITUDE................... 110-47-40W
UTM NORTHING.............. 3658400
UTM EASTING................. 519220
UTM ZONE NO.............. +12
TWP......................... 045
RANGE....................... 15E
SECTION..................... 22
MERIDIAN............ GILA AND SALI R.
ALTITUDE............... 3600 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 4 1/2 MILES N. OF HAYDEN; 1 KM NW OF NEW YEAR MINE
LOCATION COMMENTS: SW 1/4

COMMODITY INFORMATION
COMMODITIES PRESENT....... CU AG AU MO
PRODUCE)(PAST OR PRESENT):
MAJOR PRODUCTS...
MINOR PRODUCTS..... NO AG AU
MAIN COMMODITY: Cu
MINOR COMMODITY: 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):
- 0.01-0.03% Mo; 0.1-0.8% Cu

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
- 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 Wainwright, 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

DESCRIPTION OF DEPOSIT:
- Dioritic stock is 3800 ft by 1000 ft

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

- Open pit (1975): 1800 ft long tunnel on Schneider claims

PRODUCTION

YES
- Small production

SOURCE OF INFORMATION (PRODUCTION):

PRODUCTION COMMENTS:
- Eastlick, 1968 - Chillito produced about $1.1/4 million worth of ore during World War I
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 RHYODACITE PORPHYRY

AGE OF MINERALIZATION........ E TERT
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 BIOHITE AND CARBONATE MINERALS. (BANKS AND DRIEGER, 1977)

GENERAL REFERENCES
1) KEITH, STANLEY B., 1975, UNPUBLISHED MAPPING
7) ADMR FILE DATA
8) ABGHT USBM FILE DATA
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. ..

REPORTE:
UPDATED .................. 80 01
BY ....................... WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME ................. CHRISTMAS MINE
SYNONYM NAME ............... RED BIRD SHAFTS, HACKERRY SHAFTS

MINING DISTRICT/AREA/SUBDIV. 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 +17

THP ................ 045
RANGE ...... 16F
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 NO AG AU PE FE W

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS: Cu
MINOR PRODUCTS: Au Ag

MAIN COMMODITY: Cu
MINOR COMMODITY: Zn Pb Mo 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, Cubane; Kinorite, Rajite, Ruizite, Junitite

ANALYTICAL DATA (GENERAL)
ORE ANALYSIS: 0.005 oz Au/t, 0.23 oz Ag/t, 2.04% Cu, 33.20% 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.: ACTIVE

YEAR OF DISCOVERY: 1880
THE ORIGINAL MINERAL CLAIMS THAT INCLUDE THE CHRISTMAS DEPOSIT WERE LOCATED ABOUT 1880 BY DENNIS O'BRIEN AND WILLIAM TWEED, WHO SOLD AND 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

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).
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.)

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PRODUCTION COMMENTS.... 1905-1914 PRODUCTION NOT INCLUDED IN AGBMT-USBM FILE

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.......... TERT; PENN., N.M., 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 DIES

AGE OF MINERALIZATION........ TERT. (62 M.Y., CREASEY AND KISTLER, 1962)

PERTINENT MINERALOGY........ GANGE IS MAINLY GARNET, IDOCRASE, EPIDOTE, QUARTZ, AND LIMESTONE; MAGNETITE, SPECULAR HEMATITE; OTHER GANGE MINERALS INCLUDE CHONDRODITE, DIOPSIDE, TROMOLITE, ACTINOLITE, SERICITE, CHLORITE, HEDENBERGITE, BARITE, FELDSPAR, ANHYDRITE, GYPSUM, BRUCITE ZOISITE, ANTIMORTE, MOLLASONITE

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 FRACUTURES OR FAULTS FOLLOWING GARNETIZATION. NE STRUCTURES ARE MOST INTENSELY MINERALIZED AT INTERSECTIONS WITH E-W FRACUTURES.

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 FRACUTURES IN AREA ARE: EAST-WEST (N65E-N70W, DIPPING 50 DEGREES N-60 DEGREES S); NORTHORIST (N15E-N50E, DIPPING 50-65 DEGREES NW); AND NORTHWEST (N5-40W, LATER)

SIGNIFICANT ALTERATION:
HYDROTHERMAL ALTERATION IS MAJOR ALANIZATION AND IS STRONGER WHERE FRACUTURES ALLOWED ACCESS OF MINERALIZING SOLUTIONS. ANDESITES NEAR CENTRAL INTRUSION ARE FLOODED WITH FINE GRAINED SECONDARY BIDRITE AND QUARTZ
VEINLETS. A PERIPHERAL ALTERATION ZONE OF EPIDOTE PATCHES AND VEINLETS EXTENDS FOR ONE MILE. THE INTRUSION IS RECRYSTALLIZED WITH SECONDARY QUARTZ AND ORTHOCLOISE 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 PERSVASIVE ALTERATION OF BASALTIC VOLCANIC ROCKS RESULTING IN THE PROPYLITIC ASSEMBLAGE ACTINOLITE-CHLORITE-EPIDOTE; THIS ALTERATION PREDES 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 (PHILLODITE) MINERALIZATION.

3. LATE (STAGE III) 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 BIDITE RHODACITE PORPHYRY UINKS 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 (SUPEeGENE 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.
MANGANESE 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 GRAD3S FROM A PYRITE-CHALCOPYRITE ZONE TO A CHALCOPYRITE-BORNITE INTERMEDIATE ZONE TO A PYRRHOTITE-PYRITE-SPHALERITE-CHALCOPYRITE OUTER ZONE.

GENERAL REFERENCES
3) Tainter, S.L., 1948, CHRISTMAS COPPER DEPOSIT, GILA COUNTY, ARIZONA: U.S. BUREAU OF MINES REPT. INV. NO. 4293, 56 P.

14) PERRY, O.V., 1968, GENESIS OF THE CONTACT ROCKS AT THE CHRISTMAS MINE, GILA COUNTY, ARIZONA: UNIV. ARIZ., M.S. THESIS, 47 P.
19) EASTLICK, J.C., 1958, NEW DEVELOPMENTS AT THE CHRISTMAS MINE, ARIZONA: ARIZ. GEOLOG. SOCIETY DIGEST, V. 1, P. 1-6.
20) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
21) ABM 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.
30) ELSINING, M.J., AND HEINEMAN, N.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
33) WILSON, E.D., AND OTHERS, 1959, GEOLOGIC MAP OF GILA COUNTY, ARIZONA: ARIZONA UNIV., ARIZONA BUR. MINES, SCALE 1:375,000.
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: 1:0024000
QUAD NO OR NAME: GLOBE, ARIZ. AND INSPIRATION, ARIZ.

LATITUDE: 33°26'-30"N
LONGITUDE: 110°52'-30"W

UTM NORTHING: 3700300
UTM EASTING: 516450
UTM ZONE NO: 12

TWP: 11N
RANGE: 1E
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):
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.
METASTORBERNIERITE ALSO OCCURS.

ANALYTICAL DATA (GENERAL)
THE GRADE OF ORE MINED TO DATE HAS BEEN SLIGHTLY MORE THAN 3.7 PERCENT TOTAL COPPER. THE GRADE OF ORE TO BE
MINED IN THE FUTURE WILL BE CONSIDERABLY LOWER. 0.0042 PERCENT 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
POORLY CONTAINED FROM 0.15 TO 0.35 PERCENT COPPER. NEAR THE SOUTHERN EDGE OF THE ORE BODY, THE TENOR 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.:
PROPERTY IS ACTIVE
YEAR OF DISCOVERY:
FIRST MINED FOR AU AND AG IN 1896 BY GERARD MIN. CO. (LIST 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 CORDONADD 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.
THE MINE RANGES 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

COMMENIS (DESCRIPTION OF WORKINGS):
UNDERGROUND WORKINGS NOW INCLUDED IN OPEN PIT. SEE DEPOSIT DESCRIPTION FOR APPROXIMATE SIZE OF PIT.
PRODUCTION

YES

MEDIUM PRODUCTION

ANNUAL PRODUCTION (ORE, COMM. CONC., OVERBUR.)

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

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SOURCE OF INFORMATION (PRODUCTION)... ARIZ. BUR. GEOL. FILE DATA

RESERVES AND POTENTIAL RESOURCES

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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 SCHULTZE 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 CORONADO 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 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 BOKORER PHASE IN WHICH MINERALS OF THE PROPYLATIC TYPE ARE PRESENT.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:


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 WHITE TAIL CONGLOMERATE UNDERLIES THE DACITE; HOWEVER, THERE IS NO EVIDENCE THAT THE WHITE TAIL 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 WHITE TAIL CONGLOMERATE, THERE WAS A SHORT PERIOD OF VOLCANIC ACTIVITY IN THE DISTRICT, EVIDENCED BY TUFFACEOUS MATERIAL IN THE WHITE TAIL AND OUTCROPS OF RHOLITE 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 CERUPTION OF THE DACITE.

AFTER EROPTION 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 MADE UP THE SILA 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 DRE. (SIMMONS AND FOWELS 1966)

GENERAL REFERENCES


2) PETERSON, N.P., 1954. COPPER CITIES COPPER DEPOSIT, GLOBE-MIAMI DISTRICT, ARIZONA: ECON. GEO., V. 49, P.
362-377

5) REED, J.W., 1975, TRACE ELEMENT DISTRIBUTION AND ALTERATION STUDY OF THE COPPER CITIES DEPOSIT, ARIZONA: M.S. THESIS, OKLAHOMA STATE.
13) MIN FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030510
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 CROWN POINT
SYNONYM NAME CROWN POINT NO. 6 CLAIM
MINING DISTRICT/AREA/SUBDIST. MIAMI-INSPIRATION DIST.
COUNTRY CODE AUS
STATE CODE 04
COUNTY GILA
QUAD SCALE 1: 002 400 INSPIRATION, ARIZ.
LATITUDE 33-23-30N
LONGITUDE 110-59-22W
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

AGE OF HOST ROCKS......... PREC
HOST ROCK TYPES......... KIABASE, PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS. TERT. (PRUB)
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 CONGLO. (POST 32 M.Y.)

COMMENTS (GEOLOGY AND MINERALOGY):
SOME CERUSSITE SURROUNDS SMALL KERNELS OF GALENA

GENERAL REFERENCES
1) ARM FILE PAGES
RECORD IDENTIFICATION
RECORD NO. 030554
RECORD TYPE CI
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 1: 0024000
QUAD NO OR NAME INSPIRATION, ARIZ.
LATITUDE 33-26-26 N
LONGITUDE 110-53-30 W
50 W
UTM NORTHING 3693820
UTM EASTING 509350
UTM ZONE NO
TWP 141
RANGE 14 E
SECTION 14
SECTION FRACTIONS E2
MERIDIAN GILA AND SALT RIVER
ALTITUDE 4000 - 4100 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 SW OF COPPER CITIES OPERATION
LOCATION COMMENTS UNSURVEYED

COMMODITY INFORMATION
COMMODITIES PRESENT W MD PB AU
MAIN COMMOD MD
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.: I
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 (DESCRIPTION OF WORKINGS):
ADIT ABOUT 100 FT LONG

GEOLGY 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 (GEOLGY 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 INDESTRUCTIBLE 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, 1954).
GENERAL REFERENCES
4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
RECORD IDENTIFICATION
RECORD NO.        MO30445
RECORD TYPE       XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
FILE LINK ID       USBN-004 007 0016
MAP CODE NO. OF REC

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

NAME AND LOCATION
DEPOSIT NAME        DOUGHOBY MINE

MINING DISTRICT/AREA/SUBDIST. GLOBE HILLS DIST/GLOBE HILLS

COUNTRY CODE       US
STATE CODE         04
COUNTY            GILA

QUAD SCALE QUAD NO OR NAME
I: 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 , DOUGHOBY SHAFT LOCATED IN SECTION 11 ON RIDGE

COMMODITY INFORMATION
COMMODITIES PRESENT        CU  ZN  MO  V  AG  MN

MAIN ORE MINERALS:

MINOR ORE MINERALS:
WULFNITE, VANADINITE DISCOIZITE, MOTTRAMIITE, MANGANESE OXIDE COPPER CARBONATE AND SILICATE
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
PROPERTY IS INACTIVE

YEAR OF FIRST PRODUCTION: 1901
YEAR OF LAST PRODUCTION: 1958
PRESENT/LAST OWNER: WRIGHT, Sorenson, and Smith (1958)
PRES P/LAST OPERATOR: GLOBE-MIAMI COPPER SULPHIDE CO. (1952)

EXPLOR. AND DEVELOP. COMMENTS:

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
FISSURE VEIN

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY: NE
DIP OF OREBODY: 50°SE

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE: 963 FT
LENGTH OF WORKINGS: 1,200 FT

COMMENTS ON WORKINGS:
SHAFT SUNK ABOUT 1901 HAS CROSSCUT 1,200 FT LONG ON 800 LEVEL; 2 EXPLORATORY DRILL HOLES; RETIMBERED TO 350 FT IN 1951. TWO HUNDRED FOOT SHAFT PUT DOWN IN 1951 ON A MANGANESE VEIN.

SOURCE OF INFORMATION (PRODUCTION): PEITERS, 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: Miocene

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 DOUGHB0Y 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):
WULFENITE AND VANADINiTE OCCUR AS DISCRETE CRYSTALS OR CLUSTERS OF CRYSTALS ON WALLS OF FRACTURES. QUARZ CRYSTALS IN VUGS ARE COMPLETELY COVERED BY CRUSTS OF VANADINITE, DESCLOIZITE, AND POSSIBLY NOTTRAMITE, 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) ABGMT CLIPPINGS FILES
3) ADMR FILE DATA
4) ABGMT-USBM FILE DATA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. MQ30451
RECORD TYPE............ 41
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE.... 1.2
FILE LINK ID............ USM-0040076311
MAP CODE NO. OF REC...  

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

NAME AND LOCATION
DEPOSIT NAME.............. EL OSO GROUP
SYNONYM NAME.............. NEW DISCOVERY
MINING DISTRICT/AREA/SURDIST. FOUR PEAKS DISTRICT
COUNTRY CODE.............. US
STATE CODE................ 04
COUNTY.................... GILA

QUAD SCALE
1: 0024000
QUAD NO OR NAME
BOULDER MTN, ARIZ.

LATITUDE
33-45-12N
LONGITUDE
111-22-37W

UTM NORTHING
3734670
UTM EASTING
465100
UTM ZONE NO
112

TWP........ 05S 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 TANIO CREEK, THEN TURN LEFT (NORTHWEST) ON A MOUNTAIN TRAIL FOR 11.5 MILES TO EL OSO CAMP. DRAINAGE OF SYCAMORE CREEK LEADS TO TANIO 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.: 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 FRESDO, 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 (DESCRIPTION OF WORKINGS):
ADIT 295 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 WO3 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 long. Crystals of tourmaline and fluorite, some crystals of tourmaline and fluorite.

IMPORTANT ORE CONTROL/LOCUS

Tungsten deposits are associated with intersections of steep fissures invaded 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

2) ADMR file data
RECORD IDENTIFICATION
RECORD NO.................. M030441
RECORD TYPE................ K
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.................. 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 LITUDE
33-50-00N 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

MAIN ORE MINERALS:

URANITE, URANIFEROUS HYALITE, URANOPHANE

MINOR ORE MINERALS:

PYRRHOTITE MOLYBDENITE, PYRITE RARE SPHALERITE GALANA DISSEM. CHALCOPYRITI, MARCASITE FLUORITE SECONDARY
URANIUM (URANOPHANE, AND METATORBERNITE), 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/SIZE 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%; 168 TONS OF 0.13% U3O8 ADIT 1.

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 ORIZ.

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, SYENITE BODIES, DIABASE

AGE OF MINERALIZATION: PREC
PERTINENT MINERALOGY: CLAY, CHLORITE, HORNFELS; CALCITE, NONTRONITE, 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 BAREN QUARTZITE (ABOUT 130 FT STRATIGRAPHICALLY ABOVE THE BASE OF THE UPPER MEMBER. SOME URANINITE IS IN NARROW VEINLETS CUTTING DIABASE DILES.

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 FALES 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)

GENERAL REFERENCES
3) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
6) FINCH, W.L., 1967, GEOLOGY OF EPIGENETIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: USGS PROF. PAPER 538, 121 P. P. 6
8) SCHWARTZ, 1959, U.S. ATOMIC ENERGY COMM. PRELIM. RECON. REPT. PRR-A-P-269, 1 P.
RECORD IDENTIFICATION
RECORD NO. M030437
RECORD TYPE XI
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 TFS.
COUNTRY CODE US
STATE CODE 04
COUNTY GILA
QUAD SCALE G024000
Twp 04S
Range 15E
Meridian GILA AND SALT R.

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 1 MILE ABOVE KCHUR 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. PROPERTY IS INACTIVE

GEOLOGY AND MINERALOGY
PERTINENT MINERALOGY FFRRUGENOUS QUARTZ
GENERAL REFERENCES
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............ MO30431
RECORD TYPE ............ II
COUNTRY/ORGANIZATION . USGS
INFORMATION SOURCE .... 1, 2
FILE LINK ID ............ USBM-004 007 0465
MAP CODE NO. OF REC. 

REPORTER
NAME .................... WILK, JAN C.
DATE ..................... 80 01

NAME AND LOCATION
DEPOSIT NAME ................ LONDON-ARIZONA MINE
SYNONYM NAME ............. LONDON-RANGE, LONDON-SHAMROCK, BALL COPPER CO., BRICK GROUP, D'CARROLL CLAIMS
MINING DISTRICT/AREA/SUBDIST. . BANNER DISTRICT
COUNTRY CODE .............. US
STATE CODE .............. 04
COUNTY .................... GILA
QUAD SCALE .............. 1: 0024000
QUAD NO OR NAME .......... HAYDEN, ARIZ.
LATITUDE .................. 33°-03'-37"N
LONGITUDE ................. 110°-47'-30"W
UTM NORTHING ............ 3657800.
UTM EASTING .............. 519500.
UTM ZONE NO .............. +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 MO
MAIN COMMODITY: Cu Pb
MINOR COMMODITY: Ag Zn Mo Au

MAIN ORE MINERALS:
COPPER CARBONATES, MALACHITE, CEFUSSITE

MINOR ORE MINERALS:
ANGLESITE, SMITHSONITE, HEMIMORPHITE, CHALCOCITE, WULFEYITE 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

DESCRIPTION OF DEPOSIT:
The deposit 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.

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 (DESCRIPTION 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>1</td>
<td>ORE EST</td>
<td>1 TONS</td>
<td>1913</td>
<td>16% ORE</td>
<td>(RANSOME, P. 23)</td>
</tr>
<tr>
<td>ITEM</td>
<td>ACC</td>
<td>ITEM</td>
<td>ACC</td>
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<tr>
<td>ORE ACC</td>
<td>0.742 TONS</td>
<td>ORE ACC</td>
<td>15.443 TONS</td>
<td></td>
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</tr>
<tr>
<td>CU ACC</td>
<td>18.449 LBS</td>
<td>ORE ACC</td>
<td>BEFORE 1925</td>
<td></td>
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</tr>
<tr>
<td>Pb ACC</td>
<td>123.919 LBS</td>
<td>BEFORE 1925</td>
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</tr>
<tr>
<td>Zn ACC</td>
<td>1,400 LBS</td>
<td>CURTIN SHAFT</td>
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<tr>
<td>Ag ACC</td>
<td>2.926 OZ</td>
<td>CURTIN SHAFT</td>
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<tr>
<td>Au ACC</td>
<td>0.002 OZ</td>
<td>CURTIN SHAFT</td>
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<tr>
<td>ORE ACC</td>
<td>15.443 TONS</td>
<td>BEFORE 1925</td>
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<tr>
<td>LEAD ORE ACC</td>
<td>1.016 TONS</td>
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<tr>
<td>ZINC ORE ACC</td>
<td>0.051 TONS</td>
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<tr>
<td>ORE EST</td>
<td>15.0 TONS</td>
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</tbody>
</table>

PRODUCTION COMMENTS: EASTLICK, 1968, P. 1193. ABOUT $1 MILLION PRODUCTION ($1,050,000 BETWEEN 1912 AND 1928)

GEOLY AND MINERALOGY

AGE OF HOST ROCKS: DEV.
HOST ROCK TYPES: PERONA 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.


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 (GEOLY AND MINERALOGY):

GENERAL COMMENTS
SEE CURTIN OR HUMPHREY FOR INFORMATION ON ADJOINING MINE

GENERAL REFERENCES
9) Abqmi Usbm File Data.
**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  
**LATITUDE** | **LONGITUDE**  
33-20-08N | 110-52-18W  

**TWP.** | **RANGE** | **SECTION** | **MERIDIAN** | **ALTITUDE** | **POSITION FROM NEAREST PROMINENT LOCALITY**  
--- | --- | --- | --- | --- | ---  
01S | 14 | 1/2 | E 14E | GILA AND SALT R. | 4200 FT | 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, CHALCOCITE, CHALCOPYRITE  
**MINOR ORE MINERALS:**  
MOLYBDENITE FERRMOLYBOITE
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

PROPERTY 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 (DESCRIPTION OF WORKINGS):
5 CHURN-DRILL HOLES SUNK IN 1948 (PETERSON, 1963)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............ PREC.
HOST ROCK TYPES.............. PINAL SCHIST

AGE OF ASSOCIATED 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, CHALCOPRITE, AND ALSO A RELATIVELY LARGE PROPORTION OF BOTH FINE AND COARSE-GRAINED MOLYBDENITE.

GENERAL REFERENCES
2) ARIZONA FILE DATA. ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
RECORD IDENTIFICATION
RECORD NO.          4030436
RECORD TYPE          X1
COUNTRY/ORGANIZATION  USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC.  

REPORTER
NAME....................... WILL, JAN C.
DATE....................... 80 01

NAME AND LOCATION
DEPOSIT NAME............. MCCUR PROSPECT
SYNONYM NAME............. PROBABLY PART OF 79 MINE

MINING DISTRICT/AREA/SUBDIST. BANNER DIST/DRIPPING SPRING MTS
COUNTRY CODE............. US
STATE CODE.............. 04
COUNTY............... GILA
QUAD SCALE          QUAD NO OR NAME
1: 0020000 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  NO FE

MAIN ORE MINERALS:
VANADINITE

MINOR ORE MINERALS:
WULFENITE, SIDERITE
EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

SHALLOW WORKINGS AT INTERVALS

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS......... PENN
HOST ROCK TYPES................. WACO LIMESTONE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT.
IGNEOUS ROCK TYPES............. QUARTZ LATE PORPHYRY

AGE OF MINERALIZATION........ TERT.

IMPORTANT ORE CONTROL/LOCUS.. IRREGULAR MASSES OF GOSSANLIKE MATERIAL CONTAIN SIDERITE, VANADINITE, WULFENITE

GENERAL REFERENCES

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4003085
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
FILE NAME USBM-0040070051
MAP CODE NO. OF REC.

RECORD IDENTIFICATION
RECORD NO. 4003085
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
FILE NAME USBM-0040070051
MAP CODE NO. OF REC.

REPORTER
UPDATED 60 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 1:24000
QUAD NO OR NAME GLOBE

LATITUDE 32-24-16N
LONGITUDE 110-52-20W

UTM NORTHING 3695944.
UTM EASTING 511483.
UTM ZONE NO. 12

TWP. 01N 01N
RANGE. 15E 15E
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, CHALCOCITE

MINOR ORE MINERALS:
MINOR BORNITE, AND TRACES OF GOLD AND SILVER, GALENA AND SPHALERITE; CHRYSOCOLLA, MALACHITE, AZURITE,
COVELLITE BROCHANTITE, ATACAMITE, LINDGRINITÉ, LIBETHINITÉ, POWELLITE, MINOR CUPRITE, COPPER, METAIDordanite.
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. 67 M.Y.
IGNEOUS ROCK TYPES............ SCHULTZE GRANITE (PORPHYRITIC QUARTZ MONZONITE)

AGE OF MINERALIZATION......... TERT. (56 M.Y., CREASY 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:

SIGNIFICANT ALTERATION:
- SILICIFICATION, ORTHOCLASTIZATION, SERICITIZATION, BIOTITIZATION, HYDROTIZATION, 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 BORITE 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.
GENERAL COMMENTS
SEE RECORD MB099987 FOR REFERENCES
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: 1:002400
QUAD NO OR NAME: INSPIRATION, ARIZ.
LATITUDE: N 33°24' 110°53'59"W
TWP: 01N 01N
RANGE: 13E 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 COMMODITY: CU MO
MINOR COMMODITY: AU AG PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL OCCURRENCE: PR ZN
MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, MOLYBDENITE, CHALCOCITE

MINOR ORE MINERALS:
GOLD, SILVER, GALENA, SPHALERITE, Bornite, Covellite, Chrysocolla, Malachite, Azurite, Copper Pitch, Brochantite, Atacamite, Lindgrenite, Libethinite, Metatorbernite, Native Copper, Cuprite, Wulfenite, Ferrimolybdate Powellite, Vanadinite, Cerussite, Turquoise, Chalcantbite, 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.:
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. (56 M.Y., GREASEY AND KISTLER, 1962)

PERITNET MINERALOGY:
QUARTZ, LIMONITE, HAVELLITE, BORITE, FLUORITE, SERICITE, CLAY, GYPSUM, EPIDOTE, CHLORITE, ADULARIA, HALLOYSITE, INDELLITE, CIMOLITE, KADLUNITE, CANBYITE, CHALCEDONY, OPAL, BEIDELITE, ALLOPHANE, LEUCOXENE, RUTILE, CLENOZOSITE, CALCITE, STIBITE.

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:

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):

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
10)BOWEN, H.P., DATA ON MIAMI CHURN DRILLING: ENG. AND MIN. JOUR., VOL. 97, PP. 903-904, 1914.
11)BOWEN, H.P., ENGINEERING NOTES AND METHODS AT MIAMI ENG. AND MIN. JOUR., VOL. 100, PP. 15-17, 1915.
19) GREASEY, IN PRESS, AGE DATES OF GLOBE MIAMI DIST.
23) DEwurst, 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.
26) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
33) GRAYDE, F.T. (1972) THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: UNV. ARIZONA PH.D. DISSERTATION, 220 P.
41) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM ORE DEPOSITS: UNPUBL. M.S. DISSERTATION, UNIV. ARIZ., 301 P.
42) LAUSEN, C. (1923) GEOLOGY OF THE OLD DOMINION MINE, GLOBE, ARIZONA: UNIV. ARIZONA M.S. THESIS, 155 P.
43) LEGGE, J.R., PARAGENESIS OF THE ORE MINERALS OF THE MIAMI MINE, ARIZ.: UNIV. ARIZONA M.S. DISSERTATION, 47 P.
47) MIAMI COPPER CO. ANNUAL REPORTS, 1942-1960: MIAMI COPPER CO.
RECORD IDENTIFICATION
RECORD NO. MO30435
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REC.

REPORTER
NAME WILK, JAN C.
DATE 80 01

NAME AND LOCATION
DEPOSIT NAME PREMIER GROUP
SYNONYM NAME SANTA MONICTA CAMP. (SANTA MONICA CAMP)
MINING DISTRICT/AREA/SUBDIST. BANNER DISTRICT
COUNTRY CODE US
STATE CODE 04
COUNTY GILA

QUAD SCALE 1: 0024000
QUAD NO OR NAME HAYDEN, AK1Z

LATITUDE 33-04-51N
LONGITUDE 110-46-17W

UTM NORTHING 3660070
UTM EASTING 521320
UTM ZONE NO. +12

TWP 04S
RANGE 15E
SECTION 13
MERIDIAN GILA AND SALT R.
ALTITUDE 3200 FT

LOCATION COMMENTS 2 MILES NW OF CHRISTMAS COMMUNITY

COMMODITY INFORMATION
COMMODITIES PRESENT PB MO V AU CU W

PRODUCER(PAST OR PRESENT)
MAJOR PRODUCTS AU
MAIN COMMODITY: AU

MAIN ORE MINERALS:
   CERUSITE, ANGLESITE, GALENA

MINOR ORE MINERALS:
   WULFENITE, VANADINITE, HEMIMORPHITE, COPPER CARBONATES, NATIVE GOLD

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
   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 MINES 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
RECORD IDENTIFICATION
RECORD NO.********** M030433
RECORD TYPE.********** XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF RECORD

REPEATER
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.********** 1: 0024000
QUAD NO OR NAME.********** HAYDEN, ARIZ.
LATITUDE.********** 33-03-05N
LONGITUDE ********** 110-48-17W
UTM NORTHING.********** 3754056.
UTM EASTING.********** 519340.
UTM ZONE NO.********** 12
UTM RANGE.********** 04S
RANGE.********** 15E
SECTION.********** 26 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 REGAN 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 SW1/4 SEC 77 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 V

MAIN ORE MINERALS:
- Galena, Anglesite, Cerussite

MINOR ORE MINERALS:
- Wulfenite, Vanadinite, Desclzoit, Copper Carbonates

EXPLORATION AND DEVELOPMENT

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:
- 6 TUNNELS WITH OVER 5 FT DRIFTS, 1

PRODUCTION

YES
- SMALL PRODUCTION

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

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td>15 ORE ACC</td>
<td>0.227</td>
<td>TONS</td>
<td>1944-1950</td>
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<tr>
<td>16 Cu ACC</td>
<td>7.708</td>
<td>LBS</td>
<td>1944-1930</td>
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<tr>
<td>17 Pb ACC</td>
<td>18.078</td>
<td>LBS</td>
<td>1944-1930</td>
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<tr>
<td>18 Ag ACC</td>
<td>0.143</td>
<td>OZS</td>
<td>1944-1930</td>
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</table>

PRODUCTION COMMENTS:
- SEVERAL CARLOADS OF OXIDIZED LEAD ORE WERE PRODUCED (Kiersch, 1947, 1951) AND SHIPPED TO EL
PASO SMELTER


GEOLGY AND MINERALOGY

AGE OF HOST ROCKS............. PENN
HOST ROCK TYPES............. NACO LIMESTONE
IGNEOUS ROCK TYPES............. BASALT PORPHYRY PLUG (KIERCH) 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
2) KIERCH, G.A., 1951, REAGAN CAMP PROSPECTS, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 150, P. 81-82.
4) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
8) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
9) ABGMT-USBM FILE DATA
10) ADMR FILE DATA
RECORD IDENTIFICATION
RECORD NO. .......... M030511
RECORD TYPE .......... XI
COUNTRY/ORGANIZATION .. USGS
INFORMATION SOURCE ... 1
MAP CODE NO. OF REC..

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

NAME AND LOCATION
DEPOSIT NAME.............. ROSCOE GROUP
MINING DISTRICT/AREA/SURD. 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... 400364
RECORD TYPE .......... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1,2
MAP CODE NO. OF REC.

REPORTER
UPDATED ..................... BO 01
B. ..................... 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 .......... 24000
QUAD NO OR NAME .......... PINAL RANCH
LATITUDE .......... 33-16-43N
LONGITUDE .......... 110-53-25W
UTM NORTHING .......... 3681997.
UTM EASTING .......... 510226.
UTM ZONE NU ..........
TWP .......... 02S
RANGE .......... 14E
SECTION .......... 11
MERIDIAN .......... GCSR
ALITITUDE .......... 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 COMMODO.... W
MINOR COMMODO.... AU AG PB CU MO

MAIN ORE MINERALS:
PYRITE, WOLFRAMITE, SCHELITE

MINOR ORE MINERALS:
MOLYBDENITE, CHALCOPYRITE, GALENA, GOLD SILVER, LIMONITE, MANGANESE OXIDES, OXIDIZED LEAD MINERALS

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. %
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
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: AGILA
QUAD SCALE: 1: 0024000
QUAD NO OR NAME: 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 URE MINERALS:

MINOR URE MINERALS: WULFENITE (CHILLIGITE)

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

LOCAL GEOLOGY

COMMENTS (GEOLGY AND MINERALOGY):
GENERAL REFERENCES
RECORD IDENTIFICATION
RECORD NO.............. MD30442
RECORD TYPE............ K1
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 PFAK, ARIZ.
LATITUDE LONGITUDE
33-50-44N 110-50-78W
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, URANIFEROUS HYALITE

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)

EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINLETS AND DISSEMINATED

FORM/SHAPE OF DEPOSIT:
SHOTS, BEDDING PLANTS

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT:
200 FT X 120 FT

DESCRIPTION OF WORKINGS

UNDERGROUND

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, COMM., CONC., OBERBUR.)

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE REMARKS
1 ORE ACC 2.453 TONS 1955-1970 APPROX. 23% 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS
PREC

HOST ROCK TYPES
DRIPPING SPRING QUARZITE, DIABASE

AGE OF ASSOCIATED 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 GUFF UNIT. THE WHOLE TILTED BLOCK IS A XENOLITH IN DIABASES. (GRANGER AND RAUP, 1959, P. 470)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
MOST ABUNDANT FRACUTRES ARE NEARLY VERTICAL AND STRIKE N71 W. ALL OTHER JOINTS ARE POORLY DEVELOPED EXCEPT FOR A FEW STRONG NORTH-NORTHEAST-TRENDING JOINTS. (GRANGER AND RAUP, 1959, P. 470). BEDDING PLANE FRACTURES HOLD ORE (ABM FILE PAGE).

GENERAL REFERENCES
3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
8) BIESCHWARTZ, 1954, ATOMIC ENERGY COMM. PRELIM. RECON. REPT. A-P-252, 1 P.
RECORD IDENTIFICATION
RECORD NO. M002858
RECORD TYPE. XI
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. 0024000
QUAD NO OR NAME. INSPIRATION, ARIZ.
IMP. 001N
RANGE. 014E
SECTION. 14
MERIDIAN. GSR

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
LOCAL GEOLOGY

COMMENTS (GEOLOGY AND MINERALOGY):
MINERALIZED FAULT IN DIABASE.
RECORD IDENTIFICATION
RECORD NO.............. JS04076
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 M3

MAIN COMMOD...... U
MINOR COMMOD...... CU PB ZN M3

MAIN ORE MINERALS:
URANINITE, AUTUNITE, TORBERNITE, COFFINITE

MINOR ORE MINERALS:
MOLYBDENITE, PYRITE, URANDOPHANE, 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 FACES OF HORNFELS)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIATED ZONE IS FILLED WITH MOBILIZED HORNFELS

GENERAL REFERENCES
3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
RECORD IDENTIFICATION

RECORD NO: M030440
RECORD TYPE: X1
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE: I-2
FILE LINK ID: JSBM-0043007697
MAP CODE NO. OF REC: 

REPORTER

NAME: WILT, 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: 1: 062500
QUAD NO OR NAME: MCFAADEN PEAK, ARIZ.

LATITUDE: 33°50'45"N
LONGITUDE: 110°57'12"W

IMP: 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:

MAIN COMMOD: U
MINOR COMMOD: CU MO
MAIN ORE MINERALS:
- Uraninite
- Coffinite
- Pyrrhotite
- Chalcopyrite
- Molybdenite
- Uranophane
- Metatorbernite
- Marcasites
- Pyrite

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.* 2
YEAR OF DISCOVERY............ 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 (DESCRIPTION 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., OVERBUR.)

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<th>ACC.</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15 ORE EST</td>
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<td>TONS</td>
<td>1954-1957</td>
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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 HORNFLIES, 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 CONTROLS/LOCUS. DEPOSITS ARE IN MOBILIZED HORNFLDS 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 HORNFLDS IN AND ADJACENT TO AN IRREGULARLY SHAPED ZONE OF TRANSITION DIKELTS AND BRECCIA. SULFIDE MINERALS ARE DISSEMINATED THROUGHOUT THE HOST ROCK AND ESPECIALLY ABUNDANT IN AND NEAR TRANSITION DYES (GRANGER AND RAUP, 1959, P. 472)

LOCAL GEOLGY

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 CM ACROSS AND 0.02 CM THICK ARE ENCLOSED BY THE GANGUE OR SULFIDE MINERALS. IN ONE POLISHED SECTION (GRANGER AND RAUP, 1959, FIG. 58) 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.


GENERAL REFERENCES

3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
9) WEATHERS, 1954, U.S. ATOMIC ENERGY COMM. PRELIM RECON. REPT. PRR-AP-221, 1P.
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..................... 01 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: 00240000 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, PLATNERITE, HETAEROLITE, CUPRITE (?), MALACHITE, SMITHSONITE, AURICHALCITE, ROSASITE, AZURITE, HYDROZINCITE, CHALCANTHITE, ANGLESITE, PISANITE, PLUMBOJAROSITE, BROCHANTITE, LINARITE (?), WULFENITE, NIMETITE, DESCLOIZITE, MOTTRAMIITE, OLVINITE, CLINOMASITE, AUSTINITE (?), PYROMORPHITE, VANADINITE, HEMIMORPHITE, CHRYSOCOLLA, WILLEITE, DIOPTASE (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

DEPOSII 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.)

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GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS
HOST ROCK TYPES

AGE OF ASSOC. IGNEOUS ROCKS
IGNEOUS ROCK TYPES

AGE OF MINERALIZATION
PERTINENT MINERALOGY

IMPORTANT ORE CONTROL/LOCUS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES
SIGNIFICANT ALTERATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SIGNIFICANT ALTERATION:

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
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 VIST LIMESTONE AND SHALE WAS MOLECULAR FOR MOLECULAR REPLACEMENT IN A HOST RHYOLITE DIKE, CALLED THE NORTH DIKE, WAS RESTRICTED TO DEPOSITION OF SULFIDES AS VEINLETS ALONG ANTECEDENT FRACTURES AND EXTENSIVE SILICATE ALTERATION OF THE RHYOLITE. FOLLOWING DEPOSITION OF THE SULFIDES THE AREA WAS NOT EXPOSED TO PRIMARY 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):
MOLYDENITE 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 AKICHALCITE, ROSASITE, SMITHSONITE, HEMIMORPHITE, DISCOLOZITE, CHRYSOCOLLA, TENTORIDE AND MALACHITE (KEITH, 1972, P. 248).

GENERAL REFERENCES
5) KIERSCH, G.A. (1947) THE GEOLOGY AND ORE DEPOSITS OF THE SEVENTY-NINE MINE AREA. GILA COUNTY, ARIZONA. UNIV. ARIZONA PHD. DISSERTATION, 124 P.
6) AUBMS FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
5) AUBMS-USBM FILE DATA
6) ADMK FILE DATA
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: 1:0024000
LATITUDE: 33°24'40"N
LONGITUDE: 110°57'30"W
UTM NORTHING: 3696600
UTM EASTING: 504000
UTM ZONE NO: 12

THP: 01
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: Au Ag
OCCURRENCE: Pb Zn

MAIN ORE MINERALS:
Pyrite, Chalcopyrite, Molybdenite

MINOR ORE MINERALS:

Hypogene Vein Minerals: Sphalerite, Galena, Gold, Silver, Specularite, Barite, Wavellite, Meteorbreite,
Fluorite, SuperGene Minerals: Chalcocite, Covellite, Cuprite, Malachite, Azurite, Copper (Native),
Chalcantinite, Molybdenite, Silver (Native), Goslarite,Anglesite, Sulfur (Native), Limonite, Jarosite, Turquoise

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.: Property is active
NATURE OF DISCOVERY: 1974
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 (DESCRIPTION OF WORKINGS):
Highest cut is 500 ft, have mined top of porphyry min.

PRODUCTION

YES

MEDIUM PRODUCTION

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

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<td>1 ORE</td>
<td>EST</td>
<td>13777 ST</td>
<td>1974</td>
<td>.45% Cu, .02% Mo</td>
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<tr>
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<tr>
<td>22 Au</td>
<td>ACC</td>
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<td>ACC</td>
<td>946.384 LBS</td>
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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 ASSOCIATED IGNEOUS ROCKS: TERT.
IGNEOUS ROCK TYPES: LOST GULCH QUARTZ MONZONITE

AGE OF MINERALIZATION: TERT. 64 M.Y.


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, APRALEL QUARTZ VEINS STRIKING N75°E 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. SUPERCENE 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.


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 EXISTS 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. TOWARD 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 SOUTH 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.

GENERAL REFERENCES
7) PETERSON, N.P., 1948, GEOLOGY OF CASTLE DOME COPPER DEPOSIT, ARIZONA: MIN. TECH., V. 12, NO. 2, TECH. PAPER 2302, 11 P.
12) PETERSON, HAMILTON AND MEYERS 1959 P. 259 MINING ENG. ARTICLE 1976-7?
NAME AND LOCATION

MINING DISTRICT/AREA/SUBDIST. ARAVAIPA
COUNTRY CODE.............. US
STATE CODE................ 04
COUNTY.................... GRAHAM

QUAD SCALE QUAD NO OR NAME
1 0062500 KLONDOYKE

LATITUDE LONGITUDE
32-52-58N 110-00-20W

THP.......... 05S 06S
RANGE..... 19E 20F
MERIDIAN.. G & SR
ALTITUDE... 5000 FT

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

MAIN COMMODITY..... PB
MINOR COMMODITY.... AG AU CU

MAIN ORE MINERALS:
CERUSITE, 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, COMMON, CONC., OVERBUR.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS</th>
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<td>15</td>
<td>PB EST 9500 LBS</td>
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SOURCE OF INFORMATION (PRODUCTION): ELSING AND HEINEMAN, 1936, P. 93

PRODUCTION COMMENTS: 105,000 AG AND 8710,000 AU

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: PALEOZ., TERT
HOST ROCK TYPES: PALEOZOIC LIMESTONES, HORSE MOUNTAIN VOLCANICS, DIES

AGE OF ASSOC. IGNEOUS ROCKS: TEXT. (?)
IGNEOUS ROCK TYPES: TERTIARY VOLCANICS, AND INTRUSIVE DIES

AGE OF MINERALIZATION: TERT.
PERSISTENT 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 (GEOLGY AND MINERALOGY):
DISTRICT ZONING - COPPER RICH AREA FROM LANDSMA CAMP TO COBRE GRANDE Mtn. NORTH THROUGH THE HEAD CENTER - IRON CAP AREA IS A LEAD - ZINC ZONE. SOUTHEAST OF THERE AT GRAND REEF, DOGWEATHER AND FENSTRIKE, 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 DIES WHICH CUT THE SANTA TERESA GRANITE AND HORSE MOUNTAIN VOLCANICS (GALIPO GRANITE VOLCANEICS EQUIVALENT). AGE OF MINERALIZATION IS PROBABLY EARLY MIOCENE. (KEITH, PERS. COMM.)

GENERAL REFERENCES
1) SIMONS, FRANK S. 1964. GEOLOGY OF THE KLODNYE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOL. MAP
3) DENTON, T.C. (1977) 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.
6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
11) CREASEY, S.C. AND M.H. KRIEGER (1978), GALIUCO VOLCANICS, PINAL, GRAHAM, AND COCHISE COUNTIES, ARIZONA.
12) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION; ARIZ. BUR. MINES BULL. 140, 112 P.
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: GEOLOG. SOC. AMERICA MEMOIR.
4) USGS M.F. 399 USGS HF 238 USGS PROF PAPER 655-N USGS BULL 1027-N USGS WSP 450
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... 030456
RECORD TYPE .......... XI
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. Property is inactive

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
Fracture Vein

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
Strike of orebody: N50W
Dip of orebody: 50 SW

DESCRIPTION OF WORKINGS
Surface and underground
Depth of workings below surface: 20 ft

COMMENTS (DESCRIPTION OF WORKINGS):
20 ft shaft and pit

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: Penn
HOST ROCK TYPES: Horquilla Limestone

AGE OF ASSOCIATED 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) Simmons, 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
6) Simmons, F.S. 1. Geologic map and sections of the Klondyke Quadrangle, Arizona; USGS open-file Rep., 2 p., map, sections (1961)
4) USGS. MF. 939, USGS MF 239, USGS Prof. Paper 655-D, USGS Bull 1027-N, USGS WSP 450
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: 1: 0062500
QUAD NO OR NAME: KLONDYKE

LATITUDE: 32°52'27"N
LONGITUDE: 110°18'50"W

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:
CERUSSITE, GALENA

MINOR ORE MINERALS:
WULFENITE, ARGENTITE, ANGLESITE, MALACHITE, AZURITE, CHRYSOCOLLA, PLUMBOJAROSITE
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. & 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 (DESCRIPTION OF WORKINGS):
- DOGWATER WORKING INCLUDES 510-25E 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 STOPE 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 DRE FROM GRAND REEF, ARAVAIPA AND DOGWATER.

GEOLGY 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, GOODWIN CANYON QUARTZ MONZONITE (?)

AGE OF MINERALIZATION........ 25 M.Y. (REHRIG AND REYNOLDS IN PRESS)

PERTINENT MINERALOGY......... LIMONITE STAINED OUTCROP; GANJUE 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:
- 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
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.
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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 9030453
RECORD TYPE XI
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 1: 0062500
QUAD NO OR NAME KLONDYKE, ARIZ.
LATITUDE 32-58-02N
LONGITUDE 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 TYPE:
FRACATURE 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 GALUIRO 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.. FRACATURE 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, GEOLOG. MAP, P. 133

2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA. U.S. GEOLOGICAL SURVEY BULL. 763, 120 P.


4) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED M.S. THESIS, 57 P.


6) ARIZ. BUREAU OF MINES FILE DATA


9) SIMONS, F.S. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED M.S. THESIS, 57 P.


11) ROBINSON, D.J. (1976) INTERPRETATION OF GRAVITY ANOMALY DATA FROM THE ARAVAIPA VALLEY AREA, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED M.S. THESIS, 57 P.


15) WILSON, E.D.O. 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51


17) KIEHLE, 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: GEOLOG. SOC. AMERICA MEMOR. 400 ...

18) USGS M.F. 939 USGS MF 238, USGS PROF. PAPER 653-D, USGS BULL 1027-N, USGS WSP 450
RECORD IDENTIFICATION
RECORD NO. MD30461
RECORD TYPE XI
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 AUS
STATE CODE AD4
COUNTY GRAHAM
QUAD SCALE 1:0062500
QUAD NAME OR NUMBER KLONDYKE
LATITUDE 32-53-00N
LONGITUDE 110-58-58W
TWP 06S
RANGE 29E
SECTION 29
MERIDIAN G & SR
ALTITUDE 3950 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IN LAURFL CANYON 4 MILES NE OF KLONDYKE BY ROAD

LOCATION COMMENTS: 4NE 1/4 SEC. 29

COMMODOITY INFORMATION
COMMODITIES PRESENT PB AG CU AU ZN MD

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS PB CU
MINOR PRODUCTS ZN AG AU

MAIN COMMOD. PB AG ZN CU
MINOR COMMOD. AU MD
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL OCCURRENCE

MAIN ORE MINERALS:
- Galena, sphalerite, chalcopyrite

MINOR ORE MINERALS:
- Wulfenite, anglesite, cerussite, malachite, azurite, chrysocolla

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
- 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: 954

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; STOPE 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 (DESCRIPTION OF WORKINGS):
- BETWEEN 1690-1900, M. H. 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, COMMDD., CONC., OVERBUR.)

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<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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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 RHODOLITE PORPHYRY WHICH IS INTRUSED 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, GEO. 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. BUR. MINES REPT. INV. 4007.
3) DENTON, C.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA. U.S. BUR. MINES BULL. 763. 120 P., P. 82.
10) WILSON, E.D.: 1950, ARAVAIPA DISTRICT IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINES BULL. 156, P. 51
12) 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 41
13) USGS M.F. 939 USGS MF 238 USGS PROF PAPER 655-0 USGS BULL 1027-N USGS WSP 450
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M03450
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 TONIA CLAIM
MINING DISTRICT/AREA/SUBDIST. ARAVAIPA
COUNTRY CODE US
STATE CODE 04
COUNTY GRAHAM

QUAD SCALE QUAD NO OR NAME
I: 00625G00

LATITUDE LONGITUDE
32-5B-14N 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:
JUHANNSENITE, GALENA, SPHALERITE

MINOR ORE MINERALS:
ANGLESITE, WULFENITE, COPPER STAIN CHALCOPYRITE, PYRITE

EXPLORATION AND DEVELOPMENT
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
LS REPLACEMENT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
ADIT; 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, F.S. 1964 GEOLGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES ARIZONA: USGS PROF. PAPER 461, 173 P., ILLUS., TABLES, GEOG. MAP, P. 144
2) ARIZ. BUR. GEOL. FILE DATA
3) ROSS, C.P. (1925) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 763, 170 P.
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.
10) DAVIS, W.M. AND BROOKS, B. THE GALIURRO MOUNTAINS, ARIZONA: AM. JOUR. SCI., 5TH SER., V. 19, P. 89-115 (1930)
11) WILSON E.O. 1950 ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZ. BUR. MINE BULL. 156, P. 51
13) KRIEGER, M.H., AND REYNOLDS, S.J. IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOG. SOC. AMERICA MEMOR.
4) USGS M.F. 939, USGS WF 238, USGS PROF. PAPER 655-D, USGS BULL. 1027-N, USGS WSP 450
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO. ************ WD16113
RECORD TYPE. ************ X2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC... 

REPORTER

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

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' 10' 59" N 109°30' TO 40' W

TWP. .......................... 05S 07S
RANGE. .......................... 26E 29E
MERIDIAN. ........................ G&SR

ALTITUDE. 4000-6000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 8 MILES NE OF SAFFORD

COMMODITY INFORMATION

COMMODITIES PRESENT. ............. CU MD AG AU PR ZN

MAIN COMMODO. ............. CU
MINOR COMMODO. ............. MD BU AG

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, CHALCOCITE

MINOR ORE MINERALS:
MOLYBDENITE, CHRYSOCOLLA, BURNITE GALENA SPHALERITE, COVELLITE, MALACHITE, BROCHAYTITE CUPRITE TETRAHEDRITE,
TENORITE, TURQUOISE, GOLD, AMITERITE
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 (DESCRIPTION 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.)

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<tr>
<th>ITEM</th>
<th>ACC. AMOUNT</th>
<th>THOUS. UNITS</th>
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SOURCE OF INFORMATION (PRODUCTION): ROBINSON AND COOK, 1966

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS............. EOCENE (58 M.Y.)

HOST ROCK TYPES.............. QUARTZ DIOKITE 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 GEOLGY

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 FRACUTRES 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 CAPING 0-950 FT. THICK (AVE. 440 FT). OXIDE, MIXED OXIDE-SULFIDE, AND SULFIDE ORES ARE PRESENT. PYRITE IS MOST ABUNDANT PRIMARY SULFIDE.

GENERAL REFERENCES
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.
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.
9) YARDER, W., IN PROGRESS GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.
4) LAINE, R.P., 1974, GEOLOGIC-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM DEPOSITS: UNPUB. M.S. THESIS, UNIV. ARIZ., 301 P.
5) BOLIN, O.S., 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 186 P.
6) HUMMEL, J., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEO-SUBDUCTION ZONE UNDER ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 126 P.
7) VALENTINE, IN PROGRESS PHD THESIS IN PROGRESS, UNIV. UTAH.
NAME AND LOCATION
DEPOSIT NAME: LOS PABRES
SYNONYM NAME: PHILPS DODGE
MINING DISTRICT/AREA/SUBDIST: LONE STAR (SAFFORD) DIST
COUNTRY CODE: US
STATE CODE: 04
COUNTY: GRAHAM
QUAD SCALE: 2062500
QUAD NO OR NAME: SAFFORD, ARIZ.
LATITUDE: 32° 58' N
LONGITUDE: 109° 41' W
UTM NORTHING: 3649000
UTM EASTING: 623000
UTM ZONE NO: +12

RANGE: 26E
SECTION: 28
MERIDIAN: G & SR

ALTITUDE: 4100 FT

LOCATION COMMENTS: LOCATION GENERALIZED

COMMODITY INFORMATION
COMMODITIES PRESENT: CU
MAIN COMMODITY: CU

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

PRESENT/LAST OWNER

PHELPS DODGE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY (DISSEM)

RESERVES AND POTENTIAL RESOURCES

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<td>1976</td>
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SOURCE OF INFORMATION (RESERVES/POT RESOURCES): GREELEY, 1978, P. 86; KEITH, UNPUB. DATA, AZ. BUR. GEOLOGICAL

GENERAL REFERENCES

4) KING, R.B., 1969, MOLYBDENUM 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) DERHURST, 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 030454
RECORD TYPE K1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OF RECI.

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 1:0062500
QUAD NO OR NAME SAFFORD, ARIZ.
LATITUDE 32-56-50N
LONGITUDE 109-39-00W
UTM NORTHING 3646000
UTM EASTING 626000
UTM ZONE NO 14

TWP 06S 05S
RANGE 26E 06E
SECTION 02 35
MERIDIAN GCSR

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILES NORTH OF SAFFORD
LOCATION COMMENTS: LINE BETWEEN SECTIONS AND ADJACENT 1/4

COMMODITY INFORMATION
COMMODITIES PRESENT CU MD 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, ANTERITEL?, 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.)

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

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SOURCE OF INFORMATION (PRODUCTION).... ARIZ. BUR. MINES FILE DATA

RESERVES AND POTENTIAL RESOURCES

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<td>TONS</td>
<td>1976</td>
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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 ........... SAN 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 9-10,300 FT LONG WITH W50-65E 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, PHYLLIC, 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 THE 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. RECURRENT
ADJUSTMENT ALSO RESULTED IN THE SHEARING OF THE INTRUSIVE BODIES AND VOLCANIC VENT. LATER, SOME OF THE DIKES
AND PLUGS AND ADJOINING Porphytic 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 TENDING 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., 1976, REGIONAL STRUCTURE OF THE SAFFORD DISTRICT, ARIZONA, IN PROC. PORPHYRY COPPER SYMPS., JENNEY,
J.R., AND MAUCK, H.R., EDS., ARIZ. GEOL. SOC. DIGEST, V. 11, P. 9-15
3) BLAKE, O.W., 1971, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE SAN JUAN MINE AREA, GRAHAM COUNTY, ARIZ:
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.
8) ARIZ. BUR. MINES FILE DATA.
11) YARDER, W., IN PRESS, GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO. ARIZ.: UNPUB. M.S. THESIS, UNIV. ARIZ.
14) VALENTINE, IN PRESS, PH.D. THESIS IN PROGRESS, UNIV. UTAH.
**RECORD IDENTIFICATION**
- RECORD NO.: X030463
- RECORD TYPE: XI
- 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: 1: 0062500
- QUAD NO OR NAME: SAFFORD, ARIZ.
- LATITUDE: 32-53-00N
- LONGITUDE: 109-32-40W
- UTM NORTHING: 3639000
- UTM EASTING: 636000
- UTM ZONE NO: +12
- TWP: 06S
- RANGE: 27E
- SECTION: 25 26
- MERIDIAN: 6 5K
- 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
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY (DISSEM.)

PRODUCTION
YES
SMALL PRODUCTION

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

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<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
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SOURCE OF INFORMATION (PRODUCTION). ARIZ. BUR. MINES FILE DATA

RESERVES AND POTENTIAL RESOURCES

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<td>TONS</td>
<td>1976</td>
<td>20.2% Cu</td>
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</table>


GENERAL REFERENCES

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 EXPL. STA. BULL., COLLEGE MIN. INDUSTRIES, PENNSYLVANIA STATE UNIV.
10) YARDER, W., IN PRESS, GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., ARIZ.: UNPUBL. M.S. THESIS, UNIV. ARIZ.


16) Valentine, In Press, M.S. Thesis in Progress, UNIV. UTAH.
RECORD IDENTIFICATION
RECORD NO. MO02194
RECORD TYPE. 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1.2
MAP CODE NO. OF REC. 2

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. 1: 0062500
QUAD NO OR NAME. KLONDYKE
LATITUDE. 32-50-16N
LONGITUDE. 110-01-42W
UTM NORTHING. 3633325.
UTM EASTING. 567550.
UTM ZONE NJ. 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 MO AG

PRODUCER (PAST OR PRESENT): MAJOR PRODUCTS. PB

MAIN COMM. PB
MINOR COMM. MO AG
MAIN ORE MINERALS:
GALENA, ANGLESITE, CERRUSSITE

MINOR ORE MINERALS:
WULFENITE, PLUMBOJAROSITE (?), SPARSE COPPER STAIN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.
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.)

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<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
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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.

GEOLGY 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 LATTICE (?) 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 FOR ABOUT 700 FT. IT MAY BE A SOUTHWESTERN 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
2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA, U.S. BUR. MINES REPT. INV. 4007.
4) ROSS, C.P. (1925B) GEOLOGY OF THE KLONDYKE QUADRANGLE, GRAHAM AND PINAL COUNTIES, ARIZONA: UNIVERSITY OF ARIZONA UNPUBLISHED MS THESIS, 57 P.
7) MINING WORLD JAN, 1948.
9) A. BUR. GEOLOGICAL FILE PAGE.
13) WILSON, E.D., 1958, ARVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZONIAN BUR. MINES BULL. 156, P. 51.
15) REHRIG, W.A., AND REYNOLDS, S.J., IN PRESS, GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST TRENDS ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN AND WESTERN ARIZONA: GEOLOGICAL SOCIETY OF AMERICA MEMOIR.
CRIP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. MD30462
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. .................. SINF FEIN MINE
MINING DISTRICT/AREA/SUBDIST. ARAVAIPA DIST.
COUNTRY CODE. .................. US
STATE CODE. .................... 04
COUNTY. ...................... GRAHAM
QUAD SCALE. ................ 0062500
QUAD NO OR NAME. ............... KLONDIYKE
LATITUDE. .................. 32-58-20N
LONGITUDE. ................ 110-20-30W

IWP. .................. 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:
ANGLESITE, 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 (DESCRIPTION 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, COMM, CONC., ORE, BUR.)

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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 GALIURO 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 DACTYLE 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 TRENDS, SLEEP FAULTS

COMMENTS (GEOL OCY AND MINERALOGY):
WULFENITE IS FAIRLY COMMON AS SMALL CRYSTALS IN OPEN SPACES IN THE UPPER PARTS OF THE MINE

GENERAL REFERENCES
2) ROSS, C.P. (1925A) GEOLOGY AND ORE DEPOSITS OF THE ARAVAIPA AND STANLEY MINING DISTRICTS, GRAHAM COUNTY, ARIZONA, U.S. GEOLOGICAL SURVEY BULLETIN 763, 120 P., P. 100
3) DENTON, T.C. (1947B) ARAVAIPA LEAD-ZINC DEPOSITS, GRAHAM COUNTY, ARIZONA, U.S. BUREAU OF MINES REPORT, 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.
7) AZ. BUR. GEOLOGY FILE DATA.
10) KEITH, S.O. UNPUBLISHED DATA.
12) WILSON, F. D. 1950, ARAVAIPA DISTRICT, IN ARIZONA ZINC AND LEAD DEPOSITS: ARIZONA BUREAU OF MINES BULLETIN 156, P. 51
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: GEOLOGICAL SOCIETY OF AMERICA MEMORIAL.
15) USGS M.F. 939 USGS MF 238 USGS PROFESSIONAL PAPER 655-D USGS BULLETIN 1027-N USGS WSP 450
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. US04095
RECORD TYPE AI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
MAP CODE NO. OF REG.

REPORTE
UPDATED 79 12
BY MILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME SAFFORD DEPOSIT
MINING DISTRICT/AREA/SUBDIST LONE STAR (SAFFORD) DIST/GILA MS
COUNTRY CODE US
STATE CODE 04
COUNTY GRAHAM CO.
QUAD SCALE 1: 0062500
QUAD NO OR NAME SAFFORD
LATITUDE 32-56-15N
LONGITUDE 109-36-05W
UTM NORTHING 3645000
UTM EASTING 630750
UTM ZONE NO +12

TWP 06S
RANGE 27E
SECTION 05
MERIDIAN 66SR

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 COMMODITY CU MO
MINOR COMMODITY AU AG PB ZN

MAIN ORE MINERALS:
CHROMOCOLLAs 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 4-6% CHALCOPYRITE IN PRIMARY ORE IS ABOUT
2%, IN PROTORE IS ONLY 0.7%, AND IN PYRITE HALO AVERAGES ABOUT 0.4%; PRIMARY ORE ZONE CHALCOPYRITE TO PYRITE
RATIO IS 2:1 (ROBINSON AND COOK, 1966)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. III
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; GOLITHE, JAROSITE, LIMONITE, HEMATITE, ALUMITE, KAOLINITE-HALLOYLITE;
QUARTZ AND CALCITE GANQUE
IMPORTANT URE CONTROL/LOCUS.. MINERALIZATION OCCURS IN OLDER VOLCANICS (PORPHYRITIC ANDESITE) WHERE NE FAULTS AND
SHEARS WERE INTRUDED 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 ADJACENT AND IS PARTIALLY SUPERIMPOSED ON A LARGE AREA OF PERVERSIVE SECONDARY BIOITIZATION 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. SUPERCENE ENRICHMENT HAS TAKEN PLACE TO AN AVERAGE DEPTH OF 440 FT OVER THE
OREBODY (ROBINSON AND COOK, 1966)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:


GENERAL REFERENCES

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.
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. INDUST., PENNSYLVANIA STATE UNIV.
11) YAMER, W., IN PRESS, GEOLOGY OF SOL PROSPECT, LONE STAR DISTRICT, GRAHAM CO., RIZ.: UNPUBL. M.S. THESIS, UNIV. ARIZ.
14) BOLIN, O.C., 1976, A GEOCHEMICAL COMPARISON OF SOME BARREN AND MINERALIZED IGNEOUS COMPLEXES OF SOUTHERN ARIZONA: UNPUBL. M.S. THESIS, UNIV. ARIZ., 166 P.
15) LAINE, R.P., 1974, GEOLOGICAL-GEOCHEMICAL RELATIONSHIPS BETWEEN PORPHYRY COPPER AND PORPHYRY MOLYBDENUM DEPOSITS: UNPUBL. M.S. THESIS, UNIV. ARIZ., 301 P.
17) IDEMURST, J.A., 1976, CHEMICAL RATIOS OF LARAMIDE IGNEOUS ROCKS AND THEIR RELATION TO A PALEOSUBDUCTION ZONE UNDER ARIZONA: UNPUBL. M.S. THESIS, UNIV. ARIZ., 128 P.
18) VALENTINE, IN PRESS, M.S. THESIS IN PROGRESS, UNIV. UTAH.
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: 1: 0062500
QUAD NO OR NAME: CLIFTON
LATITUDE: 33.0530
LONGITUDE: -109.2200
UTM NORTHING: 3662500
UTM EASTING: 652750
UTM ZONE NO: 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 COMMODITY: CU ZN MO
MINOR COMMODITY: 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, COYELLITE, NATIVE COPPER, TURQUOISE,  
CHRYSCOLL, 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 PROTORE. 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, COMM., CONC., OBERBIRD)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>TONS</th>
<th>MODUS UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>1 ORE</td>
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<td>1941</td>
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<tr>
<td>2 ORE</td>
<td>ACC 942.876 TONS</td>
<td>1942</td>
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<td>3 ORE</td>
<td>ACC 773.886 TONS</td>
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<td>4 CU</td>
<td>ACC 54.126 TONS</td>
<td>1942</td>
<td></td>
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<tr>
<td>ITEM</td>
<td>ORE ACC 9652.316 TONS 1943</td>
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<td>6</td>
<td>ORE ACC 78.537 TONS 1943</td>
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<td>7</td>
<td>ORE ACC 11328.10 TONS 1944</td>
<td></td>
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**CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERTURB.)**

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<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS</th>
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<tr>
<td>15</td>
<td>ORE ACC 43352 TONS 1872-1932 UNDERGROUND</td>
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<tr>
<td>16</td>
<td>CU ACC 1100 TONS 1872-1932 UNDERGROUND</td>
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<tr>
<td>17</td>
<td>ORE ACC 310548.6 TONS 1937-1963 OPEN PIT</td>
</tr>
<tr>
<td>18</td>
<td>CU ACC 2474.592 TONS 1937-1963 OPEN PIT</td>
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</tbody>
</table>

**SOURCE OF INFORMATION (PRODUCTION).** MODICK AND DUREK, 1966, p. 222

**PRODUCTION COMMENTS.**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ORE ACC 10432.65 TONS 1945</th>
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<tr>
<td></td>
<td>CU ACC 100.522 TONS 1945</td>
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<th>YEAR</th>
<th>ORE ACC 9604.67 TONS 1946</th>
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<td>CU ACC 95.245 TONS 1946</td>
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<tr>
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<td>CU ACC 148.086 TONS 1947</td>
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<td></td>
<td>ORE ACC 15637.93 TONS 1948</td>
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<td>CU ACC 149.028 TONS 1948</td>
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<tr>
<td></td>
<td>ORE ACC 14555.59 TONS 1949</td>
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<tr>
<td></td>
<td>CU ACC 139.395 TONS 1949</td>
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<tr>
<td></td>
<td>ORE ACC 16094.86 TONS 1950</td>
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<tr>
<td></td>
<td>CU ACC 151.503 TONS 1950</td>
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<tr>
<td></td>
<td>ORE ACC 15537.92 TONS 1951</td>
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<tr>
<td></td>
<td>CU ACC 139.981 TONS 1951</td>
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<td>ORE ACC 15658.99 TONS 1952</td>
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<td></td>
<td>CU ACC 119.036 TONS 1952</td>
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<td>ORE ACC 16180.06 TONS 1953</td>
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<td>CU ACC 119.713 TONS 1953</td>
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<td>ORE ACC 15463.15 TONS 1954</td>
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<td>CU ACC 110.501 TONS 1954</td>
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<td>ORE ACC 15099.41 TONS 1955</td>
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<td>CU ACC 121.242 TONS 1955</td>
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<td>ORE ACC 10875.14 TONS 1956</td>
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<td>CU ACC 123.470 TONS 1956</td>
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<td>ORE ACC 14767.61 TONS 1957</td>
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<td>CU ACC 103.629 TONS 1957</td>
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<td>ORE ACC 13039.19 TONS 1958</td>
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<td>CU ACC 93.136 TONS 1958</td>
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<td>ORE ACC 10513.02 TONS 1959</td>
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<td>CU ACC 73.308 TONS 1959</td>
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<td>ORE ACC 14499.63 TONS 1959</td>
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<td>CU ACC 103.221 TONS 1960</td>
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<td>ORE ACC 16285.69 TONS 1961</td>
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<td>CU ACC 108.622 TONS 1961</td>
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ORE ACC 1683.18 TONS 1962
ORE ACC 118.74 TONS 1957
ORE ACC 17140.75 TONS 1963
ORE ACC 1673.66 TONS 1975 MORENCI (GREELEY)
ORE ACC 17767.7 LBS 1975 MORENCI (GREELEY)
ORE ACC 5556.145 TONS 1975 METCALF (GREELEY)
ORE ACC 9218.973 LBS 1975 METCALF (GREELEY)
ORE ACC 18705.45 TONS 1976 MORENCI (GREELEY)
ORE ACC 20098.63 LBS 1976 MORENCI (GREELEY)
ORE ACC 11327.51 TONS 1976 METCALF (GREELEY)
ORE 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 30631.73 TONS 1942
TOTAL MATERIAL ACC 40756.25 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 35017.44 TONS 1949
TOTAL MATERIAL ACC 42829.67 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 54582.55 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

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
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<tbody>
<tr>
<td>1</td>
<td>SULFIDE ORE</td>
<td>1685970 TONS</td>
<td>1975</td>
<td>0.77% CU METCALF</td>
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<tr>
<td>2</td>
<td>SULFIDE ORE</td>
<td>1662462 TONS</td>
<td>1975</td>
<td>0.8% CU MORENCI</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (RESERVES/POT RESOURCES). GREELEY, 1976, P. 96

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. TERT. (55.2 +/- 1.7 M.Y. BENNETT, 1975)
HOST ROCK TYPES................. QUARTZ MONZONITE PorphyrY IS GREBOY, BRECCIA PIPES ARE IN GRANITE PORPHYRY,
SUPERCORNE 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 Associated Igneous Rocks: Tertiary (55-56 M.Y., Bennett, 1975)

Igneous Rock Types: Quartz Monzonite Porphyry, Granite Porphyry

Age of Mineralization: Tertiary (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. Melanterite, alum, and copiapite (?) are present locally (Moolick and Durek, 1966). Rutile, magnetite, pyrrhotite, coronadite, willemite, calamine, morencite, smithsonite, libethinite, alunite, spangolite, goyalite, epi-dote, muscovite, chlorite, serpentine, asbestos, kaolin, dioptase (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 imbedded along a NE trend of a Precambrian zone of weakness centered obliquely across E-W contact of basement granite and granite-diorite.

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 vulcanism 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 protole. The center of mineralization is apparently 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 IDENTIFICATION
RECORD NO. 800238
RECORD TYPE. M1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1,2
MAP CODE NO. OF REC.

REPORTER
NAME. Will, Jan C.
DATE. 12-79

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. 1:0062500
QUAD NO OR NAME. VULTURE MOUNTAINS, ARIZ
LATITUDE. 33-52-40N
LONGITUDE. 112-50-25W
UTM NORTHING. 3749900
UTM EASTING. 329800
UTM ZONE NO. 12
UTM NORTHING. 3749900
UTM EASTING. 329800
UTM ZONE NO. 12
UTM NORTHING. 3749900
UTM EASTING. 329800
UTM ZONE NO. 12
UTM NORTHING. 3749900
UTM EASTING. 329800
UTM ZONE NO. 12
UTM NORTHING. 3749900
UTM EASTING. 329800
UTM ZONE NO. 12

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, MD
MAIN COMMOD. W, MD
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
PRESEN'T/LAST OWNER: 5 UNPATENTED LODE CLAIMS OWNED IN 1950 BY J FRANK HENDERSON, IN 1959 BY W.C. KINNON OF PHOENIX (DALE)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS, DISSEMINATED
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT: SMALL

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
DISCOVERY SHAFT & SOME TRENCHING

PRODUCTION
NO PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: CRET. (68.4 +/- 17 M.Y)
HOST ROCK TYPES: BIOTITE GRANITE, PORPHYRY INTRUSIONS (GRANODIORITE OF REHRIG)
PERTINENT MINERALOGY: QUARTZ VAINS
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
3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
ARIZONA: ARIZ. BUR. MINES BULL. 148, GEOG. SERIES 14, 54 P.

DEPOSITS: U.S. GEOG. SURVEY, BULL. 652, 95 P.


OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES R.I. 6828. P. 58


TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUBL. MANUSCRIPT SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.


MIN. JOUR. V. 93, P. 1044-1045.


MIN. JOUR., V. 11, NO. 19, P. 14.


THE VULTURE MINE, ARIZONA: AM. JOUR. SCI., 3RD SER., V. 21, P. 150.
ARIZONA: MIN. SCI. PRESS, V. 94, P. 308-310.


WHEELER, G.M., 1972, PRELIMINARY REPORT CONCERNING EXPLORATIONS AND SURVEYS PRINCIPALLY IN NEVADA AND ARIZONA, 1871: WASHINGTON, 96 P.

ARIZONA METAL PRODUCTION: ARIZ. BUI. MINES BUI. 140, 112 P.

ELSing, M.J., AND HEINEMAN, R.E.S., 1936.
CRIM MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................. MB00116
RECORD TYPE.............. XI
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/VULTURF MTS
COUNTRY CODE.............. US
STATE CODE.................... 04
COUNTY......................... MARICOPA

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

LATITUDE LONGITUDE
33°52'40"N 112°50'25"W

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 NORTHWESTERNLY 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 NO

MAIN COMMOD....... W NO
MAIN ORE MINERALS:
POWELLITE, SCHFELITE

ANALYTICAL DATA (GENERAL)
0.01 TO 0.22% WO3 ASSAYS ON 8 SAMPLES (DALE)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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

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

IMPORTANCE OF CONTROL/LOCUS:
DISSEMINATIONS IN GRANITIC ROCKS AND DIKE ROCKS IN ROUGHLY ROUNDED FORMS FROM
PINHEAD TO MARBLE SIZE.

LOCAL GEOLOGY

AREAS OF BRILLIANT FLUORESCENCE ARE NOT CRITERIA OF WO3 CONTENT

GENERAL REFERENCES
1) DALE, Y.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP.
INVEST., RJ. 5510, 68 P., P. 37.
P., P. 156
3) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
4) WILSON, E.O. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOLOG. SERIES 14, 54 P.
6) HESS, F.L., AND E.S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOLOG.
SURVEY BULL. 725
8) MEEVES, H.C., 1968, PEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR
ADJACENT STATES: U.S. BUR. MINES R.I. 6828, P. 58
4) VULTURE MINE:
6)TENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UMPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. D000773
RECORD TYPE. XI
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. 1: 0024000
QUAD NO OR NAME. NEW RIVER MESA, ARIZ.
LATITUDE. 33-53-00N
LONGITUDE. 111-54-45W
UTM NORTHING. 3749000
UTM EASTING. 4156000
UTM ZONE NO. +12

TWP. 06N
RANGE. 04E
SECTION. 11
MERIDIAN. G C SR

ALITITUDE. 3120-3160

POSITION FROM NEAREST PROMINENT LOCALITY: 5 MILES N OF CAVE CREEK P.O. 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 COMMODO..... W CO AU
MINOR COMMODO..... MO NO 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-TANTALUM 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........ 65S

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
SEVERAL OPEN STOPES, SURFACE CUTS, AND SHORT ADITS

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

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
1 FERBERITE CONC. 0.057 TONS 1936 60-67% WO3

CUMULATIVE PRODUCTION (ORE, COMMODO., CONC., OVERBURD.)

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 ORE ACC 0.009 TONS 1941
16 AG ACC 0.0002 OZS
17 AU ACC 0.003 OZS

SOURCE OF INFORMATION (PRODUCTION). WILSON, 1941, P. 26

PRODUCTION COMMENTS.... WORKED DURING WORLD WAR I BY PITTSBURGH TUNGSTEM CO., BUT PRODUCTION FIGURES ARE NOT
AVAILABLE; 4-5 TONS CONCENTRATE PRODUCED 1936-1941

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS

HOST ROCK TYPES

AGE OF ASSOC. IGNEOUS ROCKS

IGNEOUS ROCK TYPES

PERSISTENT MINERALOGY

IMPORTANT ORE CONTROL/LOCUS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES

SIGNIFICANT ALTERATION

COMMENTS (GEOLGY AND MINERALOGY)

GENERAL REFERENCES

1) SCHALLER, W.L., (1932) CHEMICAL COMPOSITION OF CUPROTUNGSIITE, AMER. MIN., V. 17 P. 234-237.
3) LEWIS, A.S. (1920) ORE DEPOSITS OF DALE CREEK DISTRICT, ARIZONA, ENGR. MINING JOUR., V. 110, P. 713-716.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4800237
RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OF REC. 1

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 1:0024000
QUAD NO OR NAME RED PICACHO, ARIZ.
LATITUDE 33°56'36"N
LONGITUDE 112°33'43"W
UTM NORTHING 3756770
UTM EASTING 355670
UTM ZONE NO 12

TWP 07N
RANGE 03W
SECTION 15 27
MERIDIAN G65K
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 MD CU AU

MAIN COMMOD W
MINOR COMMOD MD CU AU
MAIN ORE MINERALS:
SCHEELITE, POMELLITE

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 (DESCRIPTION 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 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

JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF


CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 p.

ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS

Wilson, E.D., 1941, Tungsten Deposits of
GRID MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4900119
RECORD TYPE P 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE P 1.2
MAP CODE NO. OF REC 0

REPORER
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 1: 0024000
QUAD NO OR NAME NEDPICACHO, ARIZ.

LATITUDE 33-56-66N
LONGITUDE 112-33-43W

UTM NORTHING 3756770
UTM EASTING 3955670
UTM ZONE N3 12

THP. 07N
RANGE 03W
SECTION 15 22
MERIDIAN G & 5K

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 MD CU AU

MAIN COMMOD. MD CU AU
MINOR COMMOD. MD CU AU
MAIN ORE MINERALS:
SCEHELITE, PONEILLITE

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 (DESCRIPTION OF WORKINGS):
SEVEN SMALL OPEN CUTS AND AN INCLINED SHAFT

GEOLGY AND MINERALOGY
AGE OF HOST ROCKS
PREC (?)
HOST ROCK TYPES
HORNABLENDE-BIOTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS
PREC (?)
IGNEOUS ROCK TYPES
GRANITE AND PEGMATITE DIKES CUT VEIN

PERTINENT MINERALOGY
QUARTZ VEINS; EPIDOTITE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE AND ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS
IN GARNET EPIDOTITE ZONE

LOCAL GEOLOGY
SIGNIFICANT ALTERATION:
SILICIFIED

COMMENTS (GEOLGY AND MINERALOGY):
INCLINED SHAFT AT THE LITTLE SAN DOMINGO DEPOSIT WAS DRIVEN TO CROSS-CUT A FEW GOLD-QUARTZ STRINGERS

GENERAL REFERENCES
2) DALE, V.R., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 60 P.
4) ALAM 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.
NAME AND LOCATION

DEPOSIT NAME: MARICOPA MINE

MINING DISTRICT/AREA/SUBDIST: CAVE CREEK DIST

COUNTRY CODE: US

STATE CODE: 04

COUNTY: MARICOPA

QUAD SCALE: 002400

GUARD NO OR NAME: NEW RIVER MESA, ARIZ

LATITUDE: 33°52'47"N

LONGITUDE: 111°57'42"W

UTM NORTHING: 3749040

UTM EASTING: 411070

UTM ZONE NO: 12

TWP: 06N

RANGE: 04E

SECTION: 08

MERIDIAN: GRS83

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 COMMODITY: 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. OK 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: 6 FT
STRIKE OF OREBODY: N
DIP OF OREBODY: STEEP

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
25-TON MILLING PLANT IN 1934; 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): ARM 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 $1500

SOURCE OF INFORMATION (RESERVES/POT RESOURCES): ARM CLIPPING FILE

COMMENTS (RESERVES/POT RESOURCES):
JLD FILLED STOPES CONTAINING SEVERAL THOUSAND TONS OF GOLD ORE IN 1939

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: TERT. (?) PREC
HOST ROCK TYPES: ALTERED SCHIST, INTRUDED BY DIKES OF GRANITE PORPHYRY & KYROLITE PORPHYRY (WILSON ET AL, 1934); VOLCANIC ROCK, POSSIBLY ANDESITE; YAVAPA SCHIST INTRUDED BY COARSE-GRAINED DIOTITE GRANITE WITH SMALL STOCKS OF DIORITE (CLIPPING FILE)

AGE OF ASSOC. IGNEOUS ROCKS: TERT. (?) PREC
IGNEOUS ROCK TYPES: DIKES OF GRANITE PORPHYRY & KYROLITE PORPHYRY (WILSON ET AL, 1934); COARSE-GRAINED GRANITE WITH SMALL STOCKS OF DIORITE, 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
2) ABM 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.


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


HESZ, F. L. AND E. S. LARSEN, 1921, CONTACT-METAMORPHIC TUNGSTEN DEPOSITS OF THE UNITED STATES: U.S. GEOL. SURVEY BULL. 725


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................ 4800117
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
3794040. 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 OXIDIZED 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
STRIKE OF OREBODY.... N
DIP OF OREBODY.... SLEEP

DESCRIPTION OF WORKINGS
COMMENT (DESCRIPTION OF WORKINGS):
25-TON MILLING PLANT 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

COMMENT (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 DIORITE 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 OOLITE, 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 SLEEP DIP.

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
SILICIFIED

GENERAL REFERENCES

2) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
3) WILSON, E.O., (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
5) DALE, V.B., 1959, TUNGSTEN DEPOSITS OF YUMA, MARICOPA, AND GRAHAM COUNTIES, ARIZONA: U.S. BUR. MINES, REP. INVEST., R.I. 5516, 66 P.
9) SCHALLER, W.T., (1932), CHEMICAL COMPOSITION OF CUPRO TUNGSTITE, AMER. MIN. 172, 234-237.
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

LATITUDE: 33°46'37"N
LONGITUDE: 112°21'53"W
UTM NORTHING: 3738070
UTM EASTING: 373620
UTM ZONE: 17

THP: 05N
RANGE: 01W
SECTION: 16
MERIDIAN: G6SR
ALTITUDE: 1760 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE WEST OF WHITE PEAK; 5 MILES W. OF AGNA 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 COMMODITY: Pb Ag Au
MINOR COMMODITY: 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, DESCOIZITE

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.B. MORGAN
PRESENT/LAST OWNER: 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: 700 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 WAG 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
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.
5) ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
6) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: U.S. BUR. MINES BULL. 5516, 68 P.
10) LEWIS, A.S., 1920, ORE DEPOSITS OF CAVE CREEK DISTRICT ARIZONA, ENGR.
Crib Mineral Resources File 12

Record Identification

- Record No.: M001909
- 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: Rowley Mine
- Synonym Name: Reliance; Rowley; Theba, Rainbow
- Mining District/Area/Subdist.: Painted Rock District/Painted Rock Mts.
- Country Code: US
- State Code: 04
- County: Maricopa

- Quad Scale: 1: 0062500
- Quad No or Name: Dindinga Valley, AZ

- Latitude: 33-02-55N
- Longitude: 113-02-00W

- UTM Northing: 3658350
- UTM Easting: 311000
- UTM Zone No: +12

- Twp.: 04S
- Range: 08W
- Section: 25 24
- Meridian: GSR

- Altitude: 600 ft

Position From Nearest Prominent Locality:

From Gila Bend from the junction of state I-10 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) on Old 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 COMMODITY: MO, PB
MINOR COMMODITY: AG, CU, AU

MAIN ORE MINERALS:
- Barite, Wulfenite, Cerrusite

MINOR ORE MINERALS:
- Galena, Fluorite, Hematite, Chalcocite, Covellite, Anglesite, Chrysocolla, Malachite, Calidinite, Limonite, Apatite, Diaboleite, Boleite, Leadhillite, Mitetite, Vanadinite, Desclolite, Willemite, Minim, Pyrite, Wolframite, Pyromorphite, Ferrimolybdate, Ecomite (?)

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 03. (Mackallor, in Kirkento et al., 1965, p. 10).

EXPLORATION AND DEVELOPMENT
- STATUS OF EXPLOR. OR DEV.: 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 Kirkento, et al., 1965, p. 7)

DESCRIPTION OF WORKINGS
- DEPTH OF WORKINGS BELOW SURFACE: 280 FT
- LENGTH OF WORKINGS: 1850 FT
- COMMENTS (DESCRIPTION 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 backfilled 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, Commodity, Concentrate, Overburden)

<table>
<thead>
<tr>
<th>Item</th>
<th>ACC</th>
<th>Amount</th>
<th>Units Year</th>
<th>Grade, Remarks</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>0.109</td>
<td>Tons 1921</td>
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</tr>
<tr>
<td>16</td>
<td>Cu</td>
<td>7.177</td>
<td>Lbs 1921</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Pb</td>
<td>10.594</td>
<td>Lbs 1921</td>
<td></td>
</tr>
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<td>18</td>
<td>AC</td>
<td>0.293</td>
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</tr>
<tr>
<td>19</td>
<td>Au</td>
<td>0.002</td>
<td>Dzs 1921</td>
<td></td>
</tr>
</tbody>
</table>

**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 03.

### Geology and Mineralogy

- **Age of Host Rocks:** TERT.
- **Host Rock Types:** Andesite and Rhyolite flows overlie Biotite granite.
- **Age of Associated Igneous Rocks:** TERT.
- **Igneous Rock Types:** Andesite porphyry dike.
- **Pertinent Mineralogy:** Wulfenite assoc. with Mimetite and Barite.
- **Important Ore Control/Location:** 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 Gangue.

**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 et al. 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 any, 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 (3.4.175). Another single specimen in the Smithsonian collection had white acicular Wulfenite in place of Mimetite.
  - **Suite 3:** The Caledonite suite consists of Caledonite, Linarite, Leadhillite, Atacamite, Cerussite, Anglesite, Diabolite, and Bolite. This suite is restricted to small veins near the ceiling of the Jobes 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). Ferrimolybdate 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 Kirkemo et al., 1965).

General Comments

M00229 is probably the same as M001909, so M00229 should be dropped.

General References

Crib Mineral Resources File 12

Record Identification
Record No. 483121
Record Type 12
Country/Organization USGS
Information Source 1,2
Map Code No. of Record

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/Subdistrict Morristown-Area/White Picacho Dist.

Country Code US
State Code 04
County Maricopa
Quad Scale 1:0024000
Quad No or Name RED PICACHO, AK12

Latitude 33-57- N
Longitude 112-34- W

UTM Northing 3757500
UTM Easting 355300
UTM Zone No 12

Town 07N 08N
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 Commodity W AU
MAIN ORE MINERALS:
SCHEELITE

MINOR ORE MINERALS:
POWELLITE

EXPLORATION AND DEVELOPMENT
PROPERTY IS INACTIVE
PRESENT/LAST OWNER
CLAIMS RELOCATED IN 1941 BY D.G. MCMILLAN AND STILL OWNED BY HIM IN 1959 (DALE, 1959)

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
CONTACT METAMORPHIC
FORM/SHAPE OF DEPOSIT:
MAX WIDTH 100 FT
STRIKE OF OREBODY N55W
DIP OF OREBODY 60 NE

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE 75 FT
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.

GEOLGY 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
SCHEELITE OCCURS IN GARNET-EPIDOTE ROCK WITHIN SCHIST

GENERAL REFERENCES
4) ADM 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, GEOLOG SERIES 14, 54 P.
NAME AND LOCATION

DEPOSIT NAME................. VULTURE MINE
SYNONYM NAME................. TEOINGA, EAST VULTURE, VULTURE WEST EXTENSION
MINING DISTRICT/AREA/SUBDIST. VULTURE DIST.
COUNTRY CODE.................... US
STATE CODE...................... 04
COUNTY......................... MARICOPA

QUAD SCALE:
1: 0062500
QUAD NO OR NAME:
VULTURE MOUNTAINS, AKIZ.

LATITUDE
LONGITUDE

UTM NORTHING: 3743650
UTM EASTING: 330200
UTM ZONE NO: +12

TMP....... 06NN 06N
RANGE..... 05W 06W
SECTION.. 25 26 35 36 30 31
MERTION.. 663R

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, 0-12% Zn, 1-2% Cu, FROM $120 TO $200 IN GOLD (1872)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  *
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; 60 STAMP MILL OPERATED AT THE MINE 1879-1886; 20 STAMP MILL OPERATED 1910-1917 AT THE MINE

PRODUCTION
YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
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<td>02</td>
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<tr>
<td>03</td>
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<td>104,568 LBS</td>
<td>1923-1944</td>
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<tr>
<td>04</td>
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<td>ACC</td>
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<tr>
<td>06</td>
<td>EST</td>
<td>435</td>
<td>OZ</td>
<td>1863-1966</td>
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<tr>
<td>07</td>
<td>EST</td>
<td>350</td>
<td>OZ</td>
<td>1863-1966</td>
<td></td>
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</table>

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)
GEOLGY AND MINERALOGY

AGE OF HOST ROCKS

- PREC.

HOST ROCK TYPES

- QUARTZ-SERICITE SCHIST; GRANITE PORPHYRY DIKE

AGE OF ASSOC. IGNEOUS ROCKS

- PREC (?) OR TERI (?) OR GRANITE PORPHYRY DIKE OR RHYOLITE INTRUSION

IGNEOUS ROCK TYPES

- GRANITE PORPHYRY DIKE OR RHYOLITE INTRUSION

IMPORTANT MINERALOGY

- SERICITE AND CALCITE; QUARTZ SEAMS; QUARTZ STAINED WITH IRON OXIDE

PERTINENT ORE CONTROL/LOCUS

- ORE SH OOTS POSITIONS SUGGEST IN ECHELON PATTERN WITH RICHEST OREBODY TO EAST FARTHER FROM GRANITE. EASTERNMOST 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 RAJR SHARP EDGES IN OPENINGS IN QUARTZ. GOLD IS ASSOCIATED WITH GALENA

GENERAL REFERENCES

2) TENNEY, J.P., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUB. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINE LIBRARY, TUCSON, 514 P.
3) BROWN, E. ROSS, 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS: WASHINGTON, O.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
7) DEFTY, W.E., 1912, VULTURE MINE, ARIZONA: ENCE. MIN. JOUR., V. 1, P. 1044-1045.
13) PENFIELD, C.W., 1907, THE VULTURE MINE, ARIZONA: MIN. SCI. PRESS, V. 1, P. 300-310.
15) WHEELER, C.W., 1872, PRELIMINARY REPORT CONCERNING EXPLORATIONS AND SURVEYS PRINCIPALLY IN NEVADA AND ARIZONA, 1871: WASHINGTON, 96 P.
16) ELSING, M.J., AND HEINEMAN, K.E., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINE BULL. 140, 112 P.
17) RENIG AND DAMON, (1980), IN PRESS) ARIZ. GEOL. SOC. DIGEST 12.
RECORD IDENTIFICATION
RECORD NO. M800241
RECORD TYPE AKI
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 & YAVAPAII

QUAD SCALE I: 0074000
QUAD NO OR NAME RED PICACHO, AZ

LATITUDE 33°57' N
LONGITUDE 112°35'30"W

TMP...... 07N
RANGE... 034
MERIDIAN. 665R

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 RICHTER'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, 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.............. PERC
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. 140, GEOOL. SERIES 14, 50 P.
2) GRANGER, H.C., 1950'S, LUCKY STRIKE CLAIM: U.S. ATOMIC ENERGY COMMISS. PRELIM. RECONN RPT. PRR-386 (?), 1 P.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4800122
RECORD TYPE. RL
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. I
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: 00240000 RED PICACHO, AZ.

LATITUDE
33-57- N
LONGITUDE
112-35-30W

TWP. 07N
RANGE. 03W
MERIDIAN. GSR

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 CATTLEpring SPRINGS ROAD; TURN RIGHT UP SAN DOMINGO WASH AT 6.0 MILES; FOLLOW SIGNS TO JOHN RICHIES PLACE.

LOCATION COMMENTS: NW 1/4, LOC. UNCERTAIN

COMMODITY INFORMATION
COMMODITIES PRESENT. U PB CU ZN Mn

MAIN ORE MINERALS:
CALCINE, CHALCOPYRITE

MINOR ORE MINERALS:
WULFENITE, CHRYSOCOLLA, CHALCOCITE, WULEMITE (?), 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 (7)).

(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: YAVAPA'I 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 (7), 1 P.
4) JAHNS, RICHARD H., 1952, PEGMATITE DEPOSITS OF THE WHITE PICACHU DISTRICT, MARICOPA AND YAVAPA'I COUNTIES, ARIZONA: UNIV. ARIZ. BUR. MINES BULL. 162, 105 P., ILLUS., MAPS
7) WILSON E.O. (1941) TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BJR. MINES BULL. 198, GEOLOG. SERIES 14, 54 P.
NAME AND LOCATION

DEPOSIT NAME.................. WHITE PICACHO DIST.
SYNONYM NAME.................. INCLUDE THE FOLLOWING MINES: MORNING STAR, SUNSET, LOWER JUMBO, WHITE JUMBO,
SUNRISE, WHITE RIDGE, PICACHO VIEW, NO. VIEW, SPARK PLUG, JANUARY FIVE, OUTPOST, OUTPOST EXTENSION, FRICTION,
YELLOW POPPY, FAR FELCH, 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............. 00N 00W
RANGE....... 02N 03W
MERIDIAN.. GILA AND SALI 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 RE MB TA CU F PB MW CU FE SW 7N MO W AG V U TH AU

MAIN COMMOD...... FLD BI RE

MAIN ORE MINERALS:
FELDSPAR, BISMUTH MINERALS, LITHIUM-BEARING MINERALS

MINOR ORE MINERALS:
ABUNDANT AND WIDESPREAD MINERALS INCLUDE: ALBITE, MICROCLIVE, MUSCOVITE, QUARTZ AND TOURMALINE, SPODUMENE
AUDDEPILONITE AND WIDESPREAD OR LOCALLY ABUNDANT MINERALS.

NOT COMMON MINERALS INCLUDE: Amblygonite, Bismuthite, Chalcedony, Cookeite, Epidote, Hematite, Hureaulite, Lithiophylite - Triphylite, Magnetite, Manganite, Nickolite, Pyrite, Pyrochlore, Pyrolusite, Pyrrhotite, Sericite, Triplite, and Zeolite Minerals.

RARE MINERALS INCLUDE: Allanite, Anglesey, Arsenopyrite, Azurite, Beryrite, Bismuth, Bornite, Bismuthinite, Calcite, Chalcocite, Copper, Cassiterite, Chalcopyrite, Cuprite, Cerussite, Chrysocolla, Descliozite, Galena, Goethite, Hydrozincite, Heminorhite, Malachite Nimetite, Molybdenite, Molybrite, Monazite, Powellite, Purpurite, Pyromorphite, Scheelite, Sicklerite, Silver, Sphalerite, Spinol, Stewarite, Strenge, Vanadinite, Vivianite, Wulfenite, Zinnwaldite

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: PREC.
HOST ROCK TYPES: Pegmatite; Yavapai Schist (Geneiss 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 (GEOLGY AND MINERALOGY):
Wulfenite and Powellite as a rare mineral in pegmatites; Molybdenite is sparsely scattered

GENERAL REFERENCES
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.


6) SMITH, FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPING, UNPUBLISHED REPORTS, AND FILE RECORDS.

7) WILSON, E. D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ., BUR. MINES BULL. 148, GEO. SERIES 14, 54 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............. M800119
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............. 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
MIDIDIAN. G6S6R

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 S. OF VULTURE MINE

LOCATION COMMENTS: W SIDE

COMMODITY INFORMATION
COMMODITIES PRESENT....... PB MO AU

MAIN COMMON....... PB MO AU
MINOR COMMUNE. MO

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 230 FT LEVEL IN 1927 (CLIPPING FILE). SHAFT SHOWN ON TOPO MAP
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.********* M800239
RECORD TYPE.********* XI
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, 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. G65R

POSITION FROM NEAREST PROMINENT LOCALITY: 1 1/2 MI S. OF VULTURE MINE
LOCATION COMMENTS: W SIDE

COMMODITY INFORMATION
COMMODITIES PRESENT.********** PB MO AU

MAIN COMMOD.********** PB MO
MINOR COMMOD.********** MO

EXPLORATION AND DEVELOPMENT
PRESENT/LAST OWNER.********** PURCHASED IN 1927 BY NEW MONTF CRISTO MIN. CO
DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH................ 11 FT

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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 IDENTIFICATION
RECORD NO:  M002403
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:  NEW RIVER MESA, ARIZ.
QUAD NO OR NAME:  0024000

LATITUDE:  33°52.35'N
LONGITUDE:  111°57.27'W

UTM NORTHING:  3929600
UTM EASTING:  412100
UTM ZONE NO:  12

UTM /ONE N:  3729600
R:  412100
S:  417
TWP:  06N
RANGE:  04E
SECTION:  08
MERIDIAN:  112°57.27'W

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 MO AU AG PB W V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS:  AU

MAIN COMMOD:  CU AU
MINOR COMMOD:  PB AG MO W V
MAIN ORE MINERALS:
OXIDIZED LEAD MINERALS & GOLD

MINOR ORE MINERALS:
LINDGRANITE WITH CUPROTUNGSTITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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 DRE CONTROL/LOCUS:
GOLD ASSOCIATED WITH FINE GRAINED GRAYISH QUARTZ IN SILICIFIED BRECCIATED ZONES OF NORTHWARD STRIKE & STEEP DIP

GENERAL REFERENCES
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.

DISTRICT ARIZONA, ENGR. MINING JOUR. 110: 713-716.

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.

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF

HESS, F.L., 1917, TUNGSTEN MINERALS AND

HESS, F. L. AND E. S. LARSEN, 1921,

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.--------- MORRISTOWN/AREA/WHITE PICACHO DIST.
COUNTRY CODE------------------------ US
STATE CODE-------------------------- 04
COUNTY----------------------------- MARICOPA
QUAD SCALE QUAD NO OR NAME 1: 0024000 RED PICACHO, AZ
LATITUDE LONGITUDE
33-57- N 112-34- W
UTM NORTHING UTM EASTING UTM ZONE NO
3757500 355300 12

IMP.------- 07N 08N
RANGE------ 03W 03W
SECTION----- 15 16 22
MERIDIAN--- GESR

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:
SCEHELITE

MINOR ORE MINERALS:
PONELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE
PRESENT/LAST OWNER.... 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............. 10 FT
STRIKE OF OREBODY.... N55W
DIP OF OREBODY........ 60 DEG

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 75 FT

COMMENTS (DESCRIPTION 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.

GEOLGY 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.. SCEHELITE OCCURS IN GARNET-EPIDOITE ROCK WITHIN SCHIST

GENERAL REFERENCES
CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.


ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS

WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 148, GEOL. SERIES 14, 54 P.
RECORD IDENTIFICATION
RECORD NO. ............ 0030180
RECORD TYPE ............ XZ
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 MOUNTAINS SUBDISTRICTS MINERAL PARK DIST. IS AT CENTER OF WALLAPA DISTRICT IN E 1/2, T23N, R 13W; CHLORIDE DIST. IS TO NE IN T23 & 24 N, R 19W;
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. WALLAPA 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 .................. 35-17'-25'N
LONGITUDE ............... 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 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, CENUSSITE, RUBY AG & ARGENTITE CERARGYRITE, NATIVE GOLD, ANGLESITE, AZURITE, MALACHITE, HEMIMITE & VANDINITE, NATIVE COPPER, CHALCANTHITE, COVELLITE, CUPRITE, SMITHSONITE, & MANGANESE OXIDES, CACOCITE, COVELLITE & PROUSTITE, MOLYBDENITE, TENANTITE, PEARCEITE, POLYUASITE, BORNITE, POWELLITE

COMMUNITY 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 (HERMON, 1938, P. 115)

EXPLORATION AND DEVELOPMENT

PROPERTY IS ACTIVE

PRESENT/LAST OWNER:..... MOST MINES DISCOVERED BETWEEN 1863-1900 (HERMON, 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.)

<table>
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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>1</td>
<td>ZN</td>
<td>EST</td>
<td>17,000</td>
<td>LB</td>
<td>1915-1930</td>
<td>HERON, 1936, P. 19</td>
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<tr>
<td>2</td>
<td>PB</td>
<td>EST</td>
<td>6,000</td>
<td>LB</td>
<td>1915-1930</td>
<td>HERON, 1936, P. 19</td>
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CUMULATIVE PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)

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<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<tr>
<td>15</td>
<td>ORE</td>
<td>ACC</td>
<td>548,035</td>
<td>TONS</td>
<td>1904-1932</td>
<td>$13,955,473</td>
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<td>16</td>
<td>CU</td>
<td>ACC</td>
<td>2,900</td>
<td>LBS</td>
<td>-1930</td>
<td>ELSING &amp; HEINEMAN, 1936, P. 73, 95</td>
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<td>17</td>
<td>ZN</td>
<td>ACC</td>
<td>95,587.3</td>
<td>LBS</td>
<td>-1930</td>
<td>ELSING &amp; HEINEMAN, 1936, 73, 95</td>
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<td>PB</td>
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<td>55,350.0</td>
<td>LBS</td>
<td>-1930</td>
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<td>19</td>
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<td>170.0</td>
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<td>1931-1936</td>
<td>HERON, 1938, P. 111</td>
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<td>20</td>
<td>EST</td>
<td>21000-25,000</td>
<td>$</td>
<td>1904-1932</td>
<td>HERON, 1938, P. 111</td>
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<tr>
<td>21</td>
<td>EST</td>
<td>10,000</td>
<td>$</td>
<td>1904-1904</td>
<td>HERON, 1938, P. 111</td>
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<td>22</td>
<td>PB</td>
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<td>54.76</td>
<td>TONS</td>
<td>1909-1948</td>
<td>DINGS 1951, P. 123</td>
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<td>23</td>
<td>ZN</td>
<td>ACC</td>
<td>35.73b</td>
<td>TONS</td>
<td>1904-1948</td>
<td>DINGS 1951, P. 123</td>
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<td>24</td>
<td>ORE</td>
<td>ACC</td>
<td>1276.266</td>
<td>TONS</td>
<td>1904-1948</td>
<td>4.23% ZN, 2.8% PB, 0.22% CU, 0.097 DZ/T AU; 3.81 DZ/T AG</td>
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SOURCE OF INFORMATION (PRODUCTION): EIDEL ET AL., 1968, P. 1260; DINGS, 1951, P. 125

PRODUCTION COMMENTS.... WALLAPAI MINING DISTRICT (CHLORIDE) YIELDED APPROXIMATELY 1,300,000 TONS OF AU, AG, PA, ZN & CU DRES WORTH $27,500,000 FROM 1904 TO 1949 (DINGS, 1951)

GEOLOGY AND MINERALOGY

AGE OF MOST 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, INTERMEDIATE 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 FISSION VEINS, WITH STEEP DIP FORMING CONJUGATE SYSTEMS ONE STRIKING ABOUT N20E, PARALLEL TO JOINTING, AND THE OTHER W50E 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 (GEOLGY 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-ZN DISTRICT, INTERMEDIATE ZONE OF PB-ZN-AG-MINOR AU, AND AN INTRUSIVE CORE OF Cu-MD MINERALIZATION WITH THE INTERMEDIATE ZONE LATER THAN & SUPERIMPOSED ON THE HIGHER TEMPERATURE CENTRAL ZONE (EIDEL ET AL., 1968, P. 1272).

GENERAL REFERENCES

1) IMPORTANT WALLAPAI MINING DISTRICT REFERENCES:
MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P.

2) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:
9) Breake, William Edward, 1972, A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT: ARIZONA DOCTORAL, COLUMBIA.
17) Malach, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
18) Malach, R., 1975, HUALAPAII MOUNTAINS: KINGMAN, AZ., 48 P.
20) Jancic, Thomas, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONG. JOUR., V. 51, NO. 1, P. 40-44.
30) Thomas, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAII DISTRICT: CALIF. INST. TECH., PH.D. THESIS, 187 P.
31) General GEOLOGY OF CERBAT MTS: ORIZ.: MINING JOUR., 1920, V. 8
8) Householder, R., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZ.: UNIV. MISSOURI, M.S. THESIS.
10) Lee, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOGICAL SURVEY, BULL. 352, 96 P.
11) Mason, R.T., 1917, MINING IN NORTHWESTERN ARIZONA: PP. 527-629, MIN. AND SCI. PRESS.
12) Malach, R., 1975 CERBAT MOUNTAIN COUNTRY: EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
13) McKnight, E.T., 1933, MESITHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
SYNONYM NAME------------------------ MINES INCLUDED IN THE CHLORIDE SUBDISTRICT ARE THE TENNESSEE MINE, SCHUYLKILL MINE, ELKHART MINE, DISTAFF MINE, MOLLIE GIBSON MINE, HERCULES MINE, BADGER MINE, EMPIRE MINE, PAYROLL MINE, REDEMPTION MINE, LUCKY BOY MINE, RAINBOW MINE, SANDA MINE (MO), MINNESOTA-CANNON MINE, ALTATA MINE, PINKHAM MINE, MIDNIGHT MINE, SILVER HILL VEIN, JUNO MINE, MERRIMAC MINE, TUCKAMOE MINE, & TINTIC MINE.

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDIST/WALLAPA DIST/W CERBAT MTS

COUNTRY CODE--------------- US

STATE CODE-------------- 04

QUAD SCALE QUAD NO OR NAME CHLORIDE, ARIZ.

LATITUDE LONGITUDE
35-24-48N 114-11-56W

UTM NOOKING UTM EASTING UTM ZONE NO
3922300. 754360. *11

UTM....... 24 N 23 N
RANGE.... 18 W 16W
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, HOMNSILVER, ARGENTITE, RUBY SILVER, CHALCOCITE, OXIDIZED LEAD & COPPER MINERALS

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 
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.... NWCW

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

GEOLGY 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 ......... GANIGUE IS QUARTZ WITH CALCITE & OTHER CARBONATES

IMPORTANT ORE CONTROL/LOCUS.... MANY ORE SHOOTS OCCUR AT INTERSECTIONS OF SPURS OR 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:


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


8) MALACH, R., 1975, CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 142 P.

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


3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:


6) DING, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS; WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 130-142, MPA.

7) DRAKE, WILLIAM EDWARD, 1972, A STUDY OF MINE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.


14) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 40 P.


16) JANIC, THOMAS, 1959, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONG. JOUR., V. 51, NO. 1, P. 40-44.


22) SCHEPP, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: MIN. SCI. PRESS, V. 113, NO. 21, P. 733-737.


25) GILETTI, B.J., AND DIAZ, P.E., 1961, RUTICIENTI-STRONTIUM AGES OF SOME BASEMENT ROCKS FROM ARIZONA AND
NORTHWESTERN MEXICO: GEOL. SOC. AMERICA BULL., V. 72, 639-644.
8) HOUSEHOLDER, E.E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
10) LEE, W.L., 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.
13) MCKNIGHT, E.T., 1933, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
19) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.................. N030364
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.................. MINERAL PARK SUBDISTRICT INCLUDES THE RURAL, BUCKEYE, ARK, QUEEN BEE, TYLER, KEYSTONE, FAIRCHILD, METALLIC ACCIDENT, LADY BUG, STANDARD, & GOLDEN STAR. (SCHRAEDER, 1909) AND THE MINERAL PARK MINE (ITHACA PEAK OREBODY, GROSS PEAK & TURQUOISE MNT DEPOSITS)
MINING DISTRICT/AREA/SUBDIST. MINERAL PRARK 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, MOLYBDENUM, ARSENOPYRITE, GALENA, SPHALERITE

MINOR ORE MINERALS:
ARGENTITE, NATIVE SILVER, COPPER, HORN SILVER, CERUSITE

EXPLORATION AND DEVELOPMENT
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 & GNEISSOIDS GRANITE

AGE OF ASSOC. IGNEOUS ROCKS... CRET
IGNEOUS ROCK TYPES............. COARSE GRANITE PORPHYRY CUT BY DICHES OF RHYOLITE, DIABASE & MINETTE

AGE OF MINERALIZATION........... CRET

PERTINENT MINERALOGY.......... QUARTZ GAN QuG, 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
3) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DICTIONARY, COLUMBIA.
4) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.
2) MINERAL PARK REFERENCES:


6) SIDINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. OUR. MINES BULL. 156, P. 138-142. MAP.


12) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.

13) JANCIC, THOMAS, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.


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.
15) INOAN, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOLO. SURV. BULL.
871, PP. 18-19.
19) TOLL, R.L., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENG. WORLD, V. 35, P. 243-244.
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.
SYNONYM NAME: MINES INCLUDED IN THE BATMAN DISTRICT ARE: TOM REED MINE (PASadena AND BLACK EAGLE MINEs, TIP TOP ORE BODY & BEN HARRISON SHAFT, OLLA BATMAN SHAFT, BIG JIM-AZTEC ORE SHOOTS, AZTEC CENTER CLAIM, GREY EAGLE-RALD 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 OATMAN DISTRICT: BOUNDARY COVE MINE, AMERICAN MINE, MEALS MINE, TANGO MINE, RATION MINE, RUTH MINE, NEW YORK MINE, MIDWAY MINE, RECORD LODE MINE, NEGLECTED MINE, SUN DIAL MINE, OATMAN AMIG. MINE, HERCULES MINE, PITTSBURG MINE, IVANHOE MINE, ARIZ. GOLD STAR MINE, BIG LODE MINE, TIMES MINE, OATMAN BELLE MINE, GOLD RANGE MINE, MILLER MINE, SURPRISE MINE, COMSTOCK MINE, NORTH STAR MINE, GOLD REED MINE, BLUE BIRD MINE, ARIZONA REX MINE, BONANZA MINE, UNITED WESTERN MINE, ARIZONA CENTRAL MINE, RED CLOUD MINE, FESSENDEN MINE, LITTLE JIM MINE, MOHAWK CENTRAL MINE, OATMAN UNITED MINE, LUCKY BAY MINE, AZTEC MINE, OATMAN 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, OATMAN QUEEN MINE, SWISS AMERICAN MINE, GOLDEN MINE, GILT EDGE MINE, VIVIAN MINE, WINCHESTER MINE, ALCYONE MINE, UNITED OATMAN MINE, PEERLESS MINE, IOWA MINE, LUCKY SAM MINE.
ALTITUDE.. 2680 FT
POSITION FROM NEAREST PROMINENT LOCALITY: NEAR OATMAN, 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. 
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
FISSURE VEIN
FORM/SHAPE OF DEPOSIT: STRINGERS, PINCH & SWELL

PRODUCTION
SMALL PRODUCTION

GEOLGY AND MINERALOGY
AGE OF HOST ROCKS................. TERT
HOST ROCK TYPES................. OATMAN ANDESITE, GOLD ROAD LATITE, ALCYONE TRACHYTE, TIMES PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS.. TERT
IGNEOUS ROCK TYPES.............. OATMAN 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 PYRROLUSITE

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) LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE OATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P.

2) LAUSEN, CARL, 1931, GOLD VEINS OF THE OATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.

3) RANSOME, F.L., 1923, GEOLOGY OF THE OATMAN GOLD DISTRICT, ARIZONA: U.S. GEOL. SURVEY, BULL. 743, 58 P., MAP.


2) OATMAN ARTICLES:


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.


18) Toll, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
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, GEOLOG. SERIES 14, 54 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 0030354
RECORD TYPE. 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. I
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 DIS./N. HUALAPAI MTS
COUNTRY CODE. US
STATE CODE. 04
COUNTY. MOHAVE
QUAD SCALE. 1: 0024000
QUAD NO OR NAME. DEAN PEAK, ARIZ.
LATITUDE. 35-06-33N
LONGITUDE. 113-48-39W
UTM NORTHING. 1148665
UTM RZONE NO.
UP.
KANGE. 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.: PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- QUARTZ VEINS, DISSEMINATED

SIZE/DIRECTIONAL DATA:
- STRIKE OF OREBODY: NW

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
- THE DISTRICT WAS DISCOVERED IN 1865 BUT LITTLE WORK WAS DONE UNTIL IT WAS REORGANIZED IN 1871 (NOLAN ET AL., 1936, P. 16)

PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, GRADE, REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE ACC 3.982 TONS 1904-1932 22.63 OZ/T AG 0.16 OZ/T AU, 6.04% CU, 1.3% Pb</td>
<td></td>
<td></td>
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<tr>
<td>16</td>
<td>ORE EST 40 TONS 1871-1974 AU-AG, Pb-Zn, Cu, Mo-W</td>
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<tr>
<td>17</td>
<td>AG ACC 90.093 OZ 1904-1932 22.63 OZ/T</td>
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<tr>
<td>18</td>
<td>AU ACC 0.64322 OZ 1904-1932 0.16 OZ/T AU</td>
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<tr>
<td>19</td>
<td>CU ACC 3.149 LB 1904-1932 0.04% Cu</td>
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<tr>
<td>20</td>
<td>Pb ACC 104.248 LB 10.9% Pb</td>
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</table>

SOURCE OF INFORMATION (PRODUCTION): HEWETT ET AL. 1936 P. 16

PRODUCTION COMMENTS:
- 1904-1932 RECORDED PRODUCTION WAS 3,982 TONS OF ORE YIELDING 643,222 OZ AU, 90,093 OZ AG, 3,149 LBS CU, 104,248 LBS Pb, VALUED IN ALL AT 103,669,369. VUICH, 1974, P. 9, STATES ESTIMATED TOTAL PRODUCTION WOULD APPROXIMATE 40,000 TONS OF ORE MINED FOR AU, AG, Pb, Zn, Cu, Mo & N.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS:
- PREC & CRET.

HOST ROCK TYPES:
- RED GRANITE

AGE OF ASSOCIATED IGNEOUS ROCKS:
- CRE1

IGNEOUS ROCK TYPES:
- PORPHYRY DIKES

PERTINENT MINERALOGY:
- QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCIATED ZONES & VERTICAL FRACTURES

SIGNIFICANT ALTERATION:
- POTASSIC
- SEICITIC
- ARGILLIC
- PROPYLLITIC
- PYRITE HALO

COMMENT (GEOLOGY AND MINERALOGY):
- INNERMOST ZONE = Mo—W
- OUTWARD PROGRESSION TO Cu—Mo—PB—Zn—Ag, TO Au—Ag

GENERAL REFERENCES
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: NOHO 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.
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., 63 P.
9) Malach, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 48 P.
13) Wilson, C.B., 1911 TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 146, GEOL. SERIES 14, 54 P.
15) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 45, 52.
21) Horr, S.W., 1944, TUNGSTEN DEPOSITS IN THE NIAGARA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONAN.
22) U.S. GEOL. SURVEY BULL. 940-1, P. 247-246, MAPS.
23) Householder, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
24) Kersh, R.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEO. SOC. AMERICA, V. 50, 15, 241 P.
27) Hauser, R.T., 1917, MINING IN NORTHERN ARIZONA, PP. 927-928, MIN. AND SCI. PRESS.
28) Hauser, R.T., 1916, MINING IN NORTHERN ARIZONA, PP. 927-928, MIN. AND SCI. PRESS.


39) General geology of valley near Hualapai Mts:


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030349
RECORD TYPE A2
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE A I
MAP CODE NO. OF REC.

REPORTER
NAME. WILT, JAN C
DATE. 79 07

NAME AND LOCATION
MINING DISTRICT/AREA/SUBDIST. BORIANA DIST. (CEDAR VALLEY) 1/4, HUALAPAI MTS
COUNTRY CODE. US
STATE CODE. 04
COUNTY. MOHAVE

QUAD SCALE. 1: 0024000
QUAD NO OR NAME. WABAYUMA PEAK, ARIZ
LATITUDE. 34-56-15N
LONGITUDE. 113-54-53W
UTM NORTHING. 3869730
UTM EASTING. 233770
UTM ZONE NO. 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, CUPROTUNGSTATE

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- QUARTZ VEINS

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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<td>15</td>
<td>EST</td>
<td>100 $</td>
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<tr>
<td>16</td>
<td>ORE ACC</td>
<td>15,228 TONS</td>
<td>1904-1932</td>
<td>3.079 OZ/T AG, 0.095 OZ/T AU, 1.025% CU, 0.28% PB, 0.0075% ZN</td>
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<tr>
<td>17</td>
<td>AU ACC</td>
<td>1,549 OZ</td>
<td>1904-1932</td>
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<td>49,426 OZ</td>
<td>1904-1932</td>
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<td>322.426 LB</td>
<td>1904-1932</td>
<td>1.025% CU</td>
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<td>1904-1932</td>
<td>89.242 LB</td>
<td>0.28% PB</td>
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<tr>
<td>21</td>
<td>ZN ACC</td>
<td>2.372 ZN</td>
<td>1904-1932</td>
<td>0.0075% ZN</td>
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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
3) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 941, 1-1 p., 247-264, MAPS.
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, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
19) TOVOT, W.L., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. SCI. PRESS, V. 35, P. 243-244.
20) WICKES, L.W., 1917, MOLYBDENUM IN THE HUALAPAI MOUNTAINS: U.S. GEOLOGICAL SURVEY BULL. 397, 266 P., P. 47.
MOLYBDENITE, CHALCOPYRITE, GOLD, SILVER, PYRITE, ARSENO PYRITE, CUPRO TUNGSTITE

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
QUARTZ VEINS, DISSENI

PRODUCTION
SMALL PRODUCTION

GEOLoGY AND MINERALOGY
AGE OF MOST ROCKS................. CRET, PREC
MOST 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
3) HORTON, F.W., 1916. MOLYBDENUM: ITS ORES AND THEIR CONCENTRATION, WITH A DISCUSSION OF MARKETS, PRICES, AND USES: U.S. BUR. MINES BULL. 111, 112 P.
4) MOLYBDENUM IN HUALAPAI MTS:
ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
6) DEPT. MINERAL RESOURCES 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
10) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOL. SURVEY BULL. 900-1, P. 247-264, MAPS.

General Geology of Hualapai Mts:

Geology of Valley Near Hualapai Mts:
42) Morrison, R.B., 1940, Groundwater Resources of the Big Sandy Valley, Mohave County, Arizona: Ariz. State
WATER COMMISSION, 6 P., MAP; U.S. GEOLOGICAL SURVEY Mimeo Rep., 6 P. (4)
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. GEOLOGICAL SURVEY Mimeo Rep., 17 P.
(4) 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
(4) Ross, C.S., 1928, Sedimentary Alcalite; Am. Mineralogist, V. 15, 6, P. 627-629
(5) Trower, F.R., 1963, Geology and Promising Areas for Ground-Water Development in the Hualapai Indian Reservation, Arizona; U.S. GEOLOGICAL SURVEY, WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUS., TABLE, GEOLOGICAL MAP.
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... 4030374
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 I: 0024000 DIAMOND JOE PEAK, ARIZ.

LATITUDE LONGITUDE
34-49-37N 113-47-38W

UTM NORTHING UTM EASTING UTM DISTANCE

TWP ...... 17N
RANGE .... 14W
SECTION .... 29 WC
MERIDIAN .. GILA & SALT R.

ALTITUDE .. 3800 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 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
2) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
6) HAYES, V.G. 1908, ARIZONA IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY, MIN. RES.
14) WILSON, E.D., 1941 TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOLOGY SERIES 14, 54 P.
16) HANSEN, S.C., 1977 THE ECONOMIC GEOLOGY OF THE WIKIEUP PROSPECT, MOHAVE COUNTY, ARIZONA.
Aztec Shaft

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.................. OATMAN ANDESITE, NEAR GOLD ROAD LATITE

AGE OF ASSOC. IGNEOUS ROCKS.. OATMAN ANDESITE IS YOUNGER THAN 22.6 MYA OLDER THAN 10.4 MYA (THORSON)

IGNEOUS ROCK TYPES.............. OATMAN 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 Pb-Co by blowpipe tests in Wulfenite

GENERAL REFERENCES

1) LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE OATMAN AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P., PLATE 1, P. 74-80, 101-104.
2) LAUSEN, CARL, 1931, GOLD VEINS OF THE OATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PhD THESIS, 125 P., MAPS.
43) Black, M.G., General Geology:
53) Geology & ore deposits Mohave Co:
63) Malach, R., 1977, Mohave County Mines: Mohave County Board of Supervisors, Kingman, Ariz. 63 p., p. 15.
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: OATMAN DIST.

COUNTRY CODE: US
STATE CODE: 04
COUNTRY: MOHAVE

QUAD SCALE: 1: 0024000
QUAD NO OR NAME: MOUNT NUTT, ARIZ.

LATITUDE: 35°01'10"N
LONGITUDE: 114°22'19"W
UTM NORTHING: 3878170
UTM EASTING: 739770
UTM ZONE NO: 11
WPT: 19N
RANGE: 20W
SECTION: 23 SE OF SW
MERIDIAN: GILA & SALT
ALTITUDE: 2660 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 3/4 MI. S.E. OF OATMAN

COMMODITY INFORMATION

COMMODITIES PRESENT: AU AG MO PB CU

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

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
WULFENITE FILMchalcopyrite, 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 800 level
was $4.90/ton. Ratio 2 oz Au/oz Ag.

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
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.)

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<td>1934-1942</td>
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SOURCE OF INFORMATION (PRODUCTION):
LAUSEN, 1931, P. 105

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS................. TERT
HOST ROCK TYPES.................... OATMAN ANDESITE, NEAR GOLD ROAD LATITE

AGE OF ASSOC. IGNEOUS ROCKS........ TERT
IGNEOUS ROCK TYPES............... OATMAN 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-ATZEC 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 SHOOTS

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) OATMAN IMPORTANT ARTICLES:


3) LAUSEN, CARL, 1931, GOLD VEINS OF THE OATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PHD THESIS, 155 P., MAPS.


2) OATMAN:

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.


14) GARDNER, E.D., 1936, GOLD MINING AND MILLING IN THE BLACK MOUNTAINS, WESTERN MOHAVE COUNTY, ARIZONA, U.S. BUR. MINES INF. CIRC. 6901.
18) LAUSEN, CARL, 1942, THE BATMAN AND KATHERINE DISTRICT, ARIZONA, IN ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES: PRINCETON UNIV. PRESS, P. 226-229.
29) RICKARD, T.A., 1921, TOM REED GOLD MINES VS. UNITED EASTERN COMPANY: MIN. SCI. PRESS, V. 122, P. 677-681.
32) SPILLMAN, CHARLES, 1931, BIG JIM REOPENS: MIN. JOUR., V. 14, NO. 20, P. 61-68.
33) WEBB, MURIEL S., 1959, OATMAN; ARIZONA'S 20TH CENTURY GOLD CAMP: MIN. WORLD, V. 18, NO. 70, P. 68.
5) GEOLOGY AND ORE DEPOSITS MOHAVE CO:
   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.
   3) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
   4) LEE, W.I., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
   6) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-629, MIN. AND SCI. PRESS.
BULL CANYON GROUP
IGUANA CLAIMS, ROBINET (ROBINETTE) RIDGE. CLAIMS LOCATED ABOUT 1926 BY JIM CRAIG & WILLIAM BOKE, DALTON ROBINETTE & R. FETIS OWNERS IN 1933-4, BORIANA MINING CO., DYE & BATHRICK PURCHASED IN 1946.

BORIANA DISTRICT CEDAR VALLEY DIST W HUALAPAI MTS

COUNTRY CODE: US
STATE CODE: 04
COUNTY: MOHAVE

QUAD SCALE: 1:24000
QUAD NO OR NAME: WARAYNE PEAK, ARIZ

LATITUDE: 34-56-57N
LONGITUDE: 113-54-21W

UTM NORTHING: 3871065
UTM EASTING: 234640
UTM ZONE NO: 12

THP: 18N
RANGE: 15W
SECTION: 07 10
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, DISSEMINATED

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 (DESCRIPTION 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.)

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<td>15</td>
<td>CONC</td>
<td>.03</td>
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<td>69% WO3 (DALE, 1961, P. 84)</td>
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<td>17</td>
<td>ORE ACC</td>
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<td>TONS 22 UNITS WO3 (DALE, 1961, P. 84)</td>
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GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS................. PREC
HOST ROCK TYPES.................... PHYLITIC & GRANITE

AGE OF ASSOCIATED IGNEOUS ROCKS... CRET.
IGNEOUS ROCK TYPES............... ADACITIC GRANITE, APLITE

PERTINENT MINERALOGY.............. FLUORITE, QUARTZ VEINS, BERYL WITH QUARTZ VEINS ON OUTER EDGE OF VEINS & IN VEINLETS ALONE

IMPORTANT ORE CONTROL/LOCUS..... HEAVIEST CONCENTRATION OF SCHELITE & 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
3) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 740-1, P. 297-304, MAPS.
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., 64 P.
9) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
10) MINING WORLD, V. 3, NO. 4, 1941.
16) UNIVERSITY OF IDAHO, MUSEUM, IDAHO USA, IDAHO USA, DACTYL, UNIVERSITY OF IDAHO, MUSEUM, IDAHO USA, 162 P., 1977.
19) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIVERSITY OF 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, UNIVERSITY OF ARIZONA.
21) LEE, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 352, 96 P.
22) MAISON, R.T., 1947, MINING IN NORTHWESTERN ARIZONA: MINING WORLD, V. 33, NO. 1, P. 169-172.
31) MUMSLER, T.M., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, RAP. 4214, 14 P.
34) SCHROEDER, T.C., 1916, THE ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: MINERALOGICAL SOCIETY OF AMERICA, V. 113, NO. 21, P.
SCHRADER, F.C., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AM. INST. MIN. ENG. TRANS., VOL. 56, PP. 195-236.
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.
TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-2449.
TOVOTE, W.L., 1907, MOHAVE COUNTY, ARIZONA: UESTERREICHISCHE ZEITSCHRIFT FUR BERG- UND HUTTENWESEN, V. 55, P. 9-10.
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.
RECORD IDENTIFICATION
RECORD NO. *********** MD30356
RECORD TYPE. ********** KI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. ?
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. 1: 0024000
QUAD NO OR NAME. HUALAPAI PEAK NE, ARIZ
LATITUDE. 35-07-40N
LONGITUDE. 113-49-32W
UTM NORTHING. 3890910.
UTM EASTING. 242660.
UTM ZONE NO. 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 NO 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(DESCRIPTION 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 MUGONITE

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: UNPUBL. 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 GEOL-OGY HUALAPAI MTS:

AGE OF HOST ROCKS.............. PREC
AGE OF ASSOC. IGNEOUS ROCKS.. CRET
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: UNPUBL. 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 GEOL-OGY HUALAPAI MTS:

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 MUGONITE

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: UNPUBL. 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 GEOL-OGY HUALAPAI MTS:


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.
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<table>
<thead>
<tr>
<th>NAME AND LOCATION</th>
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<tbody>
<tr>
<td>DEPOSIT NAME</td>
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<tr>
<td>MINING DISTRICT/AREA</td>
</tr>
<tr>
<td>COUNTRY CODE</td>
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<tr>
<td>STATE CODE</td>
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<tr>
<td>COUNTY</td>
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<tr>
<th>QUAD SCALE</th>
<th>QUAD NO OR NAME</th>
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<tr>
<td>1: 0062500</td>
<td>GARNET MIN., ARIZ.</td>
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<tr>
<th>LATITUDE</th>
<th>LONGITUDE</th>
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<tbody>
<tr>
<td>35-56-36N</td>
<td>114-06-38W</td>
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<tr>
<th>TWP</th>
<th>RANGE</th>
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<tr>
<td>30N</td>
<td>17W</td>
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<th>SECTION</th>
<th>MERIDIAN</th>
<th>ALTITUDE</th>
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<tbody>
<tr>
<td>33 SE</td>
<td>GILA &amp; SALT R., ARIZ.</td>
<td>3720 FT</td>
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| POSITION FROM NEAREST PROMINENT LOCALITY: | 15 MILES SOUTH OF PIERCE TERRY |

<table>
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<tr>
<th>COMMODITY INFORMATION</th>
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<tbody>
<tr>
<td>COMMODITIES PRESENT</td>
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<th>PRODUCER(PAST OR PRESENT):</th>
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<tr>
<td>MAJOR PRODUCTS:</td>
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<td>MINOR PRODUCTS:</td>
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<table>
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<tr>
<th>MAIN ORE MINERALS:</th>
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<td>GOLD</td>
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<tr>
<th>MINOR ORE MINERALS:</th>
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</thead>
<tbody>
<tr>
<td>WULFENITE</td>
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</table>
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-PLAIDCLASE GNEISS INTERLAYERED WITH CORDIERITE GNEISS, BIOTITE-GARNET-SILLIMANITE SCHIST, & AMPHIBOLITE. THIN LENSES OF MARBLE, CALC-SILICATE GNEISS, BANDED IRON FORMATION, AND METAMORPHIC ROCKS RECOGNIZED. FANGLomerate, MODERATELY TO WELL CONSOLIDATED ALLEVAL FAN DEPOSITS OF THE MUDDY CREEK FORMATION. INCLUDES LENSES OF RHYOLITIC TUFF & MUDFLOW BRECCIA (BLACET, 1975)

AGE OF ASSOC. IGNEOUS ROCKS... MIOCENE-PLEISTOCENE (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
PERCENT MINERALOGY......... QUARTZ-CARBONATE-SULFIDE VEINS, DISSEM. GOLD WITH FLUORITE

IMPORTANT ORE CONTROL/LOCUS... GOLD-BEARING QUARTZ-CARBONATE-SULFIDE VEINS OCCUR IN AMPHIBOLITE METASEDMENTS & 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
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12) WILSON, E.D., 1939, ARIZONA LODE GOLD MINES: ARIZ. BUR. MINES BULL. 139, 248 P., P. 82-83.
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21) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
22) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
23) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
24) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
26) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
27) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.
28) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZ.: U.S. BUR. MINES INFORMATION CIRCULAR I.C. 8070, 30 P.


COPPER CANYON MINES
SYNONYM NAME: 5 CLAIMS-COPPER WONDER 3-5, GREAT CANYON, COPPER CANYON
MINING DISTRICT/AREA/SUBDIST: DIAMOND JOE DISTRICT (DELUCE WASH AREA)/EAST HUALAPAI HTS.
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE: 1, 2
MAP CODE NO. OF REC.: 1, 2
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 (DELUCE WASH AREA)/EAST HUALAPAI HTS.
COUNTRY CODE: US
STATE CODE: 04
COUNTY: MOHAVE
QUAD SCALE: 1: 0024000
QUAD NO OR NAME: DIAMOND JOE PEAK, ARIZ
LATITUDE: 34°50'-20"N
LONGITUDE: 113°47'-40"W
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 ASSOCIATED 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 CUTTING GRANITE

GENERAL REFERENCES

1) DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZONA DEPT. MINERAL RESOURCES, PHOENIX.
4) MOLYBDENUM IN DELUGE WASH AREA:
   BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 453.
5) FRONDEL, W., AND F.E., WICKMAN (1970) MOLYBDENITE POLYTYPES IN THEORETICAL AND OCCURRENCE, II. SOME
   NATURALLY-OCcurring POLYTYPES OF MOLYBDENITE: AMER. MIN. 55, 1057-1075.
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   180, P. 223-238, P. 237.
9) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.
11) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
12) ORE & GEOLOGY OF HUALAPAI MTS.
13) ORE GEOL. DEPARTMENT OF GILA, YAVAPAI, AND MOHAVE COUNTIES, ARIZONA: U.S. BUR. MINES
   INFORMATION CIRCULAR IOC. 9028, 104 P.
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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., RUEBY, R.W., AND SCHALLER, W.T., 1936, MINERAL RESOURCES
   OF THE REGION AROUND BOULDER DAM: U.S. GEOl. SURVEY BULL. 971, 197 P.


ARIZONA: U.S. GEOL. SURVEY WATER SUPPLY PAPER 1899-H, 37 P.
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 HEM. J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS
DEPOSIT NAME: DELUGE WASH AREA
SYNONYM NAME: INCLUDES LEVIATHAN, AMERICAN, GOLDEN COMSTOCK, WALRON & VENTURE, OLD MILL SITE, GREAT REPUBLIC, DIAMOND JOE, HAME, TAYLOR GANNIS, YELLOW BASIN, PASADENA


COUNTRY CODE: US
STATE CODE: 04
COUNTY: MOHAVE

QUAD SCALE: DIAMOND JOE PEAK, ARIZ.
LATITUDE: 34° 49' N
LONGITUDE: 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. P
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

GEOLGY 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 F

AGE OF MINERALIZATION........ CRET

IMPORTANT ORE CONTUL/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 TRENDS 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 PROPERTIES (ANTHONY ET AL 1977 P 141)

GENERAL REFERENCES
5) THEIKES, E.C., 1906, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOLOGICAL SURVEY, MIN. RES.
6) THEIKES, E.C., 1908, PT. 1, P. 203-312.
7) THEIKES, E.C., 1908, PT. 1, P. 203-312.
8) THEIKES, E.C., 1908, PT. 1, P. 203-312.
9) LEBEK, H.W., 1930, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 45-52.
10) BOK, E.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.
110, P. 230-238, P. 237, 27.
9) MALACH, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, ARIZ., 63 P., P. 57.


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14) WILSON, F.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. NUR. MINES BULL. 148, GEOLOGICAL MEMOIR 14, 54 P.

15) VON HAECKEL, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, MOHAVE MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, ARIZ. UNIV., 77 P., MAPS.


17) UNIV. OF IDAHO MOSCOW, IDAHO USA DOCTORAL THESIS, UNIV. OF IDAHO, MOSCOW, IDAHO, USA, 162 P., 1977.


20) HOBBES, S.W., 1944, TUNGSTEN DEPOSITS IN THE ARIZONA DISTRICT AND THE AGUARUS RANGE, ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 490-1, P. 267-264, MAPS.

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42) TOLL, R.M., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MINERAL AND SCIENCE PRESS, V. 35, P. 243-244.


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 Mimeo. 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............... 9030347
RECORD TYPE............. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC... 1

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 OWENS DISTRICT IS TO THE SOUTH IN THE MCCRACKEN MTS. BUT HAS 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
34-38-18N 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS.............. CRET & PREC.
HOST ROCK TYPES................ QUARTZ MONZONITE & DACITE PORPHYRY, PRECAMBRIAN GNEISS

AGE OF ASSOCIATED 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.
2) GENERAL GEOLOGY HUALAPAI Mts.
3) ARIZ. DEPT. MIN. RES., 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
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5) INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
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13) KERR, D.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM., V. 4, 169 P.
14) KESSLER, E.J., 1976, RUBIDIUM-SYNTHEMIOU GECHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: ARIZ. GEOL. SURVEY BULL. 76, 169 P.
17) KRENSLO, T.H., 1948, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R-I. 4214, 14 P.

General geology of artillary area:
43) Head, R.E., 1. Artillery peak ore (microscopic studies, analyses): USBM, RI 3560, P. 6-7 (1941).
54) Malach, R., 1974. Mohave County sketches of early days: Kingman, Arizona, 162 P.
57) Shackelford, I.J. Structural geology of the Ramhine Mountains, Mohave County, Arizona.


NAME AND LOCATION
DEPOSIT NAME: Downey & Galen
SYNONYM NAME: D & G Mining Co; Black Mountain Prospect
MINING DISTRICT/AREA/SUBDISTRICT: Eldorado/N. Black Mts
COUNTRY CODE: US
STATE CODE: 04
COUNTY: Mohave

QUAD SCALE: 1: 0062900
QUAD NO OR NAME: MT Perkins, Ariz

LATITUDE: 35°43'23"N
LONGITUDE: 114°33'10"W

UTM NORTHING: 3959800.0
UTM EASTING: 721620.0
UTM ZONE NO: 11

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:
Mo, Y, Cu, Zn, Ni, Pb, Zr

ANALYTICAL DATA (GENERAL)
LARGE GEOCHEM ANOMALY
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN, PORPHYRY

DESCRIPTION OF WORKINGS

GEOPHYSICS & DRILLING BY BEAR CREEK ETC; NEW JERSEY ZINC; GEOCHEMICAL SURVEYS

GEOLGY 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:
3) OXIDIZED IMPORTANT ARTICLES:
   LAUSEN, CARL, 1931, GEOLOGY AND ORE DEPOSITS OF THE OXIDIZED AND KATHERINE DISTRICTS, ARIZONA: ARIZ. BUR. MINES BULL. 131, 126 P.
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COUNTY, ARIZ.: U.S. GEOL. SURV. BULL. 397, p. 186-190.
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59) Malach, R., 1974. MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZONA, 142 P.
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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: 1:002,400
QUAD NO OR NAME: DIAMOND JOE PEAK, ARIZ

LATITUDE: 34°49′-27″
LONGITUDE: 113°46′-36″

UTM NORTHING: 17N
UTM EASTING: 14W
UTM ZONE NO: 29E

TWPN.... 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 C. 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

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 M.Y. 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

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14) WILSON, E.D. (1941) TUNGSTEN DEPOSITS OF ARIZONA. ARIZ. BUR. MINES BULL. 148, GEOLOGICAL 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.
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RECORD IDENTIFICATION
RECORD NO. 4030382
RECORD TYPE  N1
COUNTRY/ORGANIZATION  USGS
INFORMATION SOURCE  1,2
MAP CODE NO. OF RECORD

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 HTS
COUNTRY CODE  US
STATE CODE  04
COUNTY  MOHAVE
QUAD SCALE  1: 0024000
QUAD NO OR NAME  CERBAT
LATITUDE  35-27-30N
LONGITUDE  114-09-25W
UTM NORTHING  3916260.
UTM EASTING  758370.
UTM ZONE NO  +11

TWP  23N
RANGE  18W
SECTION  25 NC
MERIDIAN  GILA & SALT R.
ALTITUDE  4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: BISMARK 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: C&A 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
5) OTHER IMPORTANT GENERAL PARK REFERENCES:
THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS. 187 P.


1) MINERAL PARK REFERENCES:


4) DINGES, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156. P. 138-142. MAP.


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4) OTHER REFERENCES IN CERBAT MTS:


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


21) Wilson, E.D., AND Moore, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
NAME AND LOCATION
DEPOSIT NAME..................... GROSS MOLYBDENITE PROSPECTS
SYNONYM NAME..................... MINERAL PEARK 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 BISMARCK 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 (DESCRIPTION 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


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ORIGIN: ECON. GEOLOG., V. 61, P. 1429-1435.
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NAME AND LOCATION
DEPOSIT NAME: ITHACA PEAK OREBODY
SYNONYM NAME: MINERAL PARK PROPERTY
MINING DISTRICT/AREA/SUBDIST: WALLA PAI DIST/MINERAL PARK SUBDIST/CERBAT MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: MOHAVE
QUAD SCALE: 1: 0024000
QUAD NO OR NAME: CERBAT
LATITUDE: 35-21-50N
LONGITUDE: 114-08-30W
UTM NORTHING: 3917250
UTM EASTING: 795800
UTM ZONE NO: 11
UTM ARCR: 235
RANGE: 17N
MERIDIAN: GILA & SALT R.
ALTITUDE: 5206 F1

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 CHALCONEHLE, 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 TONS  YEAR  GRADE, REMARKS
15  ORE EST. 70000  1964-1966  0.34% Cu, 0.025% Mo, TRACE Pb, Zn, Au, Ag

RESERVES AND POTENTIAL RESOURCES

ITEM  ACC AMOUNT TONS  YEAR  GRADE OR USE
1  ACC 50,000  1966  0.76% Cu EQUIVALENT

SOURCE OF INFORMATION (RESERVES/POT RESOURCES). FIDEL, ETC., 1966, 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 & GNFISS, & 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 & DISSEMINATION IN GRANITE; STRONGLY MINERALIZED AREAS COINCIDE WITH THOROUGHLY FRACURED ROCKS. ENRICHED SULFIDE MINERALIZATION GENERALLY CAN FORM TO TOPOGRAPHY OF ATHACA 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 ET AL., 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 ET AL., 1968, P. 1266)

SIGNIFICANT ALTERATION:
FERRMOLYBDITE IN OXIDE ZONE AS COMMON REPLACEMENT PRODUCT OF MOLYBDENUM (ANTHONY ET AL., 1977) WITH P THE CORE OF A QUARTZ MONZONITE STOCK SILICIFICATION & SERICITIZATION COMMON. LEACHED ZONE FORMED IN 1915 ORILL HOLE TO 290 FEET; ENRICHED ZONE REACHED 520 FT. (ANDERSON, 1968). THE ZONE OF INTENSE SERICITIZATION & ARGILLIZATION, IS COEXTENSIVE WITH COPPER-MOLYBDENUM PROFILES IN SPACE. THE FIRST STAGE HYPOGENE MINERALIZATION & ALTERATION ARE COINCIDENT IN TIME. SERICITIZATION, ARGILLIZATION & PROPILITIZATION ARE PERVERSIVE ALTERATIONS. THERE WAS NO SIGNIFICANT LEACHING OR ENRICHMENT OF MOLYBDENUM.

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
SPHALERITE & CALENE 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 IDENTIFIED GREEN PHOSPHATE MINERALS AS OXIDIZED COPPER. CAPPING OVER SCHIST ORE INCLUDES COPPER SULFATES, GYPSUM & SOME AZURITE & MALACHITE AFTER CUPRITE REPLACING NATIVE COPPER. FERRMOLYBDITE IS COMMON REPLACEMENT PRODUCT OF MOLYBDENUM THROUGHOUT CAPPING. IRON OXIDE AGGREGATE CONTAIN FERRMOLYBDITE & POSSIBLY AKAGANEITE. (EIDEL 1968 P. 1274)

GENERAL REFERENCES

1) MINERAL PARK REFERENCES:
DRAKE, WILLIAM EDWARD, 1977, A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL: COLUMBIA.
KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA; ARIZ. BUR. MINES BULL. 180, P. 230-238.
THOMAS, B.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS, 167 P.
2) MINERAL PARK REFERENCES:


5) DINDINS, M.G., 1930, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAII MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 156, P. 138-142, MAP.


9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.


12) JANCIC, THOMAS, 1965, MINING DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS JOUR., V. 51, NO. 1, P. 40-44.


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


6) MALACH, R., 1975, CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 40 P., P. 12.


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13) MCKNIGHT, E.T., 1923, MESOTHERMAL SILVER-LEAD-ZINC DEPOSITS: AM. INST. MIN. ENG., LINDGREN VOL., P.
19) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
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22) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. 4030378
RECORD TYPE............. A1
COUNTRY/ORGANIZATION... USGS
INFORMATION SOURCE... 1.7
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 WIKEUP-KINGMAN HIGHWAY UP KAABA 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. PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPT. OF WORKINGS):
KABA MINING & MILLING 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE ACC 7.53 TONS 1935-1936</td>
<td>0.07% Pb, 0.003% Cu, 0.082 OZ/T Ag, 0.109 OZ/T Au</td>
<td>AZ. BUR. MINES FILE DATA</td>
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</table>

SOURCE OF INFORMATION (PRODUCTION): MALACH, 1977, P. 23

PRODUCTION COMMENTS: MINE HAD LIMITED PRODUCTION OF VANADUIM FROM 1916-1918

RESERVES AND POTENTIAL RESOURCES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
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<td>1</td>
<td>0</td>
<td>1942</td>
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</tr>
</tbody>
</table>

SOURCE OF INFORMATION (RESERVES/POT RESOURCES): MALACH, 1977, P. 23

COMMENTS (RESERVES/POT RESOURCES): IN 1942 NO VANADUIM 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. FILE, 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, ARIZONIA: 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, GEOLOG SERIES 14, 54 P., P. 15
8) VIUCH, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUBL. M.S. THESIS, UNIV. ARIZ., 77 P., MAPS
9) BERGER, H.H., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR. V. 33, NO. 6, P. 4, 5, 32
11) GREGORY, N.H., 1910, ZINC MINES OF THE HUALAPAI DISTRICT, ARIZONA: MIN. 40 RL. 33, P. 1179-1180
ANALYSES BY HEM, J.D.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS


NAME AND LOCATION

DEPOSIT NAME: MIDWEST MINE
SYNONYM NAME: OWNER IN 1962 EMERY BLEVINS, WIKIEUP

MINING DISTRICT/AREA/SUBDIST: SHANNON BASIN DISTRICT/S.E. HUALAPAI MTS. (THE OWENS DISTRICT IS TO THE SOUTH IN THE MCCACKEN MTS. BUT WAS SOMETIMES EXTENDED TO THE NORTH.)

COUNTRY CODE: US
STATE CODE: 04
COUNTY: MOHAVE

LATITUDE: 34°38'03"N
LONGITUDE: 113°38'56"W

UTM NORTING: 3836410
UTM EASTING: 257190
UTM ZONE: 112

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, MD, 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/DESCRIPTION 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, NO PROSPECTS-AZ

PRODUCTION COMMENTS:

DRY CONCENTRATING PLANT WAS BUILT IN 1958 WITH ANTICIPATION OF MILL FEED OF ABOUT 5% Pb, 14% Zn, 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 MINE WAS REVAMPED LATER, BUT DID NOT OPERATE.

GEOLGY AND MINERALOGY

HOST ROCK TYPES: GRANITE GNEISS

AGE OF ASSOCIATED IGNEOUS ROCKS: 6 MILES AWAY IS 58.1 +/- 2.3 MY 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.
4) BERGER, H.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 5, P. 4532.
9) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
12) HOBBS, S.W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONAS: U.S. GEO. SURVEY BULL. 940-1, P. 207-204, MAPS.
13) KERK, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEO. SOC. AMERICA MEM. 15, 214 P.
14) KESSLER, E.J., 1976, RUBIDIUM-STROUMIUM GEOCRINOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF PRECAMBRIAN ROCKS IN THE NORTHERN HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITAT ARIZ., 73 P.
17) MALACHI, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
18) MALTAC, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
19) MALACHI, ROMAN, 1977, MOHAVE COUNTY MINES: MOHAVE COUNTY BOARD OF SUPERVISORS, KINGMAN, AZ., 63 P.
20) MASON, R.T., 1917, MINING IN NORTHERN ARIZONA: PP. 52-72, MIN. AND SCI. PRESS.
24) ROBLES, T.M., 1940, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MINES, R.I. 824, 14 P.
32) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
33) VITCHEL, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: UNPUBL. M.S. THESIS, UNIVERSITAT ARIZ., 77 P., MAPS.
36) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
37) GENERAL GEOLOGY OF ARTILLERY AREA:
39) HEAD, R.E., I., ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, RI 3560, P. 6-7 (1941).


14) SCHRADER, F.C., 1917, Geology and ore deposits of Mohave County, Arizona: Discussion of By Anderson, J.H.

15) MALACH, K., 1947, Mohave County sketches of early days: Kingman, Arizona, 142 P.


18) SHACKELFORD, T.J., Structural Geology of the Rawhide Mountains, Mohave County, Arizona: Univ. of Southern California Los Angeles, Calif., USA, Unpaginated P., 1976.


NAME AND LOCATION

DEPOSIT NAME: MINERAL PARK PROPERTY
SYNONYM NAME: INCLUDES ITHACA PEAK OREBODY AND TURQUOISE MOUNTAIN & GROSS PEAK DEPOSITS

MINING DISTRICT/AREA/SUBDIST: WALLAPALI DIST.
COUNTRY CODE: US
STATE CODE: 04
COUNTY CODE: MOHAVE

QUAD SCALE: 1:204800
QUAD NO OR NAME: CERBAT, ARIZ.

LATITUDE: 35°21'50"N
LONGITUDE: 114°08'30"W

UTM NORTHING: 3917250
UTM EASTING: 795800
UTM ZONE NO: 11

TWP: 23N
RANGE: 17W
SECTION: 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.:
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

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
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<th>GRADE OR USE</th>
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<tr>
<td>8</td>
<td>MD ACC 39309.48</td>
<td>LBS</td>
<td>1964-1978</td>
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<td>9</td>
<td>WHE ACC 69895.38</td>
<td>TONS</td>
<td>1964-10284</td>
<td>Cu, 0.025% Mo, Trace Zn, Pb, Ag, Au</td>
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RESERVES AND POTENTIAL RESOURCES

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<th>ITEM</th>
<th>ACC</th>
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<th>YEAR</th>
<th>GRADE OR USE</th>
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<tr>
<td>1 CU EQUIV. ACC</td>
<td>58,000 TONS</td>
<td>1968</td>
<td>0.76% Cu equivalent</td>
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SOURCE OF INFORMATION (RESERVES/POT RESOURCES): FIDEL 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 PIT 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 COMMUNICATED PYRITE WHICH ENHANCED SECONDARY ENRICHMENT

SIGNIFICANT ALTERATION:
- ZONE OF OXIDATION EXTENDS 10 AVERAGES OF 20 FT DEPTH; ARGILLIZATION, PROPYLLIZATION, SILICIFICATION, & SERICITIZATION

COMMENTS (GEOLOGY AND MINERALOGY):
- TURQUOISE IS ONLY COPPER MINERAL IN LEACHED CAPPING. CHALCOCITE COATS OR REPLACES PYRITE OR MINOR CHALCOPYRITE.
GENERAL REFERENCES

1) MINERAL PARK REFERENCES:


4) Drake, William Edward, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.


8) Thomas, R.E., 1949, GEOLOGY AND ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: CALIF. INST. TECH., PH.D. THESIS.


13) Dings, M.E., 1950, ARIZONA ZINC AND LEAD DEPOSITS; WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZ. BUREAU OF MINES BULLETIN 156, P. 138-142, MAP.


17) Householder, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.


20) Jancic, Thomas, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS VOL. 51, NO. 1, P. 40-44.


22) Jancic, Thomas, 1965, MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS VOL. 51, NO. 1, P. 40-44.

23) Jancic, Thomas, 1965. MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS VOL. 51, NO. 1, P. 40-44.

24) Jancic, Thomas, 1965. MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS VOL. 51, NO. 1, P. 40-44.


26) Jancic, Thomas, 1965. MINE DEVELOPMENT AT MINERAL PARK: MIN. CONGRESS VOL. 51, NO. 1, P. 40-44.


RECORD IDENTIFICATION
RECORD NO. 000380
RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2.1
MAP CODE NO. 002400

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 1: 0024000
QUAD NO OR NAME CHLORIDE, ARIZ.

LATITUDE 35-24-47N
LONGITUDE 114-10-54W

UTM NORTHING 3922270
UTM EASTING 755920
UTM ZONE NO 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 DEPOSIT........ NW
DIP OF DEPOSIT........... 66 NE

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
SHAFT SHOWN ON TOPOGRAPHIC MAP.

GEOLGY 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. GEO. SURV. BULL. 397, P.
2) ARIZONA BUR. GEOL. & MIN. TECH. FILE DATA.
4) CHLORIDE AREA:
7) ALANACH, R., 1974 CERBAT MOUNTAIN COUNTRY, EARLY MINE CAMPS: KINGMAN, ARIZ., 48 P.
12) SIMALACH, R., 1975 ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZ.: BUR. MINES BULL. 156, P. 138-142, MAP.
13) DRAKE, WILLIAM EDWARD, 1972 A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGMAN, ARIZONA DOCTORAL, COLUMBIA.

4) General Geology of Cerbat Mts:
Ariz. Mining Jour., 1920, V. 8

NAME AND LOCATION
DEPOSIT NAME------------------ D.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. GOLDBASIN DISTRICT
COUNTRY CODE--------------- US
STATE CODE--------------- 04
COUNTY----------------------- MUHAVE
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..... 2BN
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 MEAD

COMMODITY INFORMATION
COMMODITIES PRESENT........... W PB AU MO AG CU FE
MAIN ORE MINERALS:
GOLD
MINOR ORE MINERALS:
MOLYBDENITE & WOLFRAMITE LIMONITE HEMATITE, SIDERITE, SALENA
COMMODOITY 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, MINES, & STOPES ON FOUR LEVELS (SEE CROSS SECTION, SCHRADER, 1909, P. 121).

PRODUCTION
SMALL PRODUCTION

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

<table>
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<tr>
<th>ITEM</th>
<th>ORE ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<td></td>
<td>6.261</td>
<td>TONS 1935-1942</td>
<td>0.27 OZ/T AU, 0.15 OZ/T AG, 0.10% Pb, 0.0023% Cu FROM D.K. AND EXCELSIOR (AKIZ. BUR. MINES FILE DATA) WITH ADDITIONAL AMOUNTS FROM CLEANINGS &amp; FROM D.K. MILLSITE</td>
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SOURCE OF INFORMATION (PRODUCTION): ACHRADFR, 1909, P. 121

PRODUCTION COMMENTS: PRODUCTION TO 1909 REPORTED TO BE 25,000.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS............. PREC
HOST ROCK TYPES............... DARK BIOTITE GRANITE, PARAGNEISS & GNEISSIC GRANODIORITE. PARAGNEISS IS UNDIFFERENTIATE ASSEMBLAGE OF AMPHIBOLITE-FACIES METASEDIMENTARY ROCKS, DOMINANLY QUARTZ-PLAGIOCLASE GNEISS INTERLAYERED WITH CORRADIITE GNEISS, Biotite-Garnet-Sillimanite Schist & Amphibolite. Thinn 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, equigranular. Biotite granite/rorite occurring as concordant bodies within paragneiss.

AGE OF ASSOC. IGNEOUS ROCKS.: CRET
IGNEOUS ROCK TYPES............. LATE CREDOUS QUARTZ MONZONITE IS 2 MILES AWAY. MEDIUM TO COARSE GRAINED, SERICITE TO PORPHYRITIC LEUCOKRATIC QUARTZ MONZONITE INCLUDES MINOR APLITE & PEGMATEITE.
AGE OF MINERALIZATION

CRET

IMPORTANT ORE CONTROL/LOCUS: QUARTZ VEINS; MOLYBDENITE WITH GALENA & WOLFRAMITE. ORE FAVORS HANGING WALL.

GENERAL REFERENCES
9) MACH, R., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
10) SCHRADER, E.G., 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZ.: AIME TRANS., V. 56, P. 195-236.
12) WILSON, E.D., AND MOORE, R.T., 1959, GEOLOGY MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES. SCALE 1:375,000.
23) ANDERSON, R.E., 1971, THIN SKIN DISTENSION IN TERTIARY ROCKS OF SOUTHEASTERN NEVADA: GEOLE. SOC. AMERICA BULL.,
V. 82, No. 1, P. 43-58

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

RECORD NO---------- M030352
RECORD TYPE------- X1
COUNTRY/ORGANIZATION-- USGS
INFORMATION SOURCE--- Z
MAP CODE NO. OF REC---

REPORTER

NAME--------------------- WILT, 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, AKI

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. Z
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

COMMENTS(DESCRIPTION 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
CRI8 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. M030364
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............... 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 1/7
MERIDIAN. GILAESALT 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 MO

PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS.. AU AG
MINOR PRODUCTS.. PB

MAIN COMMOD..... AU
MINOR COMMON.... AG MO PA

MAIN ORE MINERALS:
FREE GOLD

MINOR ORE MINERALS:
WULFENITE FILM

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
$4/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 (DESCRIPTION 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, COMMON...., CONC., OVERBURD.)

ITEM
1
2

ACC
ORE EST
ORE EST
AMOUNT
1
1.7
THOUS. UNITS
TONS
TONS
YEAR
1905
1906

GRADE
REMARKS

CUMULATIVE PRODUCTION (ORE, COMMON...., CONC., OVERBURD.)

ITEM
15

ACC
ORE EST
AMOUNT
2.7
THOUS. UNITS
TONS
YEAR
1906

GRADE
$10 AU/T
SOURCE OF INFORMATION (PRODUCTION): SCHRADE, 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

PERSISTENT MINERALOGY------- CONCH 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 LEELAND-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.
3) LAUSEN, CARL. 1931, GOLD VEINS OF THE BATMAN AND KATHERINE DISTRICTS, ARIZONA: UNIV. ARIZ., TUCSON, PH.D. THESIS, 155 P., MAPS.
5) RANSOME, F., 1923, GEOLOGY OF THE DATMAN GOLD DISTRICT, ARIZONA: U.S. GEO. SURVEY BULL. 743, 56 P., MAP, P. 50, PL VIII B.


3. Black Mts General Geology:

4. Black Mts General Geology:

5. Black Mts General Geology:

6. Geology & Ore Deposits of Mohave Co.:

7. Geology & Ore Deposits of Mohave Co.:

8. Geology & Ore Deposits of Mohave Co.:
   - Malach, R., 1974, Mohave County Sketches of Early Days: Kingman, Arizona, 142 P.

9. Geology & Ore Deposits of Mohave Co.:

10. Geology & Ore Deposits of Mohave Co.:

11. Geology & Ore Deposits of Mohave Co.:

12. Geology & Ore Deposits of Mohave Co.:
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030361
RECORD TYPE. PK
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 MARICopa
QUAD SCALE 1: 0024000
QUAD NO OR NAME DEAN PEAK, ARIZ
LATITUDE 35-05-30N
LONGITUDE 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
COMM00111ES PRESENT CU MO
MAIN ORE MINERALS
PYRITE, MOLYBDENITE

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

DEPOSIT TYPES:
DISSEM., VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY: NNE

GEOLGY AND MINERALOGY

PERTINENT MINERALOGY
QUARTZ VEINS

LOCAL GEOLGY

SIGNIFICANT ALTERATION:
SEKICITIC & 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, R. M., 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. 140, GEOLOG. SERIES 14, 54 P., P. 15
7) TIDALE, V. V., 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., 1936, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 4,5,32.
12) HOUSEHOLDER, F. E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
17) HOBBS, S. W., 1944, TUNGSTEN DEPOSITS IN THE BORIANA DISTRICT AND THE AQUARIUS RANGE, MOHAVE COUNTY, ARIZONA: U.S. GEOLOG. SURVEY REPORT 940-I, P. 247-264, MAPS.
18) KERR, P. P., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOLOG. SOC. AMERICA MEM., 15, 241 P.
19) KESSLER, J. P., 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) ELLIS, W. J., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOG. SURVEY BULL. 352, 96 P.
22) MALACH, R. M., 1974, MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.
23) MALACH, R. M., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ., 48 P.
24) MASON, R. T., 1917, MINING IN NORTHWESTERN ARIZONA, Pp. 527-528, MIN. AND SCI. PRESS.
26) Mining World, V. 3, No. 4, 1941.
CRIE MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.  MO30360
RECORD TYPE.  A11
COUNTRY/ORGANIZATION.  USGS
INFORMATION SOURCE.  2
MAP CODE NO. OF RECORD.

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.  DEAN PEAK, ARIZ.
LATITUDE.  35-06-06N
LONGITUDE.  113-49-48W
UTM NORTHING.  3887800.
UTM EASTING.  242020.
UTM ZONE NO.  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 GOLD METAL MINE (SOAP CANYON)

COMMODITY INFORMATION
COMMODITIES PRESENT.  CU, MO
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, 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
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4) WILSON, E.D., AND MOORE, K.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
5) DEPT. MIN. RES., 1960, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. BUR. MINES BULL. 146, GEOL. SERIES 16, 54 P., P. 15
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10) WILSON, E.D., AND MOORE, K.T., 1959, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 73 P.

22) MALACH, R., 1974, MOHAVE COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY, 80 P.

23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 40 P.

24) MASON, R.I., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 577-628, MIN. AND SCI. PRESS.


26) MINING WORLD, V. 3, NO. 4, 1941.


29) ROMSLY, T.M., 1948, ANTLER COPPER-ZINC DEPOSITS, MOHAVE COUNTY, ARIZONA: U.S. BUREAU OF MINES, R.I. 4214, 4 P.


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

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41) GILLESPIE, J.B., BENLEY, C.W., AND KAM, WILLIAM, 1966, BASIC HYDROLOGICAL DATA OF THE HUALAPAI, SACRAMENTO, AND BIG SANDY VALLEYS, MOHAVE COUNTY, ARIZ.: ARIZ. STATE LAND DEPT. WATER RES. REP., V. 26, 39 P.


46) MORRISON, R.A., 1941, RECORDS OF WELLS AND SPRINGS IN BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA, WITH WATER ANALYSES BY MEN: J.O.: ARIZ. STATE WATER COMMISSION, 20 P., MAPS.


52) WINTER, F.K., 1967, GEOLOGY AND PROMISING AREAS FOR GROUNDWATER DEVELOPMENT IN THE HUALAPAI INDIAN RESERVATION, ARIZONA: U.S. GEOLOGICAL SURVEY WATER SUPPLY PAPER 1576 A, P. 1-37, ILLUSTRATIONS, TABLE, GEOLOGICAL MAP.
CRIP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.----------- N030359
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------------ 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 NORTING 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 KO

MAIN ORE MINERALS: PYRITE CHALCOPYRITE

MINOR ORE MINERALS: MOLYBDENITE
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. . 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) MALACHI, 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.I., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES, SCALE 1:375,000.
5) ARIZ. DEP. 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, G.EOL. SERIES 14, 54 P., P. 15
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, R.W., 1938, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 45-52.
13) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
16) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
18) HOBBs, S.W., 1944, TUNGSTEN DEPOSITS IN THE MORIANDA 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: GEO. 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) LEW, W.T., 1908, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOL. SURVEY, BULL. 352, 96 P.
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. MD0303M5
RECORD TYPE .............. X1
COUNTRY/ORGANIZATION ... USGS
INFORMATION SOURCE ....... 1, 2
MAP CODE NO. OF RECORD: 

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 ................. 1: 0062500
QUAD NO OR NAME ... ARTILLERY PEAK

LATITUDE .......................... 34-17-56N
LONGITUDE ........................ 113-39-35W

UTM Northing ............... 3798275
UTM Easting .................. 255290
UTM Zone N3 ................. +12

THP .................................. 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, CERRUSITE, SILVER?

MINOR ORE MINERALS:
WULFENITE, DIOPHTASE, CHRYSOCOLLA, SHATTUCKITE
EXPLORATION AND DEVELOPMENT

PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS

ADIT INTO HILL COUPLE HUNDRED FEET

PRODUCTION

SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td></td>
<td>622</td>
<td>1940-1958</td>
<td>0.8% Cu, 20.35% Pb, 1.84% Zn, 11.68 oz/t Ag, 0.035 oz/t Au</td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): BUR. GEOLOGY FIELD DATA

GENERAL REFERENCES

2) BOB JONES, PERSONAL COMMUNICATION
4) HEAD, R.E., 1. ARTILLERY PEAK ORE (MICROSCOPIC STUDIES, ANALYSES): USBM, PI 3560, P. 6-7 (1941)
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16) UNIV. OF SOUTHERN CALIFORNIA LOS ANGELES, CALIF. USA DOCTORAL THESIS
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, 10 P.
6) TOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
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12) ELLIS, W.T., 1906, GEOLOGIC RECONNAISSANCE OF A PART OF WESTERN ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 352, 96 P.
13) MALACH, R.A., 1974, MOHAVE COUNTY SKETCHES OF EARLY DAYS: KINGMAN, ARIZON A, 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.
CROSS MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 003081
RECORD TYPE. 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF RECORD

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 SCHRADE REPORTED PLANS TO WORK SAMOA JOINTLY WITH LUCKY BAY

MINING DISTRICT/AREA/SUBDIST. CHLORIDE SUBDIST/WALLAPA1 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

TNP........ 23N 23N
RANGE..... 18W 17W
SECTION.... 01 SE 06 SW
MERIDIAN. GILA & SALT R.

ALTITUDE. 6660 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 Mn Cu

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. Pb Ag
MINOR PRODUCTS.. Au Cu Zn

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL....... NO

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.:
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
MAX WIDTH............. 4 FT
STRIKE OF OREBODY..... NW
DIP OF OREBODY........ 80E

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 335 FT
LENGTH OF WORKINGS............ 3000 FT

COMMENTS (DESCRIPTION OF WORKINGS):
IN 1909, 335 FT SHAFT ON VEIN 23 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>AU ACC</td>
<td>448</td>
<td>02</td>
<td>1903-1906</td>
<td>1.5 OZ/T AU 15 OZ/T AG, 8% PB, 5-8% ZN</td>
</tr>
<tr>
<td>16</td>
<td>AG ACC</td>
<td>57.991</td>
<td>02</td>
<td>1901-1948</td>
<td>DINGS, 1951 P. 147</td>
</tr>
<tr>
<td>17</td>
<td>CU ACC</td>
<td>4.454</td>
<td>L8</td>
<td>1901-1948</td>
<td>DINGS, 1951 P. 147</td>
</tr>
<tr>
<td>18</td>
<td>PB ACC</td>
<td>656.377</td>
<td>L8</td>
<td>1901-1948</td>
<td>DINGS, 1951 P. 147</td>
</tr>
<tr>
<td>19</td>
<td>ZN ACC</td>
<td>67.086</td>
<td>L8</td>
<td>1901-1948</td>
<td>DINGS, 1951 P. 147</td>
</tr>
<tr>
<td>20</td>
<td>ORE ACC</td>
<td>1.944</td>
<td>TONS</td>
<td>1935-1952</td>
<td>ABN FILE DATA 0.17% CU, 8.57% PB, 2.45% ZN, 8.9 OZ/T AG 0.69 OZ/T AU</td>
</tr>
<tr>
<td>21</td>
<td>ORE ACC</td>
<td>246</td>
<td>TONS</td>
<td>1949-52</td>
<td>ABN FILE DATA 0.14% CU, 5.95% PB, 5.58% ZN, 8.35 OZ/T AG, 0.60 OZ/T AU</td>
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</tbody>
</table>

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: PRC
HOST ROCK TYPES: GRANITOID SERIES; DARK MEDIUM GRAINED BIOTITE GRANITE

AGE OF ASSOCIATED 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 VEINLET OF SPAR; NO COPPER; Au & Ag IN SULFIDES

GENERAL REFERENCES

1) GENERAL REFERENCES:
   1) SCHRADE, 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
   7) AKIZ, BUR. MINES FILE DATA.
   9) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.

2) CHLORIDE AREAS:
   1) THOMAS, B.E., 1949, ORE DEPOSITS OF THE WALLAPAI DISTRICT, ARIZONA: ECON. GEOl., V. 49, P. 663-705.
   6) MALACH, R., 1974 MOHAVE COUNTY, SKETCHES OF THE EARLY DAYS: KINGMAN, AZ., 142 P.

3) MOLYBDENUM OCCURRENCES IN WALLAPAI DISTRICT:
   4) DING, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS; WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZA: ARIZ. BUR. MINES BULL. 156, P. 139-142, MPA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ********** 0000781
RECORD TYPE. ********** A
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 = 1: 0024000
QUAD NO OR NAME = DEANS PEAK, ARIZ.
LATITUDE = 35-06-33N
LONGITUDE = 113-48-39W
UTM NORTHING = 3888575
UTM EASTING = 243800
UTM ZONE NO = 12
UTM MERIDIAN = GILA & SALT R.
ALTITUDE = 5200 FT

COMMODITY INFORMATION
COMMODITIES PRESENT. W AU AG CU MD

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS. AU AG
MINOR PRODUCTS. MD W

MAIN COMMOD. W AU
MINOR COMMOD. AU AG CU MD
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL........ Cu

MAIN ORE MINERALS:
PYRITE SCHEELITE

MINOR ORE MINERALS:
MOLYBDENITE, WOLOFRAMITE, GALENA GOLD SILVER, ZPHALERITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV: 4

PROPERTY IS INACTIVE

PRESENT/LAST OPERATOR.... AS OF 1953, MRS EVELYN MAYER, 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 (DESCRIPTION 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 Cu-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 1.11% Cu, 0.98% Pb, 32.2 OZ/T Au, 0.33 OZ/T Ag

SOURCE OF INFORMATION (PRODUCTION): ARIZ. BUR. MINES FILE DATA

IN 1939 7 CARLOADS SHIPPED IN A SHIPMENT WHICH PAID $42.50/T FOR Au, Ag, Cu ORE AND 1% AND NO (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 (158.0 +/- 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 SOUTHWESTWARD.

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 MO32 WERE QUESTIONED AT THE TIME OF AN R.F.C. MINING LOAD INVESTIGATION AND THE CONTENT CONSIDERED TO BE UNCERTAIN AND PROBABLY ERRATIC AND LOWER.

GENERAL REFERENCES
2) WHEELER, J.S., 1974, A GEOLOGIC RECONNAISSANCE AND MINERAL EVALUATION, WHEELER WASH AREA, HUALAPAI MOUNTAINS, MOHAVE COUNTY, ARIZONA: PUB. PH.D. 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.
   BAKER, G.B., GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
   MALACH, R.R., 1974 MOHAVE COUNTY SKETCHES OF THE EARLY DAY: KINGMAN, AZ., 142 P.
   MALACH, R.L., 1975, HUALAPAI MOUNTAINS, KINGMAN, AZ., 49 P.
   WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA, ARIZ. BUR. MINES BULL. 146, GEO. SERIES 14, 54 P.
   GENERAL GEOLOGY OF HUALAPAI MTS:
CRIH MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 030365
RECORD TYPE. Al
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. 1:0024000
QUAD NO OR NAME. CERBAT AKIZ
LATITUDE. 35-21-10N
LONUTIDE. 114-09-00W
UTM NORTING. 3915710
UTM EASTING. 759010
UTM ZONE NO. 74
TWPH. 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. NO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

DISSIM

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 MNT REFERENCES:


2) IMPORTANT MINERAL PARK REFERENCES:

URASKUP, WILLIAM EDWARD, 1972, A STUDY OF ORE FORMING FLUIDS AT THE MINERAL PARK PORPHYRY COPPER DEPOSIT, KINGS, ARIZONA: ARIZONA DOCTORAL DISSERTATION, COLUMBIA UNIVERSITY.

3) MINERAL PARK REFERENCES:

DINGS, M.G., 1950, ARIZONA ZINC AND LEAD DEPOSITS: WALLAPAI MINING DISTRICT, MOHAVE COUNTY, ARIZONA: ARIZONA BUREAU OF MINES BULLETIN, 156, P. 138-142, MAP.
11) Jancic, Thomas, 1965, Duval Corp. property at Mineral Park, Arizona: Mines Mag., V. 55, No. 6, P. 14-16
14) Malach, Reg, 1970, Mohave County sketches of the early days: Kingman, Az., 142 P.
29) AIME, Bur. Mines file data.
30) Other references in Cerbat mts:
19) DOLL, R.H., 1911, MINING OPERATIONS IN MOHAVE COUNTY, ARIZONA: MIN. ENGR. WORLD, V. 35, P. 243-244.
21) WILLS, C.F., 1921, DARDENELLES STRIKE GIVES CHLORIDE MORE ASSURANCE: ARIZ. MIN. JOUR., V. 4, NO. 12, P. 51, 66.
22) NILSON, E.D., AND MOORE, R.T., 1959, GEOLOGIC MAP OF MOHAVE COUNTY, ARIZONA: ARIZ. BUR. MINES.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO. 4030351
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2
MAP CODE NO. OF REC

REPORTER
NAME WILT, 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 1: 0024000
QUAD NO OR NAME DIAMOND JOE PEAK, ARIZ.
LATITUDE 34-49-32N
LONGITUDE 113-47-05W
UTM NORTHING 4040FT
UTM EASTING 29 C
UTM MERIDIAN GILA & SALT R.
ALITUD.. 4040 FT
POSITION FROM NEAREST PROMINENT LOCALITY: NEAR GREAT REPUBLIC

GEOLOGY AND MINERALOGY

AGE OF ASSOC. IGNEOUS ROCKS DIAM JOE STOCK=71.9+/-1.5 MY MINERALIZED 73.1+/-1.5 MY
IGNEOUS ROCK TYPES QUARZ MONzonite PORPHYRY STOCK IN AREA
AGE OF MINERALIZATION CRET

GENERAL REFERENCES

1) ABM FILE PAGE
4) GENERAL GEOLOGY OF HUALAPAI MTS:
   BERGER, H.W., 1936, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 95-32.
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.I., 1917, MINING IN NORTHEASTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO........... M030373
RECORD TYPE.......... XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2
MAP CODE NO. OF REC...

REPORER
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 NORTING UTM EASTING UTM ZONE NO
3834800 260160 +12

TMP........ 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 6-4200 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 PRO

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, DISSEMINATED.

DESCRIPTION OF WORKINGS

RECENT BULLDOZER CUTS, SHORT DRIFTS & DRILL LOCATIONS. A SMALL COPPER LEACH OPERATION WAS ATTEMPTED IN THE


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……………. QUARZ 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 SAGAS

SIGNIFICANT ALTERATION:

SERICITE, CLAY, POTASSIC, PROPYLITIC (CHLORITE-EPIDOTE), PHYLLITIC; GREEN SAPERGENE CARBONATE HALO

GENERAL REFERENCES

1) ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA.
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., 1939, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 435-32.
INFORMATION CIRCULAR I.C. 8078, 104 P., P. 91.
MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA: US394, RI 5292, 47 P., ILLUS. (1957)


10)LAASKY, S.G., AND WEBBER, W.B. 1949 MANGANESE RESOURCES OF THE ARTILLERY MOUNTAINS REGION, MOHAVE COUNTY, ARIZONA. U.S. GEOLOGICAL SURVEY BULL. 951, 86 P.

11)HOUAT, M.M. MANGANESE OXIDES FROM THE ARTILLERY MOUNTAINS AREA, ARIZONA: AM. MINERAL., V. 47, NO. 5-6, 746-752 (1962)

12)HAMILTON, PATRICK, 1883, THE RESOURCES OF ARIZONA, 2ND ED.: SAN FRANCISCO P. 129-129.


14)HOUAT, M.M. 1962, MINERALOGY OF CERTAIN MANGANESE DEPOSITS IN THE ARTILLERY MOUNTAINS REGION, ARIZONA: UNIV. WISCONSIN, M.S. THESIS.

15)SCHADLER, F.C. 1917, GEOLOGY AND ORE DEPOSITS OF MOHAVE COUNTY, ARIZONA: DISCUSSION OF BY ANDERSON, J.H.


18)SAMPD, R.S. AND STEWART, L.A. ARTILLERY PEAK MANGANESE DEPOSITS, MOHAVE COUNTY, ARIZONA: USGS, RI 4275, 45 P. (1946)


21)WILSON, F.R. AND BUTLER G.M. 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. WATER COMM. BULL. 6, 40 P.


IDENTIFICATION
RECORD NO. 00030353
RECORD TYPE. A2
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. 1: 0024000
QUAD NO OR NAME. DIAMOND JOE PEAK, ARIZ.
LATITUDE. 34-50- N
LONGITUDE. 113-47-10W

THP. 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
II DEPT. MINERAL RESOURCE FILE DATA
Nome e Localização:
Nome do Depósito: GOLD METAL MINE
Nome Sinônimo: 6 UNPATENTED CLAIMS
Distrito/Máquina/Subárea: MAYNARD DIST
País Código: US
Estado Código: 04
Conteúdo: Mohave CO

Escala Quadro: 1: 002400

Latitude: 35°06'13"N
Longitude: 113°49'35"W
UTM Northing: 3887900
UTM Easting: 242400
UTM Zona: 17

Tempo: 20W
Rancho: 15W
Seção: 24 W
Meridiano: GILA & SALT R., ARIZ.

Posição da Localidade Mais Prominente: E LADO DE HUALAPAI MTS

Informação de Commodity:
Commodities Presentes: Cu Au Ag Mo

Minerais de Ouro Maior:

Minerais de Ouro Menor:
COPPER & MOLYBDENUM SULFIDES

Exploração e Desenvolvimento:
Status de Exploração ou Desenvolvimento: 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEMINATED, VEINS

DESCRIPTION OF WORKINGS

COMMENTARY (DESCRIPTION OF WORKINGS):
DRILLHOLES (VUICH MAP, 1974).

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS
PRE-C.

HOST ROCK TYPES
GRANITE NEAR GRANITIC GNEISS

AGE OF ASSOCIATED 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: UNPUBL. 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) HERGER, H.W., 1939, DELUGE WASH SECTION, MOHAVE COUNTY, ARIZONA: MIN. JOUR., V. 22, NO. 6, P. 45-32.
12) HOUSEHOLDER, E., 1930, GEOLOGY OF MOHAVE COUNTY, ARIZONA: UNIV. MISSOURI, M.S. THESIS.
15) UNIV. OF IDAHO, MOSCOW, IDAHO, DOCTORAL, 162 P.
18) KERR, P.F., 1946, TUNGSTEN MINERALIZATION IN THE UNITED STATES: GEOL. SOC. AMERICA MEM. 15, 241 P.
19) KESSLER, E.J., 1976, RUTIDIUM-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.


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

23) MALACH, R., 1975, HUALAPAI MOUNTAINS: KINGMAN, AZ, 40 P.

24) MASON, R.T., 1917, MINING IN NORTHWESTERN ARIZONA, PP. 627-628, MIN. AND SCI. PRESS.


26) MOLL, T.B., AND OTHERS, 1936, MINERAL RESOURCES OF THE REGION AROUND BOULDER DAM: U.S. GEOL. SURV. BULL.


28) KOMSLO, T.N., 1968, ANTLER COPPER ZINC DEPOSIT, MOHAVE COUNTY, ARIZONA: U.S. BUR. MIN. BULL., R.I. 4214, 14 P.


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


37) WICKES, L.W., 1941, SEDIMENTARY ANALCITE: AM. MINERALOGIST, V. 26., NO. 10, P. 627-629.


41) SHEPARD, R.A., 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.


44) SHEPARD, R.A., AND GUDGE, A.J., 1972, BIG SANDY FORMATION NEAR WIKIEUP, MOHAVE COUNTY, ARIZ.: U.S. GEOL. SURVEY BULL., 1354-C., 10 P.


47) MORKS, R.B., 1940, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 14 P., MAP.

48) MORRISON, R.B., 1941, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 14 P., MAP.

49) MORRISON, R.B., 1941, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 14 P., MAP.

50) MORRISON, R.B., 1941, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 14 P., MAP.

51) MORRISON, R.B., 1941, GROUNDWATER RESOURCES OF THE BIG SANDY VALLEY, MOHAVE COUNTY, ARIZONA: ARIZ. STATE WATER COMMISSION, 14 P., MAP.

52) MENDER, 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, ILLUSS., TABLE, GEOL. MAP.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.----------- MD30464
RECORD TYPE----------- 41
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: G65R

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 16

COMMODITY INFORMATION
COMMODITIES PRESENT----- U V MO CU

MAIN COMM.----- U V

MAIN ORE MINERALS:
TYUYAMUNITE, TORBERTNITE, METATYUYAMUNITE

MINOR ORE MINERALS:
MOLYBDENUM MINERAL, AZURITE, MALACHITE

ANALYTICAL DATA(GENERAL)
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
   CHANNEL

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
   MAX WIDTH .......... 350 F1
   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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS .......... TRI

HOST ROCK TYPES .......... CONGLOMERATIC SANDSTONE OF SHINARUMP MEMBER OF CHINLE FORMATION

PERTINENT MINERALOGY ....... CARBONACEOUS MATTER; CALCITE, JAROSITE; CLAY PEBBLES

LOCAL GEOLOGY

COMMENTS (GEOLGY AND MINERALOGY):
   TUYUMAMITE-TYPE MINERALIZATION WITH MINOR TURBERNITE OCCURS IN THIN SEAM SURROUNDED BY VANADIUM MINERALIZATION
   AND CARBONACEOUS DEBRIS AT EAST END, PROBABLY SECONDARY DEPOSITION (KEITH, 1970)

GENERAL REFERENCES

1) KEITH, S., STANTON, B., 1970, URANIUM, IN PIERCE, H.W., KEITH, S.B., AND WILT, J.C., 1970, COAL, OIL, NATURAL GAS,
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, J.J.,
   AND THADEN, R.E., GEOLOGY AND URANIUM-VANADIUM DEPOSITS OF THE MONUMENT VALLEY AREA, APACHE AND NAVAJO COUNTIES,
4) WITKIND, J.J. 8. URANIUM DEPOSITS AT BASE OF THE SHINARUMP CONGLOMERATE, MONUMENT VALLEY, ARIZONA: USGS
5) FINNELL, T.L. 1. STRUCTURAL CONTROL OF URANIUM ORE AT MONUMENT NO. 2 MINE, APACHE COUNTY, ARIZONA: ECON.
   GEOJ., V. 52, NO. 1, P. 75-39, ILLUS. (1957); (DISCUSSION BY MITCHELL, T.W.): ECON. GEOJ., V. 52, NO. 5, P.
   586-589, ILLUS. (1957)
6) BROADFOOT, H.S. URANIUM DEPOSITS IN NORTHERN ARIZONA: MEX. GEOJ. SOC., GUIDEBOOK 9TH FIELD CONF., P.
   161-163, ILLUS. (1958)
7)Krundy, W.D., 2. (AWJ 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.
   GEOJ., GUIDEBOOK 9TH FIELD CONF., P. 197-207, ILLUS. (1958)
8) WITKIND, I.J. I9. THE URANIUM-VANADIUM ORE DEPOSIT AT THE MONUMENT NO. 1 MITTEN NO. 2 MINE, MONUMENT VALLEY,
11) BREED, C.S., AND BREED, M.J., EDS., 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.
16) JAMES, H.L., EDS., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOLOG. SOC. GUIDEBOOK 24, 206 P.
18) CHESTER, J.W., GEOLOGY AND MINERALIZATION OF HUNT'S MESA, MONUMENT VALLEY, ARIZONA: USAEC, RM-801, 9 P., MAPS (1921)
22) FINCH, W.J. I. GEOLOGY OF EPISOMATIC URANIUM DEPOSITS IN SANDSTONE IN THE UNITED STATES: U.S.G.S PROF. PAPER 538, 121 P. (1967)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 9030465
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. 36-57-00N
LONGITUDE. 110-13-53W
THP. 19E
RANGE. 41 N
SECTION. 24
MERIDIAN. G65R
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 MD
MAIN ORE MINERALS:
AUTUNITE, LIMONITE TUYUAMUNIT.

MINOR ORE MINERALS:
METATUYUAMUNIT CORVUSITE AZURITE, CARNOTITE, CHRYSOCOLLA, MALACHITE, METAATORBERNITE, TURBERNITE, 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 (DESCRIPTION OF WORKINGS):
MINED 1942-1950 BY VANADIIUM 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 VANADIIUM ORE IN 1942-1944. REOPENED IN 1952 AND UNTIL 1956 PRODUCED SEVERAL THOUSAND TONS

SOURCE OF INFORMATION (RESERVES/POTENTIAL RESOURCES) KEITH, 1970, P. 216

COMMENTS (RESERVES/POTENTIAL 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


11) BREED, C.S., AND BREED, W.J., EDs., 1972, INVESTIGATIONS IN THE TRIASSIC CHINLE FORMATION: MUSEUM OF NORTHERN ARIZONA, FLAGSTAFF, 103 P.


16) JAMES, H.L., ED., 1973, GUIDEBOOK OF MONUMENT VALLEY AND VICINITY, ARIZONA AND UTAH: NEW MEXICO GEOL. SOC. GUIDEBOOK 24, 206 P.


18) CHESTER, J.W., GEOLOGY AND MINERALIZATION OF HUNT'S MESA, MONUMENT VALLEY, ARIZONA: USACE, RMD, 199, 9 P., MAPS (1921).


DEPOSIT NAME: AGUINALDO MINE GROUP
SYNONYM NAME: HUMP, PURCELL, AGUINALDO MNG. CO.
MINING DISTRICT/AREA/SUBDISTRICT: PAPAGO (SIERRITA) / W. SIERRITA MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA
QUAD SCALE: 1: 0062500
QUAD NO OR NAME: PALO ALTO RANCH, ARIZONA
LATITUDE: 31°55'06"N
LONGITUDE: 111°17'08"W
UTM NORTING: 3531200.0N
UTM EASTING: 473000.0E
UTM ZONE NO: +12
TWP: 17S
RANGE: 10E
SECTION: 26 SE
MERIDIAN: GCR
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, WOLFENITE, AZURITE, MALACHITE

COMMODITY COMMENTS:
MINED FOR NO ETC.

ANALYTICAL DATA (GENERAL)
SOME ORE REPORTED ASSAYED UP TO 300 OZ AG/T (?)

EXPLORATION AND DEVELOPMENT
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 (DESCRIPTION OF WORKINGS):
ADITS, SHAFTS, AND OPEN CUTS (KEITH, 1974) 200 FT SHAFT (AEM FILE DATA)

PRODUCTION
YES
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1974, P. 131

PRODUCTION COMMENTS:
ORIGINALY 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 PICKED WOLFENITE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: DEV AND MISS (PALEO)
HOST ROCK TYPES:
METAMORPHOSED LIMESTONE (MARTIN FM AND ESCABROSA LIMESTONE) NEARBY ARE BISBEE GROUP, CONTINENTAL GRANODIORITE, PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS:
CRET-TECT 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, PYROUSITE; TRENODITE ASSOCIATED WITH GALENA

IMPORTANT ORE CONTROL/LOCUS:
VEINS IN FRACTURED AND METAMORPHOSED PALEOZOCIC LIMESTONE

LOCAL GEOLOGY
SIGNIFICANT LOCAL STRUCTURES:
FRACTURED, FAULTED NNW SLIVERS OF PALEOZICS, 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
4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
CRIM MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................. MW30556
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 LONTIGUDE
32-21 N 112-52 W
TWP........ 125 135
RANGE.... 06W 074

COMMODITY INFORMATION
COMMODITIES PRESENT.......... CU AG AU MO ZN SIL FELD

MAIN COMMODITY.... CU AG AU

MAIN ORE MINERALS:
CHALCOPYRITE, BORNITE, CHALCOCITE

MINOR ORE MINERALS:
MOLYBDENITE SPARINGLY

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM: VEINS
DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION 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 1977 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. GEOLOGICAL SURVEY PROFESSIONAL PAPER 209, 112 P.
   KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PINA COUNTY, ARIZONA: ARIZ. BUR. MINES BULLETIN 189, 156 P., P. 82-83.
   BALA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STRATIGRAPHY TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: TUCSON, ARIZONA UNIVERSITY, PH.D. THESIS, UNPUBLISHED, 184 P.


7) DAVIS, J.D., 1971, THE DISTRIBUTION AND ZONING OF THE RADIONUCLIDES POTASSIUM, URANIUM, AND THORIUM IN SELECTED PORPHYRY COPPER DEPOSITS: M.S. THESIS, ARIZONA UNIVERSITY, 130 P.
DEPOSIT NAME: AJO GUNSHOT MINE
MINING DISTRICT/AREA/SUBDIST.: GUNSHOT (MEYER) DIST.
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA

LATITUDE: 32°08'10"N
LONGITUDE: 112°39'30"W
UTM NORTHING: 3556750.0
UTM EASTING: 343625.0
UTM ZONE NO: 12

TWP.: 15S
RANGE: 04W
SECTION: 11
MERIDIAN: GILA SALT RIVER

ALTITUDE: 2,990 FT.

POSITION FROM NEAREST PROMINENT LOCALITY: 5 KM SE RM 2129

LOCATION COMMENTS: WEST CENTER

COMMODITY INFORMATION
COMMODITIES PRESENT: AU AG CU MO W

MAIN COMMODO: AU
MINOR COMMODO: AG CU MO W

MAIN ORE MINERALS:
GOLD, SILVER

MINOR ORE MINERALS:
Oxidized copper (probably scheelite and powellite)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. & DEV.:
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.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
Cret-Tertiary

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
3) Ahm File Data
4) Geology of Central Papago Reservation:
BULL. 730. P. 19-90. MAP (1922)


10)ryany, kirk (see also longwell, c.r. 2) I. Geology and physiography of the Papago country, Arizona. Inst. j. 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 199-436 p., maps (1925)

12)ryner, l. i. geology of the South Comorobic mountains and ko yaya hills, Pima county, Arizona; Univ. Ariz., phd thesis 156 p. (1959)


15)Dehlinger, n.e., 1949, report on Ajo quadrangle: Compass, V. 26, p. 132-133


27)Mines Handbook, 1922, V. XVI


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030512
RECORD TYPE A2
COUNTRY/ORGANIZATION SGS
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 0062500
QUAD NO OR NAME CAT MN, JOYNES, AZ
LATITUDE 32-10- N
LONGITUDE 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 FISSION VEINS, CONTACT METAMORPHISM

DESCRIPTION OF WORKINGS

COMMUNITY 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 39,000 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 CRETAEOUS
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. PORPHYRIC INTRUSIVES AND VOLCANICS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
CONTACT METAMORPHISM, WEAK SILICIFICATION

GENERAL REFERENCES

4) ARIZONA BUREAU OF GEOLOGY FILE DATA.
7) ASSAOI, S.M., 1964, STRUCTURE OF GOLDEN GATE MOUNTAIN, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS, 62 P.
9) HICKERMAN, MICHAEL, 1962, A GEOLOGIC-GEOCHEMICAL STUDY OF THE CAT MOUNTAIN RHYOLITE: UNIV. ARIZ., MS THESIS, 43 P.
12) BLAKE, W.P., 1949, GEOLOGICAL SKETCH OF THE REGION OF TUCSON, ARIZONA: CARNEGIE INST. WASH., PUB. 99, P.
45-68, MAP (1908)


14) BRITT, TERENCE L., 1955, GEOLOGY OF THE TWIN PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS


19) CHAMPNEY, R.D., 1962, STRUCTURAL GEOLOGY OF A RHYOLITE FLOW IN THE TUCSON MOUNTAINS: UNIV. ARIZ., MS THESIS, 43 P.

20) COBLY, R.E., 1956, STRATIGRAPHY AND STRUCTURE OF THE RECREATION RED BEDS, TUCSON MOUNTAIN PARK, ARIZONA: UNIV. ARIZ., MS THESIS


22) COULSON, G.R., 1955, GEOLOGY OF THE SWEETWATER DRIVE AREA AND CORRELATION OF SANTA CRUZ VALLEY GRAVELS: UNIV. ARIZ., MS THESIS


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.


35) GIESEKER, P.A., 1964, THE TUCSON MOUNTAIN CHAINS IN THE GATES PASS AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS, 73 P.

36) GREENSTEIN, J., 1964, THE STRUCTURE OF THE AMOLE ARKOSE NORTH OF KING CANYON, TUCSON MOUNTAINS, ARIZONA: UNIV. ARIZONA, MS THESIS, 42 P.


39) HALVA, C.J., 1961, A GEOCHEMICAL INVESTIGATION OF "BASALIS" IN SOUTHERN ARIZONA: UNIV. ARIZONA, MS THESIS, 80 P.


78) WEST, R.E., 1970, ANALYSIS OF GRAVITY DATA FROM THE AVIS VALLEY AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 73 P.
CRIH MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4000097
RECORD TYPE. 11
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 1: 0062500
QUAD NO OR NAME. PRESUMIDO PEAK, ARIZONA
LATITUDE 31-43-24N
LONGITUDE 111-35-50W
UUM NORTHING 3509750.0
UTM EASTING 443700.0
UTM ZONE NO. +12
UTM.. 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 01 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 (DESCRIPTION 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.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: JUR
HOST ROCK TYPES: COARSE-GRAINED GRANITIC INTRUSIVE

AGE OF ASSOCIATED IGNEOUS ROCKS: JUR
IGNEOUS ROCK TYPES: GRANITIC TO GRANODIORITIC ROCKS

IMPORTANT ORE CONTROL/LOCUS: QUARTZ FELDSPAR, PEGMATITIC VEINS AND DIKES

GENERAL REFERENCES
2) MINES HANDBOOK 1922, 1918, P. 543
5) ABM FILE DATA, ARIZ. PUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
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 FRENSAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ. M.S. THESIS
12) FAIR, CHARLES L. 3. PROBABLY CRETAUCEOUS-TERTIARY SECTION IN FRENSAL CANYON, BABOQUIVARI MOUNTAINS: ARIZ. GEO. 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. GEO. SURVEY MAPS.
15) WILSON, I.D., 1961, GOLD PLACERS AND PLACING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
16) JOSEPH, P.E., 1915-1916, MOLYBDENUM: ARIZ. BUR. MINES BULL. 5
24) Mines Handbook, 1922
**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:** 1:0062500

**Latitude:** 31°43'22"N

**Longitude:** 111°35'50"W

**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:**

- **Property is Inactive**

**Description of Deposit**

**Deposit Types:**
QUARTZ FISSION VEINS

DESCRIPTION OF WORKINGS

SURFACE

COMMENTS (DESCRIPT. 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 HN PRODUCED. SMALL AMOUNT OF PLACER GOLD RECOVERED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............. MEGZOIC AND TERT.
HOST ROCK TYPES................ META AND UMMETA. SEDIMENTARY FORMATIONS

AGE OF ASSOC. IGNEOUS ROCKS.. JUK. AND CRET. AND TERT
IGNEOUS ROCK TYPES............ RHYOLITE ANDESITE OR PEGMATITE DIES; AND GRANITIC TO DIOBITIC INTRUSIVES

PERTINENT MINERALOGY......... QUARTZ VEINS WITH CALCITE, IRON AND MANGANESE OXIDES

IMPORTANT ORE CONTROL/LOCUS.. FAULT FISSURES, PEGMATITE DIES 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 B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 306; ARIZ. BUR. MINES BULL. 183, 80 P.
7) KING, R.B., 1969, MOLYBDENUM AND RHEINEN, IN MINERAL AND WATER RESOURCES OF ARIZONA; ARIZ. BUR. MINES BULL. 180, P. 230-236
8) KIRKEMO, HAROLD; ANDERSON, G., AND CREASEY, R.C. 1966, INVESTIGATIONS OF MOLYBDENUM DEPOSITS IN THE CONTERMINOUS UNITED STATES, 19-12-60; U.S. GEO. SURVEY BULL. 1192-E, 90 P.
9) KUCK, P.H., 1976, 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.
12) MIN, MAUNG MYO, PETROGRAHY AND ALTERATION OF THE KITI PEAK AREA, PIMA COUNTY, ARIZONA; UNIV. ARIZ., MS THESIS, 90 P. (1965)
13) MINES HANDBOOK, 1922


17) KEITH, STANTON 9. 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.


19) J.A.M file data. ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS


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

22) CARRIGAN, 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) STRUCTURAL 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 FRENSAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., MS THESIS

25) FAIR, C.L. 1965, GEOLOGY OF THE FRENSAL CANYON AREA, BABOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., PhD THESIS

26) FAIR, CHARLES L. 3. PROBABLE CRETACEOUS-TERTIARY SECTION IN FRENSAL 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.


29) WILSON, E.O., 1961, GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
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: 1:0062500
QUAD NO OR NAME: PALO ALTO RANCH ARIZONA

LATITUDE: 31-55-46N
LONGITUDE: 111-17-28W

UTM Northing: 3532450.0
UTM Easting: 472850.0
UTM Zone No: 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 COMMODITY: Pb Ag Mn
MINOR COMMODITY: Cu Au Mo
MAIN ORE MINERALS:
ARGENTIFEROUS GALENA

MINOR ORE MINERALS:
CHALCOPYRITE, PYRITE, WULFENITE, MANGANIFEROUS SILVER ORE

DESCRIPTION OF DEPOSIT

DEPOSITS TYPES:
VEINS AND REPLACEMENT LENSES

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION 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 (ESCAÑOYA 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; NW 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


5) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS


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 MAREAGLE
MINING DISTRICT/AREA/SUBDIST. GUNSGHT DIST.
COUNTRY CODE............... US
STATE CODE............... 04
COUNTY....................... PIMA

QUAD SCALE QUAD NO OR NAME
1: 0062500 MT. AJQ, 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 GUNSGHT, 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.: PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- FISSURE VEIN

DESCRIPTION OF WORKINGS

UNDERGROUND
- DEPTH OF WORKINGS BELOW SURFACE: 200 FT

COMMENTS (DESCRIPTION OF WORKINGS):
- SHAFT WORKINGS (KEITH 1974)

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1974, P. 172

PRODUCTION COMMENTS: ORIGINALLY PROSPECTED IN LATE 1880'S BUT WORKED AND PRODUCED SPORADICALLY SOME 60 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 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:
5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
6) BRANWELL, A.W., 1919, NEWS OF AJO AND GUNSLIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25
RECORD IDENTIFICATION
RECORD NO. .............. M030536
RECORD TYPE .............. XI
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ....... 1-2
MAP CODE NO. OF REC. ......

REPORTER
NAME ...................... WILD, 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. QUINOFA
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. 05 MI. W OF TUCSON, 42 MI SE OF AJO

COMMODITY INFORMATION
COMMODITIES PRESENT .......... PB CU AG NO? AU ZN

MAIN COMMOD .... PB CU AG
MINOR COMMOD ...... NO? IN AU

MAIN ORE MINERALS:
AZURITE, MALACHITE, GALENA, ARGENTITE

MINOR ORE MINERALS:
NATIVE SILVER, CHALCOPYRITE, PYRITE, SPHALERITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPL OR DEV .
PROPERTY IS INACTIVE
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- VEINS

FORM/SIZE OF DEPOSIT:
- BUNCHY

SIZE/DIRECTIONAL DATA:
- SIZE OF DEPOSIT: SPOTTY, WEAK

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION 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 IN 1924 SOME 50 TONS IN 1924, AVERAGING ABOUT 9 OZ AG/T, 1% 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:
- DUNTRUSIVE 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
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: 1: 0062500
QUAD NO OR NAME: SAN VICENTE, ARIZ.
LATITUDE: 32-00-30N
LONGITUDE: 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:
MULYBENDITE, SPHALERITE
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 
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 TYPE: METASOMATIZED LIMESTONE

AGE OF ASSOCIATED IGNEOUS ROCKS: MESOZ
IGNEOUS ROCK TYPE: APLITIC TO PEGMATITIC 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.
3) CARRIGAN, F.J., 1971, A GEOLOGIC INVESTIGATION OF CONTACT METAMORPHIC DEPOSITS IN THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: MS. THESIS, UNIV. ARIZ.
5) ARIZ. BUR. MINES MINE 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 366: 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 WYD. PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 90 P. (1956)


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............ 0000790
RECORD TYPE ........... A1I1
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 SAHUARITA, ARIZONA

LATITUDE LONGITUDE
31-51-05N 110-45-24W

UTM NORTHING UTM EASTING UTM ZONE NO
3514750.0 522050.0 +12

TWP ........ 18S
RANGE ...... 19E
SECTION ... 24
MERIDIAN .. GILA AND SALT RIVER
ALTITUDE .. 5600 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 108 KM NE MC MIN 6175 (2 MILES E OF HELVETIA

LOCATION COMMENTS: SE 1/4 OF SEC. 24

COMMODITY INFORMATION
COMMODITIES PRESENT ......... CU AG AU W MD

MAIN COMMOD. ....... CU AG
MINOR COMMOD. ....... AU W MD
MAIN ORE MINERALS:
COPPER OXIDE MINERALS

MINOR ORE MINERALS:
SCHWEILITE 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 (DESCRIPTION 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 01 AG/T MINOR AU

GEOLGY 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
5) Schradek, F.C., 1915, Mineral Deposits of the Santa Rita and Patagonia Mountains, Arizona, with contribution by James M. Hill: USGS Bull. 582, 373 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4600263
RECORD TYPE A
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1
MAP CODE NO. OF RECORD

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 1: 0062500
QUAD NO OR NAME EMPIRE MTNS, ARIZONA
LATITUDE 31-56-11N
LONGITUDE 110-42-50W
UTM NORTHING 3533250.0
UTM EASTING 527050.0
UTM ZONE NO 12
THP 175
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. %
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: IRRGULAR

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT..... SMALL

DESCRIPTION OF WORKINGS
COMMENTS (DESCR. 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.)

<table>
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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>W ORE</td>
<td>EST 0.003</td>
<td>TONS</td>
<td>1955</td>
<td>1% WO3</td>
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</table>

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>COPPER ORE</td>
<td>EST 0.1</td>
<td>TONS</td>
<td>1873-1900</td>
<td>3-5% CU</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>CU</td>
<td>EST 100</td>
<td>LBS</td>
<td>1908-1957</td>
<td>HEYMAN, 1958</td>
<td></td>
</tr>
</tbody>
</table>

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 WO3 ORE IN 1955.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. CAMB., CRETAEOUS
HOST ROCK TYPES................. BRECCiated CONGLOMERATES AND LIMESTONES

AGE OF ASSOC. IGNEOUS ROCKS... GREY.
IGNEOUS ROCK TYPES............. QUARTZ MONZONITE DIKES AND STOCKS; QUARTZ DIORITE (FINNELL)

IMPORTANT ORE CONTROL/LOCUS.. BRECCiated CRETAEOUS 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 GLACIAL CONGLOM ERATE 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. 107, P. 124.
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.
NAME AND LOCATION
DEPOSIT NAME: CABABI DISTRICT
SYNONYM NAME: KO VAYA
MINING DISTRICT/AREA/SUBDIST: CABABI (COMOBABI) DISTRICT
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA

QUAD SCALE: 1: 0062500
QUAD NO OR NAME: COMOBABI

LATITUDE: 32°03' N
LONGITUDE: 111°57' W

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, STROMYERITE, TEIRAHEDRITE, Sphalerite, Gold, and Molybdenite; Oxidized Minerals Include: Anglesite, Willemite, Caledonite, Cerussite, Malachite, Aurichalcite Lead Hillite, Lepidocrocite, Limonite, Malachite, Wulfenite, Atacamite, Cerargyrite, Azurite, Copper, Brochantite, Buttenbachite (?), Devillite (?), Cuprite, Siderite, Tenorite, Vanadinite, Toxkrite, Paratacanite, Mimetite, Mottramite, Micksite, Pyromorphite, Svanbergite, Rosasite, Chrysocolla, Smithsonite, Crocoite, Massicot, Litharge, Ferrimolybdate, Stibiconite, Minium, Cornuise

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

DESCRIPTION OF DEPOS11

DEPOSIT TYPES:
VEINS

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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, 162,000 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 DIOBITIC 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, MIMETITE, AND CHRYSOCOLLA AT THE MILDREN MINING 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.
6) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
7) KRAMMELL, A.W., 1919, NEWS OF AJO AND GUNSGNIGHT DISTRICTS: ARIZ. MIN. JOUR., V. 2, NO. 11, P. 24-25.
18) GEBHARDT, R.C., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTA MOUNTAINS: UNIV. ARIZ., MS THESIS, 63 P.
20) HAN, MAUNG MYO PETROGRAPHY AND ALTERATION OF THE KIT PEAK AREA, PIMA COUNTY, ARIZ.: UNIV. ARIZ., MS THESIS, 90 P. (1965).
22) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 95, 86, AND 385: ARIZ. BUR. MINES BULL. 183, 80 P.
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.
38) KEITH, STANTON B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 1R3, 60 P.
39) MINES HANDBOOK, 1920
40) MINES HANDBOOK, 1922, V. XVI
45) STEPHENS, B.A., 1884, QUIJOTOA MINING DISTRICT GUIDEBOOK: TUCSON CITIZEN PRINTING AND PUBLISHING COMPANY
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... M030521
RECORD TYPE .............. A2
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 ............... CATALINA DISTRICT
SYNONYM NAME ............. SANTA CATALINA DISTRICT
MINING DISTRICT/AREA/SUBDIST. CATALINA (SANTA CATALINA)
COUNTRY CODE ............. US
STATE CODE ................ 04
COUNTY ..................... PIMA

UTM NO/NAME
1: 0062500 MOUNT LEMON, AKIZ.
LATITUDE ...................... 32-20-00N
LONGITUDE .................... 110-55-00W
UTM NORTHING .............. 3577000.0
UTM EASTING ............... 5009000.0
UTM ZONE NO ............... 12

THW ........... 12S 13S
RANGE .......... 14E 14E
SECTION .......... 33 34 03
MERIDIAN ........ GILA SALT RIVER

POSITION FROM NEAREST PROMINENT LOCALITY: ON THE SOUTH SIDE OF THE CATALINA MOUNTAINS

COMMODITY INFORMATION
COMMODITIES PRESENT ........ CU AG AU MD

MAIN COMMOD: ........ CU AG
MINOR COMMOD: .......... AU MD

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 (DESCRIPT. 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 QUATERNARY PANTANO CONGLOM. BEDS.

GENERAL COMMENTS
SEE RECORDS M800110 & M800127 FOR FURTHER REFERENCES

GENERAL REFERENCES
4) CATALINA MTS. REFERENCES:
   ACKER, C.L., 1958, GEOLOGIC INTERPRETATIONS OF A SILICEOUS BRECCIA IN THE COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY


38) CONEY, P. J. 1973, THIS VOLUME, CORDILLERAN METAMORPHIC CORE COMPLEXES: GEOL. SOC. AMER. MEMOR.


COPPER QUEEN MINE

MINING DISTRICT/AREA/SUBDIST.  PIMA
COUNTRY CODE...............  US
STATE CODE...............  04
COUNTY...............  PIMA
QUAD SCALE QUAD NO OR NAME
1: 0062500 SAMARITA, ARIZONA
LATITUDE LONGITUDE
31-53- 111-00-
UTM NORTHING UTM EASTING UTM ZONE NO
TPW...... 185 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 MOA

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

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 MG.

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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 ORE</td>
<td>ACC 122 TONS</td>
<td>1900-1957</td>
<td></td>
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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, 0.32 Ag/T AND MINOR Zn AND Pb, PRODUCED INTERMITTENTLY

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PALEOZOIC LIMESTONE

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
3) CUMMINGS, J.B., AND ROMSLIO, T.M., 1950, INVESTIGATION OF THE TWIN BUTTES COPPER MINES, PIMA COUNTY, ARIZONA:
5) BROWN, R.L., 1926, GEOLOGY AND ORE DEPOSITS OF THE TWIN BUTTES DISTRICT: UNIV. ARIZ., MS THESIS
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 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, OWASKO, 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

THP........ 785
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 9186; ON N-S RIDGE BETWEEN SYCAMORE CANYON AND HELVETIA GULCH.

COMMODITY INFORMATION
COMMODITIES PRESENT .......... CU AG AU W MD

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS .. CU
MINOR PRODUCTS .. AG AU
MAIN COMMODITY: CU AG AU
MINOR COMMODITY: W MO

MAIN ORE MINERALS:
- Chalcopyrite
- Chalcocite

MINOR ORE MINERALS:
- Powellite
- Scheelite
- Molybdenite
- Cupriferous Pyrite

ANALYTICAL DATA (GENERAL)
1-10% Cu

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.
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

GEOLGY 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., Scherrer Fm.

PERTINENT MINERALOGY:
- Epidote, Diopside, and Garnet, Wollastonite, 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 chaledonic sedimentary rocks. Strong fracture zone accompanies thrust fault plane (Keith, 1974). Thrust fault between Cambrian Bolsa and Precambrian continental granodiorite (1450 M.Y. Drees, 1971) may be depositional contact (Keith, et al., 1979)

SIGNIFICANT ALTERATION:
- Silification 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
CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO. M030540
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REC...

REPORTER
NAME AND LOCATION
DEPOSIT NAME COWBOY MINE
SYNONYM NAME COWBOY MINE AND SMLTG CO
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 31-52-ZON... LONGITUDE 111-09-21W
UTM Northing UTM Easting UTM Zone No
TWP.. 10S RANGE... 12E SECTION... 07 08 17 18
MERIDIAN GILA AND SALT R.
ALTITUDE.. 4175 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.: PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES: DISSEM.

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS (DESCRIPTION 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
CR18 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 .......................... WITL. 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
I: 0062500 SAN VICENTE, ARIZ.

LATITUDE LONGITUDE
32-02- N 111-30-30W

THP ........ 16S 16S
RANGE ....... 07E 08E
SECTION .... 32
MERIDIAN .... GILA AND SALT RIVER

ALTITUDE .... 3100 FT

COMMODITY INFORMATION
COMMODITIES PRESENT ....... CU AG AU MN ZN MD

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 (DESCRIPTION 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 Mn ORE ALSO SHIPPED.

AGE OF HOST ROCKS: PALEozoIC
HOST ROCK TYPES: LIMESTONE; LARAMIDE VOLCANICS AND SEDIMENTS

AGE OF ASSOCIATED 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

GEOLoGY AND MINERALOGY

AGE OF HOST ROCKS: PALEozoIC
HOST ROCK TYPES: LIMESTONE; LARAMIDE VOLCANICS AND SEDIMENTS

AGE OF ASSOCIATED 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
2) NARGO, J.G., 1959, GEOLOGY OF A PORTION OF THE COYOTE-QUINLAN COMPLEX, PIMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 67 P.
3) KURITZ, W.L., 1955, GEOLOGY OF A PORTION OF THE COYOTE MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS
9) AMERICAN FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
11) KEITH, STANTON R., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 36: ARIZ. BUR. MINES BULL. 183, 80 P.
12) MAUNG MYO, PETROGRAPHY AND ALTERATION OF THE KITT PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 90 P. (1965)
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 PRESUMIDIO PEAK AND BAFOQUIVARI PEAK QUADRANGLES, ARIZONA: U.S. GEOL. SURVEY MAPS.
4) GEOLOGY OF CENTRAL PAPAGO RESERVATION:
5) CLARK, J.L. (1956) STRUCTURE AND PETROLOGY PERTAINING TO A BERYL DEPOSIT, BAFOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZONA M.S. THESIS, 49 P.
7) DODAL, P.C., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BAFOQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., M.S. THESIS.
8) DEHLINGER, M.E., 1949, REPORT ON AJO QUADRANGLE: COMPASS, V. 26, P. 113-133.
10) FAIR, C.L., 1965, GEOLOGY OF THE FRESNAL CANYON AREA, BAFOQUIVARI MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ. PHD THESIS.
13) GEBHARDT, K.J., 1931, GEOLOGY AND MINERAL RESOURCES OF THE QUIJOTOA MOUNTAINS: UNIV. ARIZ., M.S. THESIS, 63 P.
17) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
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31) MINES HANDBOOK, 1920
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36) WILSON, F.D., 1961. GOLD PLACERS AND PLACERING IN ARIZONA: ARIZ. BUR. MINES BULL. 168
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: 0062500
QUAD NO OR NAME: TWIN BUTTES, ARIZONA
LATITUDE: 31-59-10N
LONGITUDE: 111-04-42W
UTM NORTHING: 165 175
UTM EASTING: 12E 12E
SECTION: 36
MERIDIAN: GILA ND 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 MD
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 (DESCRIPTION OF WORKINGS):

SHAFT AND OPEN PIT WORKINGS

<p>| | | | |</p>
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<tr>
<td>18</td>
<td>ORE ACC</td>
<td>3264 TONS</td>
<td>1957-1963</td>
</tr>
<tr>
<td>19</td>
<td>CU ACC</td>
<td>525.70 LBS</td>
<td>1957-1963</td>
</tr>
<tr>
<td>20</td>
<td>Pb ACC</td>
<td>8 LBS</td>
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<td>21</td>
<td>ZN ACC</td>
<td>166 LBS</td>
<td>1957-1963</td>
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<tr>
<td>22</td>
<td>Ag ACC</td>
<td>411 DZS</td>
<td>1957-1963</td>
</tr>
<tr>
<td>23</td>
<td>Au ACC</td>
<td>.016 DZS</td>
<td>1957-1963</td>
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</table>

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PALEozoic
HOST ROCK TYPES: GARNETIZED LIMESTONE

AGE OF ASSOCIATED 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 PINA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 139, P. 138
3) MACKENZIE, F.D., 1959, PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOLOG. 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) ARIZONA BUREAU OF MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.--------- MO30549
RECORD TYPE.-------- A1
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. надо QUAD NO OR NAME
1: 006250  
VACA HILLS, ARIZONA
LATITUDE.------------ LONITUDE
32-25-04N 111-32-16W
UTM NORTHING. UTM EASTING UTM ZONE NO
3586725.0 449425.0 *12
TWPA.. 115 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 VAB4 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 (NORTH OF KURTZ SHAFT)

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
PYROMETASOMATIC
FORM/SHAPE OF DEPOSIT: IRREGULAR

DESCRIPTION OF WORKINGS
UNDERGROUND
COMMENTS (DESCRIPTION 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 PorphRY AND MONZONITE
AGE OF MINERALIZATION: CRET. TERT.
IMPORTANT ORE CONTROL/LOCUS: SHEARED AND GARNETIZED LIMESTONE IN CONTACT WITH LARAMIDE ALASKITE, DACITE PorphRY 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, 19 P.


6. AGDM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS


8. U.S. GEOLOGICAL SURVEY MINERAL RESOURCES 1908, P. 153

9. BUR. MINES HANDBOOK 1918


15. BLANCHARD, ROLAND, 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.


23. EDELMISON, R.C., 1971, THERMAL GRADIENTS AND SULFIDE OXIDATION IN THE SILVER BELL MINING DISTRICT, PIMA COUNTY, ARIZONA: M.S. THESIS, UNIV. ARIZ.


32) M. E. MCCLYMONDS (1959), PALEOZOIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOLOGICAL SOCIETY, SOUTHERN ARIZONA GUIDEBOOK II.


36) A. H. SHOEMAKER AND G. SOMMERS (1924), THE GEOLOGY OF THE EL TIRO MINE, SILVER BELL, ARIZONA: UNIV. ARIZONA M.S. THESIS, 40 P.


38) C. A. STEWART (1912), THE GEOLOGY AND ORE DEPOSITS OF THE SILVER BELL MINING DISTRICT, ARIZONA: MIN. ENGR. V. 65, P. 455-505 (1912); TRANS., V. 43, P. 240-2490, MAP (1913) [ABST.]: MIN. WORLD, V. 86, P. 1104-1147-1150 (1912).


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42) B. N. 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.
CRIE 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 MIS
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..... Pb 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 MINE AND PROSPECTS MOSTLY RELATIVELY SHALLOW (KEITH, 1974, P. 117)

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>AGG. AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 ORE</td>
<td>EST 34.5 TONS</td>
<td>1880-1964</td>
<td></td>
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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 17? TONS Cu, 8,335 TONS Pb, 258 TONS Zn, 749 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. (7) M.Y.
IGNEOUS ROCK TYPES: SYCAMORE CANYON QUARTZ MONZONITE

AGE OF MINERALIZATION: CRET. (7) 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

1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 150.


9) SCHRAER, F.C., AND HILL, J.M., 1919, SOME OCCURRENCES OF MOLYBDENUM IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163 (1960); MS THESIS.


17) SCHRAER, F.C., AND HILL, J.M., 1919, SOME OCCURRENCES OF MOLYBDENUM IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY BULL. 430, P. 154-163 (1910); MS THESIS.

34) SIPP, G.P. (1940) GEOLOGY OF THE MONTANA MINE AREA, EMPIRE MOUNTAINS, ARIZONA. UNIV. ARIZONA M.S. THESIS, 63 P.


36) WILSON, E.D., 1951, EMPIRE DISTRICT. IN ARIZONA ZINC AND LEAD DEPOSITS, PART II. P. 49-56: ARIZ. BUR. MINES BULL. 158.

NAME AND LOCATION

DEPOSIT NAME: ESPERANZA AND SIERRITA MINES

MINING DISTRICT/AREA/SUBDIST: PIMA

COUNTRY CODE: US

STATE CODE: 04

COUNTY: PIMA

QUAD SCALE: 1:0062500

QUAD NO OR NAME: TWIN BUTTES, ARIZONA

LATITUDE: 31°52'07"N

LONGITUDE: 111°07'29"W

UTM NORTHING: 185

UTM EASTING: 12E

UTMZONE NO: 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, magnesite, Marcasite, Fluorite, AND RARE BORNITE. SECONDARY MINERALS INCLUDE CHALCOCITE, CUPRITE, TENEORITE, 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. %
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 687,864 LBS 1959-1978
21 AG 573,563 LBS 1959-1978
22 MO 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 0.32% CU
2 CU 2145 1959-1978 0.036% MO
3 MO 239


COMMENTS (RESERVES/POT RESOURCES): 590 MILLION TONS

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS................. TRI., JUR., CRET., TERT.
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 DX FRAME VOLCANICS OF TRIASSIC AGE. ONLY ANDESITE WAS AN IMPORTANT HOST FOR HYPOGENE MINERALIZATION. SIGNIFICANT SECONDARY COPPER ENRICHMENT HAS BEEN RESTRICTED TO HIGHLY FRACTURED ZONES IN ALL UNITS OF THE DX FRAME VOLCANICS.
THE HARRIS RANCH QUARTZ MONZONITE CONTAINS AN EXTENSIVE HYDROGENE 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 HYDROGENE 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.


AGE OF ASSOC. IGNEOUS ROCKS: TENT. (53.5, 56, 56.9 M.Y.);

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, HYDROGENE MINERALIZATION IS ASSOCIATED WITH SPECIFIC ROCK TYPES AND IS GENERALLY 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 MINERALIZED SET IS MOST STRONGLY MINERALIZED AND PARREL TO MAJOR STRUCTURAL TRENDS IN THE MINE AREA. ALSO, THE EAST-NORTH 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 DX FRAME RHYOLITE. ECONOMIC CONCENTRATIONS ALSO OCCUR IN DX FRAME ANDESITE AND BIOTITE QUARTZ DIORITE, WHICH ARE GOOD HOSTS. (AIKEN AND WEST, 1978).

SIGNIFICANT ALTERATIONS:
ALTERATION IN THE ORE ZONE IS PREDOMINANTLY POTASSIC, WITH PHYLLIC AND MINOR ARGILLIC ASSEMBLAGES. PROPYLITIC MINERALS COMMONLY OCCUR OUTSIDE THE PIT AREAS. ALL ROCK TYPES ARE MINERALIZED AND ALTERED.


PYRRHILOCALKEAL MACROSCALE OCCURS THROUGHOUT THE DEPOSIT AND IS RELATIVELY INTENSE IN EAST ESPERANZA. AT SIERRITA, SULFURIC DEPRESSION WITH SERICITE ALTERATION ENVELOPES OCCURS WITHIN AND PERIPHERAL TO THE POTASSIC ZONE AND DIMINISHES WITH DEPTH.

ARGILLIC ALTERATION IS MAINLY RESTRICTED TO FAULTS AND FRAGMENTS OF DX FRAME ANDESITE. MANY OF THE CHANGES IN THE CLAY ALTERATION IN THE UPPER LEVELS OF THE MINES MAY BE ATTRIBUTED TO SUPPERGENE EFFECTS.

PROPYLITIC ALTERATION IS PRESENT AT SIERRITA AND ESPERANZA AND FORMS A GRADATIONAL HALO AROUND THE POTASSIC
AND PHYLLIC 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 ENPLACEMENT 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 MOLYBDENUM FRACTURE FILLINGS, BUT CHALCOPYRITE AND PYRITE ARE ALSO PRESENT AS DISSEMINATIONS AND BLEBS.

GENERAL COMMENTS
SEE RECORD NUMBER MB99997 FOR REFERENCES
CRIB MINERAL RESOURCES FILE 1?

RECORD IDENTIFICATION
RECORD NO. .............. M291484
RECORD TYPE .......... 44
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
352975.0 408400.0 12

TOPO ...... 10S
RANGE .. 12E
SECTION .. 08 SE 16 W4 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, TENDERITE METACUNITE
MINOR ORE MINERALS: 
CUPRITE, CHALCOTRICHITE, MINOR FORBENITE, FERRIMOLYBDITE, GALENA, SPHALERITE, NATIVE COPPER, TURQUOISE, 
NARCASITE

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 DEPOSITS: 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 EXTRREMITIES OF THE ORE
ZONE NARROWS TO A MINEABLE 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

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GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS .......... TRIASSIC TO CRETAUCEOUS
HOST ROCK TYPES .......... VOLCANICS, RHOMOLITE 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

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 BIORITE 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 NORTH 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 OBSCURED ON THE WEST BY A BROAD NORTHWEST-TRENDING SHEAR ZONE. LYNCH 1978

SIGNIFICANT ALTERATION:


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 ALTERATING (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, DEVIITIFICATION, AND WELDING OF THE TUFF, FAULTING TRENDING NORTHEAST TO EAST-NORDBEAST 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, DEVIITIFICATION, AND WELDING OF THE TUFF WERE ACCOMPANIED AND FOLLOWED BY NORTH-SOUTH FAULTING. A BIORITE 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 REALTION OF DACTIE 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) INTRODUCED ALONG FAULTS IN BIORITE 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 (MoS2) 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 SECONDARY 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
4) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
8) BAN-
12) HILLMAN, BERRY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA MINE: UNPUBLISHED ABST.:
PACIFIC SOUTHWEST MINERAL INDUSTRY CONFERENCE, PROG. AND ABST., P. 14-15.


30)SAVELY, 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.


34)ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS 35)WORLD MINING, JUNE 1972, SIERRITA
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 (CHRYSOCOLLA AND MALACHITE)

ANALYTICAL DATA (GENERAL)
ZOISITE BEARING QUARTZITE BID ASSAYED 0.30% 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.:
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.

GEOLGY 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
4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
6) ARIZ. DEPT. MINERAL RESOURCES, 1942, 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, BABADQUIVARI MOUNTAINS, ARIZONA. UNIV. ARIZ. M.S. THESIS, 49 P.
9) DODD, P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABADQUIVARI MOUNTAINS, ARIZONA: UNIV. ARIZ., M.S. THESIS
NAME AND LOCATION
DEPOSIT NAME: GUNSIGHT DISTRICT
MINING DISTRICT/AREA/SUBDIST: GUNSIGHT (MEYER) / SUNSIGHT HILLS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA

LATITUDE: 32-12- N
LONGITUDE: 112-42- W
UTM NORTHING: 145 155
UTM EASTING: 04W 04W
TWP: 14S 15S
RANGE: 04W 04W
SECTION: 16 21 25 07 03
MERIDIAN: GILA AND SALT R.

COMMODITY INFORMATION
COMMODITIES PRESENT: AG AU BP ZN CU W MO RA

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 (DESCRIPTION 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 99, 100,600 0Z AG, 400 0Z 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. 122.
2) MINES HANDBOOK 1920
3) ABM FILE DATA
5) ARIZ. DEPT. MINERAL RESOURCES, 1962. MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
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,


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........................ NO 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

TMP........ 175 1RS
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 MD W F U, SB

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. CU
MINOR PRODUCTS.. AG MD PB ZN AU

MAIN COMMOD...... CU
MINOR COMMOD...... PB AG ZN AU MD W

MAIN ORE MINERALS:
CHALCOPYRITE, CUPREDOUS PYRITE
MINOR ORE MINERALS:
MOLYBDENITE, CHALCOCITE, SPHALERITE, AZURITE, MALACHITE, CHRYSOCOLLA, POWELLITE, SCHEELITE, GALENA, FLUORITE,
URANIUM 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 (DESCRIPTION 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, COMM+CONC., ORE, CONC. + ORE)

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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 PALEO
HOST ROCK TYPES: LIMESTONE AND QUARTZITE; CONTINENTAL GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS: TERT
IGNEOUS ROCK TYPES: QUARTZ LADITE 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 TERTIARY QUARTZ LATITE PORPHYRY DIKES (56 M.Y.) ESPECIALLY CONCENTRATING SULFIDE ORE IN METAMORPHISED (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.
4) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
10) DONHAM, R.S., 1937, THE GEOLOGY OF THE BLUE JAY MINE AREA, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS.
23) ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.


26) G. R. S. P., 1969, MINERALIZATION AND ALTERATION IN THE GREATERVILLE DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZ. MS. THESIS. 82 P.


32) J. A. V. H., 1941, GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH. D. DISSERTATION. 111 P.


43) Parker, R. (IN PRESS) (GEOPHYSICS IN THE UPPER SANTA CRUZ BASIN SOUTH OF TUCSON, ARIZONA); UNIVERSITY OF ARIZONA UNPUBLISHED MS. THESIS.


55) USGS Mineral Resources, 1906, p. 168


## CRIB MINERAL RESOURCES FILE 12

### RECORD IDENTIFICATION
- **RECORD NO.** 4030517
- **RECORD TYPE.** XI
- **COUNTRY/ORGANIZATION.** USGS
- **INFORMATION SOURCE.** 1.2
- **MAP CODE NO. OF RECORD.**

### REPORTER
- **NAME.** WILT, J.A.
- **DATE.** 79 04

### NAME AND LOCATION
- **DEPOSIT NAME.** HIGH CARD MINE
- **SYNONYM NAME.** FARO BANK GROUP
- **MINING DISTRICT/AREA/SUBDIST.** CABAIBI DIST./SOUTH COMORABI MTS

### COUNTRY CODE
- **US
- **STATE CODE.** 04
- **COUNTY.** PIMA

### QUAD SCALE
- **QUAD NO OR NAME.** SELLS, ARIZONA

### LATITUDE
- **LONGITUDE.**

### UTM NORHTHING
- **UTM EASTING.**

### TWP.
- **RANGE.** 05E
- **SECTION.** 04
- **MERIDIAN.** GILA AND SALI RIVER

### ALTITUDE.
- **3300 FT

### LOCATION COMMENTS.
- 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 ORE MINERALS.**
  - **MINOR ORE MINERALS.**
BASE METAL SULFIDES

MINOR ORE MINERALS:
SOME MOLY IN ASSAY

EXPLORATION AND DEVELOPMENT
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION 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/POTENTIAL RESOURCES): DEPT MIN. RES., 1962, NO PROSPECTS-AZ

COMMENTS (RESERVES/POTENTIAL 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 COMORABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY ARIZONA: UNIV. ARIZ.,
PHD THESIS, 155 P.
3) ARIZ. DEP'T. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZ. DEP'T. MIN. RES., PHOENIX,
4) AMD FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
GEOLOGIC MAP OF THE COMORABI QUADRANGLE, PIMA COUNTY, ARIZONA: U.S. GEO. SURVEY, MISC. FIELD STUD. MAP, MF-964.

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 PP 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, ROLSA QUARTZITE, ABRIGO FM, MARTIN FM, ESCABROSA LIMESTONE, AND MACO 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 FAULTS TREND NW AND E TO NE

SIGNIFICANT ALTERATION:
SILICIFIED AND IMPREGNATED WITH IRON OXIDE

COMMENTS (GEOLOGY AND MINERALOGY):
Wulfenite and mimetite on quartz postdate galena that is altered to anglesite (STANLEY B KEITH) Wulfenite is not at main mine

GENERAL REFERENCES
1) KEITH, STANLEY B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
2) RUFF, A.R., 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, NEAL E., 1959, PALEozoIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ. GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II, P. 67-76.
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) A&M FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
8) KEITH, STANLEY B., 1977, PERSONAL COMMENT.
9) MINES HANDBOOK, 1926
CRI 8 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. P M030533
RECORD TYPE P XI
COUNTRY/ORGANIZATION P USGS
INFORMATION SOURCE P 1, 2
MAP CODE NO. OF REC.

REPORTER
NAME P WILT, JAN C.
DATE P 80 09

NAME AND LOCATION
DEPOSIT NAME P ISLE ROYALE MINE
MINING DISTRICT/AREA/SUBDIST. P HELVETIA - ROSEMONT DIST./SANTA RITA MTS
COUNTRY CODE P US
STATE CODE P 04
COUNTY P PIMA
QUAD SCALE P 0062500
QUAD NO OR NAME P SAHUARITA, ARIZ.
LATITUDE P 31-51-28N
LONGITUDE P 110-46-02W
UTM NORTHING P 3524550
UTM EASTING P 522050
UTM ZONE NO P 12
TWP P 18S
RANGE P 15E
SECTION P 24
MERIDIAN P 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 P SE 1/4 OF NW 1/4 SEC 24

COMMODITY INFORMATION
COMMODITIES PRESENT P CU AG AU MD W

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS P CU
MINOR PRODUCTS P AG

MAIN COMMOD P CU AG
MINOR COMMOD P AU MD W
MAIN ORE MINERALS:  
CUPRIFEROUS PYRITE, COPPER CARBONATE, CHALCOCITE  
MINOR ORE MINERALS:  
POWELLITE IN WINZE E OF SHAFT; MALACHITE, AZURITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  
PROPERTY IS INACTIVE
YEAR OF DISCOVERY...........  LOCATED IN EARLY 1800'S
BY WHOM.....................  LOCATED BY C F 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

CONDITIONS OF WORKINGS:
SHAFT AND 4000 FT WORKINGS ON 7 LEVELS (CREASY AND QUICK)

PRODUCTION
YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>30</td>
<td>TONS</td>
<td>1880-1912</td>
<td>3% Cu, 1 OZ Ag/1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION)-- KEITH, 1974, P. 126

GEOLGY 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. DREYES)

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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. 4030553
RECORD TYPE .............. XI
COUNTRY/ORGANIZATION . USGS
INFORMATION SOURCE ...... 1,2
MAP CODE NO. OF REC. ....

REPORTER
NAME ..................... WILT, JAN C.
DATE ...................... 03 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 EASING UTM ZONE NU
3513650.0  5134000 +12

THP ....... 195
RANGE .... 14E
SECTION .. 24
MERIDIAN  GILA SALT RIVER

ALTITUDE .... 4570 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.4 KM SW BM 3992; 1 MI S OF MCCLEARY CAMP ON JACKSON CANYON

LOCATION COMMENTS: SE 1/4 OF SEC 24

COMMODITY INFORMATION
COMMODITIES PRESENT ............ CU AG AU MD?

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS ....... CU
MINOR PRODUCTS .... AG
MAIN COMMDO:... CU
MINOR COMMDO:... AG AU MO?

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL
OCCURRENCE:... NO?

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 ORE BODY:..... 72 NNW

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 100 FT

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMDO, CONC., ORE, BURR.)
ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 HAND PICKED ORE, BEST 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 (68 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
4) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
5) MINES HANDBOOK, 1920.
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: 1: 0062500
QUAD NO OR NAME: SAHUARITA, ARIZONA

LATITUDE: 31°51'20"N
LONGITUDE: 110°45'29"W

UTM NORTHING: 3524300.0
UTM EASTING: 522950.0
UTM ZONE NO: 112

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 4196; 2 MILES E OF HELVETIA
LOCATION COMMENTS: EAST CENTER OF SEC 24

COMMODITY INFORMATION

COMMODITIES PRESENT: CU AG ZN PR AU MO A U W E

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS: CU
MINOR PRODUCTS: AG PB ZN
MAIN COMMODITY: Cu Ag Au
MINOR COMMODITY: Zn Mo Pb W U Be

MAIN ORE MINERALS: 
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
BORNITE, MALACHITE, AZURITE, CUPRITE, LEAD MINERALS, SCHEELITE, MOLYBDENITE, PITCHBLONDE, SPHALERITE, URANINITE

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
PYROMETAMORPHIC, FRACTURE FILLINGS

FORM/SHAPE OF DEPOSIT:
STRINGERS AND POCKETS

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
LENGTH OF WORKINGS:
340 FT

COMMENTS
SURFACE WORKINGS:
ADIT AND OPEN CAVITY 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 ASSOCIATED 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 FR Actures 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, DROP SIDE, MARBLE AND UNALTERED LIMESTONE, IS THICKEST (15 TO 50 FT) WHERE INTRUSIVE CONTACT IS MORE GENTLY DIPPING AND EXTENDS FARTHER WHERE FRACTURING IS MORE PERVERSIVE.
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 SERILITIZATION OF FELDSPARS IN THE QUARTZ MONZONITE BORDERING QUARTZ - MOLYBDENITE VEINS; AND TREMOLITIZATION OF DROP SIDE. (MICHEL, 1958)

COMMENTS (GEOLOGY AND MINERALOGY):
PPODS 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) KEEF, STATION B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156
4) MICHEL, F.A., JR., 1959, GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS, 59 P.
6) HEYMAN, A.M., 1950, 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
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: 1:0062500
QUAD NO OR NAME: BELLOTA RANCH, ARIZ.
LATITUDE: 32-23-12N
LONGITUDE: 110-34-39W
TEMP.: 125
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: DEVI CAMB, TERT.
HOST ROCK TYPES: MARTIN FM, GARNET SKARN ABIGRA FM

AGE OF ASSOC. IGNEOUS ROCKS: CRET. TERT (70-65 M.Y.)
 IGNEOUS ROCK TYPES: CATALINA GRANITE (1) 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-EPIDOTEMUSCOVITEVEINING

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
3) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P.
BIBLIOGRAPHY

1) ARM, R. E., 1976, MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS

2) RAABE, ROBERT G., 1959, STRUCTURE AND PETROGRAPHY OF THE BULLOCK CANYON, BUCHMAN CANYON AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZONA, MS THESIS

3) SLODMER, JOHN P. (1974) GEOLOGY AND KINEMATIC ANALYSIS OF DEFORMATION IN THE REEDING PASS AREA, PIMA COUNTY, ARIZONA; UNIVERSITY OF ARIZONA MS THESIS

4) MCKENNA, JOHN J. BUCHMAN CANYON PALEONTOIC SECTION, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 57 P.

5) Broderick, J.P., 1967, STRUCTURE AND PETROGRAPHY OF THE PIETY HILL AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
LEADER MINE

SYNONYM NAME: IS ON COPPER FEND, COPPER WORLD AND OWASKO PATENTED CLAIMS

MINING DISTRICT/AREA/SUBDIST: HELVETIA - ROSEMENT DIST. SANT RITA MTS.

COUNTRY CODE: US

STATE CODE: 04

COUNTY: PIMA

QUAD SCALE: 0062500

QUAD NO OR NAME: SAHUARITA, ARIZONA

LATITUDE: 31°51'34"N
LONGITUDE: 110°46'09"W

UTM NORTHING: 3524750.0
UTM EASTING: 521900.0
UTM ZONE NO: +12

TWP: 18S
RANGE: 15F
SECTION: 24 13
MEROIDIAN: GILA AND SALT RIVER

ALTITUDE: 4765 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 3 AIR MILES NW OF ROSEMENT, 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 COMMODITY: Cu Ag Mo
MINOR COMMODITY: W Zn Au

MAIN ORE MINERALS:
- Chalcopyrite, Cupferous Pyrite, and Molybdenite

MINOR ORE MINERALS:
- Powellite, Spalaeite, 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.: Property is inactive
- Present/Last Owner: Owned in 1956 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: 160 ft
- Max Width: 8 ft
- Max Thickness: 100 ft
- Dip of Orebodies: 40 degree E
- Direction of Plunge: N

DESCRIPTION OF WORKINGS
- Depth of Workings Below Surface: 140 ft
- Length of Workings: 2000 ft

COMMENTS (DESCRIPTION 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, COMM., CONC., OVERBURD.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>1 Mo Concentrate</td>
<td>600</td>
<td>TONS</td>
<td>1934</td>
<td>50% Mo S2 Concentrates</td>
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### Cumulative Production (ore, commod., conc., overbur.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
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<tr>
<td>15 ORE</td>
<td>EST 30 TONS</td>
<td></td>
<td></td>
<td>6% Cu, 1 oz Ag/t</td>
</tr>
</tbody>
</table>

**Source of Information (production)**: Keith, 1974, p. 126

**Production comments**: Produced sporadically some 30,000 tons of ore averaging about 6% Cu, 1 oz Ag/t and minor Au. In 1934 about 13 tons of 50% MoS2 concentrate shipped.

**Source of Information (reserves/pot resources)**: Creasey and Quick, 1958, p. 316

**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; discriminations and stringers of scheelite and powellite in garnetiferous contact zones associated with molybdenite. Molybdenite is in zone below.

### General References

4) JOHNSON, V.H. (1941) GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA. UNIV. ARIZONA PH.D. DISSERTATION, 111 P., P. 85


8) ARIZ. DEPT. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

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


13) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148, P. 36
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. M030516
RECORD TYPE ............ A1
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. COMOBABI MIS
COUNTRY CODE ........... US
STATE CODE .............. 04
COUNTY .................. PIMA

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

LATITUDE LATTITUDE
32-01-00N 111-54-45N

TWP ........ 16S
RANGE ... 04E
SECTION .. 23 26
MARRIDIAN .. GILA AND SALT RIVER

ALITUDE .. 2630 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF WICKCHOUPIE VILLAGE; WESTSIDE OF S. COMOBABI MIS

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, CHOCOLATE, 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 (DESCRIPT. 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>15 CU</td>
<td>EST</td>
<td>40</td>
<td>LBS</td>
<td>1890-5-1933</td>
<td></td>
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<tr>
<td>16 PB</td>
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<td>100</td>
<td>LBS</td>
<td>1890-5-1933</td>
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<td>17 AG</td>
<td>EST</td>
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<td>LBS</td>
<td>1890-5-1933</td>
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</table>

$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.

GEOLGY 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 E+ TONS 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 FT 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, MINEITE, AND CHRYSCOLLA AT THE MILDREN MINE AND WITH MALACHITE AND CERUSSITE AT THE CHICAGO MINE.

GENERAL REFERENCES
3) KEITH, STANTON R., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 110
4) ARM, FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030519
RECORD TYPE. XI
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. BABOQUIVARI DIST
COUNTRY CODE. US
STATE CODE. 04
COUNTY. PIMA

QUAD SCALE
I: 0062500
BABOQUIVARI PEAK, ARIZ.

LATITUDE
31-50-57N

LONGITUDE
111-34-56W

THP. 185
RANGE. 07E
SECTION. 24 C
MERIDIAN. GILA AND SALT R.
ALTITUDE. 4625 FT

POSITION FROM NEAREST PROMINENT LOCALITY: RIDGE NORTH EAST OF FRENSAL 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.

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.


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


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


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: I: 0062500
QUAD NO OR NAME: BELLUTA RANCH, ARIZ.
LATITUDE: 32-26- N
LONGITUDE: 110-35- W

LOCATION COMMENTS: GEOLOGY DESCRIBED DOES NOT MATCH LOCATION OF T1S, R19E, WHICH IS NE OF REDINGTON IN GRAMAN CO.
GEOLIGY OF AREA 4 MILES NW OF REDINGTON DOES CONSIT OF PALEOZOIC LIMESTONES, BUT NO PROPHRITIC, INTERMEDIATE IN ACIDITY PLUTONIC ROCK OR ANY OTHER IGNEOUS ROCK IS MAPPED. LOCATION MAY BE T11S, R19E, SEC 29 OR 32.

COMMODITY INFORMATION
COMMODITIES PRESENT: Pb, Mo, 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 D7 Au, 7.2 oz Ag, 1.63% 3.91% Mo. (DEPT. MIN. RES. 1962, Mo)
RECORD IDENTIFICATION
RECORD NO................... MD30551
RECORD TYPE.................. II
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE........ 1,2
MAP CODE NO. OF RECI.

RECORPER
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
I: 0062500 VACA HILLS, ARIZONA
LATITUDE................................ 32-25-41N
LONUTIUE................................ 110-37-33W
UTM NORTHING UTM EASTING UTM ZONE NO
35R7600.0N 440075.E +12
TWP....... 11S
RANGE.... 07E
SECTION.. 34 EC
MERIDIAN. GILA SALT RIVER
ALTITUDE. 2235 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 6 MI W OF SILVER BELL

COMMODITY INFORMATION
COMMODITIES PRESENT........... CU AG PB MD VN

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

MAIN COMMOD..... CU AG
MINOR COMMODITY: Pb, Mo, Mn

MAIN ORE MINERALS:
- Copper Oxides, Copper Sulfides

MINOR ORE MINERALS:
- Wulfenite, Manganese and Iron Oxides

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
- 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.):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT</th>
<th>INDUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15 ORE EST</td>
<td>0.3 TONS</td>
<td>1950-1960</td>
<td>2.5% Cu, 0.14 oz Ag/T</td>
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</table>

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:
- Paleozoic, Cretaceous

HOST ROCK TYPES:
- Limestone and sediments and andesitic volcanics

AGE OF ASSOCIATED IGNEOUS ROCKS:
- Cretaceous - Tertiary (?)

IGNEOUS ROCK TYPES:
- Andesitic volcanics

AGE OF MINERALIZATION:
- Cretaceous - Tertiary (?)

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):
APPEARENTLY PERIPHERAL TO SILVER BELL MINERALIZATION

GENERAL REFERENCES
1) KEITH, STANTON R., 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 TIKO HILLS, WEST SILVERBELL MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 51 P.
3) ARIZ. BUR. MINES FILE DATA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030552
RECORD TYPE. X
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 1: 0062500 MT. WRIGHTSON
LATITUDE 31-43-37N
LONGITUDE 110-52-47W
UTM NORTHING 3509950
UTM EASTING 511400
UTM ZONE NO 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

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 DREBODY: N 60 E
- DIP OF DREBODY: 70 N

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
- SHAFT 40 FT DEEP; 10 FT TUNNEL; 3 OTHER PROSPECTS (SCHRADE, 1915)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: TERT-CRET.
- HOST ROCK TYPES: MADEIRA 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 60, 69 M.Y. K-AR) (DREWES, 1971) MADEIRA CANYON GRANODIORITE (COARSE GRAINED GRANODIORITE PORPHYRY PHASE) MAY UNDERLIE ALLUVIUM ALSO AS IT IS EXPOSED NEARLY 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 1/8 INCH THICK BY 1 SQUARE INCH

GENERAL REFERENCES


RECORD IDENTIFICATION
RECORD NO. .............. 0030555
RECORD TYPE ............ XI
COUNTRY/ORGANIZATION .. USGS
INFORMATION SOURCE ...... 1, 2
MAP CODE NO. OF REC..

REPORTER
NAME. ...................... WILT, JAN C.
DATE. ...................... 90 03

NAME AND LOCATION
DEPOSIT NAME .............. MILDREN MINE GROUP
MINING DISTRICT/AREA/SUBDIST. CAHABI DIST./S. COMORABI MILS
COUNTRY CODE ............... US
STATE CODE ................. 04
COUNTY ..................... PIMA
QUAD SCALE QUAD NO OR NAME
1: 0062900 COMORABI, ARIZONA
LATITUDE LONGITUDE
32-02-19N 111-55-42W
UTM NORTHING UTM EASTING UTMIZONE NO
TWP. ........ 16S
RANGE . . . . . . . . . . . . . 04
SECTION ... 16 EC PROTRACTED
MERIDIAN. GILA SALT RIVER
POSITION FROM NEAREST PROMINENT LOCALITY: 2 KM NE USMM NO6

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, CUVFELLITE, STROMEYERITE, TETRAHEDRITE, SPHALERITE, GOLD AND MOLYBDENITE,
OXIDIZED MINERALS INCLUDE: ANGLESITE, WILLEMITE, CALEDONITE, CERUSITE, MATLOCKITE, AURICHALCITE
LEADHILLITE, LEPIDOCKCITE, LINARITE, MALACHITE, WULFEVITE, ATACAMITE, CERARGYRITE, AZURITE, BROCHANTITE, SIDERITE, DESCOIZITE VANADINITE, IODRite, PARATACAMite, MINEITe, NOTTRAMITE, NICRite, PYROMORPHITE, SVANBERGITE, ROSASITE, CHRYSOCOLLA, SMITHSONITE, CROCOITE, MASSICUT, LITHARGE, FERRIMOLYBDITE, STIBICONITE, MINUM, CORNUITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. - 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 (DESCRIPTION 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/TA, 0.2 OZ Au/TA 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 DJMPS 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, CERUSITITE, MIMETITE, AND CHRYSOCOLLA AT THE MILDREN MINE AND WITH MALACHITE AND CERUSITATE AT THE CHICAGO MINE.

GENERAL REFERENCES
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) BRYMER, L. I., GEOLGY OF THE SOUTH COMOABI MOUNTAINS AND KO VAYA HILLS, PIMA COUNTY, ARIZONA: UNIV. ARIZ. PHD THESIS, 156 P. (1959)
**CRIB MINERAL RESOURCES FILE 12**

**NAME AND LOCATION**

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<th>DEPOSIT NAME</th>
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**COORDINATES**

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<td>31°59' N</td>
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| TWP | 16S | 16S |
| RANGE | 13E | 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

**MAIN ORE MINERALS:**

- **MAIN COMMOD**: CU AG ZN
- **MINOR COMMOD**: MO PB AU SN W F
CHALCOPYRITE, PYRITE

MINOR ORE MINERALS:
MOLYBDENITE, SPHALERITE, BORNITE, GALENA, COPPER CARBONATES

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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 118,041. TONS 1961-1978
19 CU: ACC 144,2117. LBS 1961-1978
20 PB: ACC 2195. LBS 1961-1978
21 ZN: ACC 6,016. LBS 1961-1978
22 AG: ACC 10,714. 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, 0.1301 AG/T AND CONSIDERABLE BY-PRODUCT ZN, Mn, AND PB, VERY LITTLE GOLD

SOURCE OF INFORMATION (RESERVES/POT RESOURCES): GREELYE, 1978, P. 89

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) METAMORPHICIZED TO
VARIOUS SILICATE MINERALS, AND ALL ARE IMBIBED WITH SULFIDES.


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 BANDS 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 CUMULATION, AND ALONG THIS FAULT ARE CONCENTRATIONS OF MASSIVE SULFIDES. (KINNISON, 1966)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SIGNIFICANT ALTERATION:
ALTERATION PRODUCTS IN THE FELDSPATHIC 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)


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 INFERENCES DRAWN THAT THE MINERALIZATION PROCESS IS HYDROTHERMAL-METAMORPHIC RATHER THAN PYROMETASOMATIC, AND IS UNRELATED TO ANY SPECIFIC CONTACT ACTION OF THE MONZONITE. HYDROTHERMAL-METASOMATIC IS ENVISIONED HERE AS INVOLVING TWO MECHANISMS: (1) TRANSFER THROUGH UNFRACURED 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 INTRODUCED 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 SULFIDES OCCUR AS DISCRETE GRAINS AND SMALL AREAS -- THE REMAINDER, AS VEINS AND VEINLETS PLUS A FEW SIZEABLE PODS OF MASSIVE SULFIDES. SIZEABLE ZONES EXIST WHICH CONTAIN SULFIDES ONLY IN THE FORM OF GRAINS AND AREAS.

GENERAL COMMENTS
SEE RECORD NUMBER MB99991 FOR REFERENCES
NAME AND LOCATION
DEPOSIT NAME.................. NEW CORNELIA (AJO) MINE
SYNONYM NAME.................. AJO MINE
MINING DISTRICT/AREA/SUBDIST. AJO DIST./LITTLE AJO MTS.
COUNTRY CODE.................. US
STATE CODE.................... 04
COUNTY......................... PIMA

LATITUDE LONGITUDE
32-21- N 112-52- W

TWP........ 125
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; CHALOCOCITE

MINOR ORE MINERALS:
MINOR SPOTTY MOLYBDENITE AND SPHALERITE; TENANTITE, 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:


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 SHUNI (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 EMLACEMENT 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 Monzomite.

Next in age is the Little Ajo Mountain Fault, which bounds the Little Ajo Mountains on the north, trends about N 60° 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° 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° E and dips about 60° 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 extends about 20 feet wide following the northeast rim of the pit southwesterly to the southern limit of the pit. The fault axis, almost parallel with the fanglomerate contact where it is cut off by a northeast-trending fault, has a dip varying from 40° to 60° to the south.

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° to 65° to the south, and is by far the most significant fault in the pit. The rocks in the footwall of this fault are hard massive monzomite, 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 monzomite breccia, and the rocks in the hanging-wall block are a complex mixture of diorite, rhyolite, and monzomite. 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 monzomite 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 (2°) that roughly paralleled the erosion surface shifted the rhyolite capping and the accompanying chalcolite 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 leucodene and stiltite occur as alteration products of biotite. Calcite appears as a late mineral on veins.

The N-S Charlie Fault separates the pit rocks into two groups. To the west the monzomite is very hard, massive, porphyritic quartz monzomite with strong silicification and minor sericitization of feldspar. On the east the monzomite is softer porphyritic quartz monzomite 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 crenateous flows that were deposited on the basement gneiss. After being chloritized, altered, and sericitized, the formation was intruded by the Cornelia Quartz Monzomite of early Tertiary age. The copper ore body is localized in the apical area of the large monzomite 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 orthoclase-sericite 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 monzomite apex. During this period leaching penetrated about 600 feet into the rhyolite and underlying monzomite. This leaching caused secondary enrichment in the rhyolite capping over the apex with the formation of a chalcolite blanket. Then a low-angle fault shifted the rhyolite capping about 1,200 feet to the southeast. This movement exposed a small area of monzomite at the tip of the apex. This area was along the pegmatite apron. A period of enrichment followed and allowed leaching to a maximum depth of 150 feet. In some areas monzomite 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 AJO MOUNTAIN FAULT DEVELOPED AND TILTED THE ENTIRE LITTLE AJO 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 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.


GENERAL COMMENTS

SEE RECORD NUMBER M899999 FOR REFERENCES
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

COORDINATES

LATITUDE: 31°55'58"N
LONGITUDE: 110°43'26"W

UTM NORTHING: 3532050.0
UTM EASTING: 525050.0
UTM ZONE NO: 12

WMP: 175
RANGE: 29E
SECTION: 29
MERIDIAN: GILA & SALT RIVER
ALTITUDE: 4080 FT

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 (UESCRIP. OF WORKINGS):
2 TUNNELS AND SHAFTS (KEITH 1974)

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>RFMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>0.1 TONS</td>
<td>1890-1900's</td>
<td>6% Pb, 4% Cu</td>
<td>20 oz. T. AG</td>
<td></td>
</tr>
</tbody>
</table>

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. PALEOZOCIC
HOST ROCK TYPES: LIMESTONE (CLANCE CONGL. ON FINNELS MAP)

AGE OF ASSOC. IGNEOUS ROCKS: TERT CREFI
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 PALEOZOCIC 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) SCHRADE, 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
6) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
CR16 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..... 01E SECTION..... 33 32
MERIDIAN.... GILA AND SALT RIVER

ALITUDE.. 2500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 NW OF SILVER BELL MINE

COMMODITY INFORMATION
COMMODITIES PRESENT.......... CU MO PB ZN

MAIN COMMDO... CU MO

...
CHRYSCOLLA

ANALYTICAL DATA (GENERAL)
1000 PPM CU, 50 PPM MO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE
PRESENT/LAST OWNER ........ 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 (RHODACITE POR.) OR QUARTZ, LATITE 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 OXIDE: ALUNITE; MN OXIDE: TERT. GARNET, BARITE, FLUORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ABUNDANT CLOSE FRACTURES

SIGNIFICANT ALTERATION:
POTASSIC ALTERATION LATERALLY YIELDS TO PHYLLIC AND THEN PROPYLITIC ALTERATION ASSEMBLAGES WITH VARIABLE SILIFICATION (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.
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/W TUCSON MT.
COUNTRY CODE ............... US
STATE CODE ............... 04
COUNTY ............... PIMA

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

LATITUDE LATTITUDE
32-18-23N 111-07-16W

UTM NORTHING UTM EASTING UTM ZONE NO
3568115.0 488590.0 12

TMP .... 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 Ag Au
MAIN ORE MINERALS:
BASE METAL SULFIDES

MINOR ORE MINERALS:
WULFENITE CERUSSITE VANADINITE

COMMODITY COMMENTS:
NO 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 (DESCRIPT. 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 GANQUE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULTED OREBODY ALONG A FRACATURE ZONE

COMMENTS (GEOLOGY AND MINERALOGY):
WULFENITE 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.
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.R., 1960, A HISTORY OF GEOLOGIC INVESTIGATION IN THE TUCSON MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZ.
   GEOLOG. SOC., SOUTHERN ARIZONA GUIDEBOOK III, P. 155-170.
7) FRONDEL, C., 1935, CATALOG OF MINERAL PSUEDOMORPHS IN THE AMERICAN MUSEUM: BULL. AMER. MUS. NAT. HIST., LVII
8) GUILD, F.N., 1910, THE MINERALOGY OF ARIZONA: THE CHEMICAL PUBLISHING COL., EASTON PA., 103 P.
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 PHYLLITE FLOW IN THE TUCSON MOUNTAINS: UNIV. ARIZONA, MS
    THESIS. 43 P.
    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, GEOLOG. SERIES, NO. 7 P. 17.
RECORD IDENTIFICATION
RECORD NO. 1030534
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 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 1: 0062500
QUAD NO OR NAME SAHUARITA, ARIZ.
LATITUDE 31-51-22N
LONGITUDE 110-46-10W
UTM NORTHING 3524350.
UTM EASTING 521850.
UTM ZONE NO +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 COMMODITY:  Cu, Ag
MINOR COMMODITY:  Pb, Zn, Au, Mo, Mn (?) W

MAIN ORE MINERALS:
Chalcopyrite, Pyrite

MINOR ORE MINERALS:
Powellite, Sphalerite

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:  INACTIVE

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE:  300 FT
LENGTH OF WORKINGS:  2000 FT

COMMENTS (DESCRIPTION OF WORKINGS):
4 TUNNELS, SHAFT AND OPEN CUTS AND WINZES (CREASEY AND QUICK)

PRODUCTION
YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 ORE</td>
<td>PE</td>
<td>7</td>
<td>TONS</td>
<td>1880-1920</td>
<td>6% Cu, 1 oz Ag/ft</td>
<td></td>
</tr>
</tbody>
</table>

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.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:  DEV. MISS.
HOST ROCK TYPES:  MARTIN FM, ESCABROSA LIMESTONE
AGE OF ASSOCIATED IGNEOUS ROCKS:  PREC.: TERT
IGNEOUS ROCK TYPES:  CONTINENTAL GRANODIORITE, APLITE DIKES
AGE OF MINERALIZATION:  TERT.
PERTINENT MINERALOGY:  GARNET, MAGNETITE GANGUE, MANGANESSES (?) IRON OXIDES, SERICITE

IMPORTANT ORE CONTROL/LOCUS:  THRUST FAULT ZONE WITH APLITE INTRUSION ALONG FAULT IN PLACES; ORE IS IN GARNET AND MAGNETITE GANGUE ALONG THE CONTACT.

LOCAL GEOLGY
SIGNIFICANT LOCAL STRUCTURES:
WNW STRIKING THRUST FAULT ZONE.

SIGNIFICANT ALTERATION:
EPIDOTIZED 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) SCHRAEDER, 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ------------ M030532
RECORD TYPE. ------------ XZ
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE. ------------ 1,2
MAP CODE NO. OF RECORD.

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./SLOPE SANTA CATALINA MTS.
COUNTRY CODE. -------------------------- US
STATE CODE. -------------------------- 04
COUNTY. -------------------------- PIMA
QUAD SCALE. -------------------------- 1: 0062500
QUAD NO OR NAME. -------------------------- MT. LEMMON, BELLOTA RANCH
LATITUDE. -------------------------- 32-20-00N
LONGITUDE. -------------------------- 110-45-00W
THP. -------------------------- 115
RANGE. -------------------------- 15E 16F
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. ------------ PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:  
PYROMETASOMATIC REPLACEMENTS

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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 P8, 25 TONS ZN, 118,000 OZ AG AND 387 OZ AU.

AGE OF HOST ROCKS.............. CAMB., DEV., MISS., PALEOZOIC
AGE OF ASSOC. IGNEOUS ROCKS.. CRET.-TERT.
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:  
ACKER, C.J., 1958, GEOLOGIC INTERPRETATIONS OF A SILICEOUS BRECCIA IN THE COLOSSAL CAVE AREA, PIMA COUNTY, ARIZONA (M.S. THESIS): TUCSON, UNIVERSITY
ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
BANKS, N.G., 1976, A TERTIARY IGNEOUS-METAMORPHIC COMPLEX IN SOUTHEASTERN ARIZONA (ABS.): GEOL. SOC. AMERICA, ANN. WITH PROGRAMS, V. 9, NO. 4, P. 395
BANKS, N.G., IN PRESS, GEOLOGY OF A ZONE OF METAMORPHIC CORE COMPLEXES IN SOUTHEASTERN ARIZONA: GEOL. SOC. AMERICA MEMOIR.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030548
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 1:0062500
QUAD NO OR NAME VACA HILLS, ARIZONA

LATITUDE 32-23-51N
LONGITUDE 111-30-38W

UTM NORTHING 395425.0
UTM EASTING 452000.0
UTM ZONE NO 12

TWP 12S
RANGE 08E
SECTION 10 NE 11 NW
MERIDIAN GILA SALT RIVER

ALTIITUDE 2,790 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2.2 KM S VARN 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.

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, COMM, CONC., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS YEAR GRADE REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST 5 TONS 1880'S-1918 11% CU</td>
<td></td>
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</tbody>
</table>

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/FT. FROM 1954 PRODUCTION INCLUDED UNDER SILVERBELL MINE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............ PALEozoIC
HOST ROCK TYPES............... GARNITIZED 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 GARNITIZED PALEozoIC LIMESTONE BLOCKS ENGULFED IN LARAMIDE DACITE PORPHYRY AND MONZONITE ALONG FAULTS

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
ALONG A MAJOR FAULT ZONE

SIGNIFICANT ALTERATION:
GARNITIZED LIMESTONE
GENERAL REFERENCES

1) KEITH, J. STANTON, B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINS 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, 10 P.


4) STEWART, C.A. 2. THE GEOLGY 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. MESS. 5, P. 1104-1107, 1167-1150 (1912).


7) SHOECKER, A.H., AND C. SAWERS (1924) THE GEOLOGY OF THE EL TIRD MINE, SILVER BELL, ARIZONA. UNIV. ARIZONA M.S. THESIS, 40 P.


12) WATSON, N.R., 1968, UPDATING THE GEOLOGY AND ORE CONTROLS AT SILVER BELL, ARIZONA: TALK TO MINING GEOLOGY DIV. V. III, ARIZ. SECTION A.I.M.E.


17) BLANCHARD, N., 1939, INTERPRETATION OF LEACHED OUTCROPS: JOUR. CHEM., MET. AND MIN. SOC. OF S. AFRICA, MAY.

18) BUSSER, PETER R., 1962, CONTACT METASOMATIC DEPOSITS AT CONCEPCION DEL ORO, MEXICO: TEM PIUTE, NEVADA; AND SILVER BELL, ARIZONA: UNPUBLISHED PHD DISSERTATION, COLUMBIA UNIVERSITY, NEW YORK.


25) EDMISTON, R.C., 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 ASLR RAISED MOLYBDENITE RECOVERY ON COPPER CONCENTRATE: ENG. MIN. JOUR., V. 158, NO. 8, P. 104-106.
33) MEZ, J.J. (1967) THE GEOLOGY OF THE UNION HILL AREA, SILVER BELL DISTRICT, PIMA COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 58 P.
34) MITCHEL, I.W., 1955, DISCUSSION OF PAPER, STRUCTURE AND MINERALIZATION AT SILVER BELL, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
35) MCCLOYMONDS, N.E., 1959, PALEozoIC STRATIGRAPHY OF THE WATERMAN MOUNTAINS, PIMA COUNTY, ARIZONA: ARIZONA GEOL. SOC., SOUTHERN ARIZONA GUIDEBOOK II.
37) RICHARD, K., AND COURTIGHT, J.H., 1960, SOME CRETACEOUS—TERTIARY RELATIONSHIPS IN SOUTHERN ARIZONA AND NEW MEXICO: ARIZONA GEOL. SOC. DIGEST, V. III.
41) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
**CRIB MINERAL RESOURCES FILE 12**

**RECORD IDENTIFICATION**
- RECORD NO.: AJ504100
- RECORD TYPE: XI
- COUNTRY/ORGANIZATION: USGS
- INFORMATION SOURCE: 1, 2
- MAP CODE NO. OF REC.: M:

**REPOR1ER**
- UPDATED: 03/01/80
- BY: WILT, JAN CO.

**NAME AND LOCATION**
- DEPOSIT NAME: PALO VERDE MINE
- SYNONYM NAME: EISENHOWER GROUP (PIMA, MISSION, )
- COUNTRY CODE: US
- STATE CODE: 04
- COUNTY: PIMA

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<tr>
<th>QUAD SCALE</th>
<th>QUAD NO OR NAME</th>
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<th>LONGITUDE</th>
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<tr>
<td>I: 0062900</td>
<td>TWIN BUTTES ARIZONA</td>
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<tr>
<th>UTM NORTHING</th>
<th>UTM EASTING</th>
<th>UTM ZONE NO</th>
</tr>
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</tbody>
</table>

- GRID: 16S
- RANGE: 12E
- SECTION: 36
- MERIDIAN: 6 & SR
- ALTITUDE: 3345 FT
- POSITION FROM NEAREST PROMINENT LOCALITY: JUST WEST OF MISSION
- LOCATION COMMENTS: NC

**COMMODITY INFORMATION**
- COMMODITIES PRESENT: CU AG ZN RP AU MD

**MAIN COMMOD.:** CU AG MD
**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. P. 136

2) VENABLE, B.W., 1963. MINING AT THE PALO VERDE MINE: MINING CONGRESS JOURNAL, V. 40, NO. 1, P. 14-18


4) GALE, R., 1965. GEOLOGY OF THE MISSION DISTRICT, PIMA COUNTY, ARIZONA: STANFORD UNIV., PHD THESIS


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/ARFA/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 10S
RANGE....... 10E 11E

COMMODITY INFORMATION
COMMODITIES PRESENT......... Ag PB CU ZN Mn Mo F U

MAIN COMMODITY. Ag PB CU ZN
MINOR COMMODITY. Mn Mo F U

MAIN ORE MINERALS:
(BASE AND PRECIOUS METAL) GALENA

MINOR ORE MINERALS:
CHALCOCITE, CERUSSITE, ANGLESITE, CERARGYRITE, OXIDIZED COPPER, PYRITE, SPHALERITE, CHALCOPYRITE, WULFENITE,
AZURITE, MALACHITE, PYRITE, MANGANESE OXIDES

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
- Replacement; Fissure Veins
- Form/Shape of Deposit: Irregular

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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 1870s. 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 fluor spar has been shipped.

AGE OF HOST ROCKS: Paleozoic and Mesozoic

HOST ROCK TYPES: Sedimentary and volcanic formations

AGE OF ASSOCIATED IGNEOUS ROCKS: Mesozoic and Cenozoic

IGNEOUS ROCK TYPES: Granitic Intrusives

PERTINENT MINERALOGY: Quartz

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
- Faults and fractures NW or dip 45-50°

SIGNIFICANT ALTERATION:
- Largely oxidized

GENERAL REFERENCES
CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO. M030513
RECORD TYPE. 11
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/SUMDIST. AMOLE DIST/S. TUCSON MTS
COUNTRY CODE US
STATE CODE 04
COUNTY PIMA
QUAD SCALE
1: 0024000
CAT MOUNTAIN, ARIZONA
LATITUDE 32-08-25N
LONGITUDE 111-04-35W
UTM NORTHING 335800.0
UTM EASTING 492790.0
UTM ZONE NO +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 (DESCRIPTION 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 EPIDOTE

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 CERUSITE AND GALENA (ALLEN, 1920)
GENERAL REFERENCES

1) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 109, 156 P., P. 102.


3) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS


6) BICKERMAN, MICHAEL, 1962, A GEOLOGIC-GEOCHEMICAL STUDY OF THE CAT MOUNTAIN RHYOLITE: UNIV. ARIZ., MS THESIS, 43 P.


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, O.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. (1950); (ABST.): ARIZ. GEOL. SOC. DIG., V. 1, P. 50 (1958)

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... MO30529
RECORD TYPE ............... 11
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ....... 1,2
MAP CODE NO. OF REC ......

REPORER
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-ROSIMONT DIST/SANTA RITA MIS
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 VADM 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 COMMODITY: Au, Mo, 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.: A
PROPERTY IS INACTIVE
YEAR OF DISCOVERY: LOCATED IN 1902

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
Pyrometamorphic Replacement
FORM/SHAPE OF DEPOSIT: IRREGULAR; CRUDELY HANDED

SIZE/DIRECTIONAL DATA
MAX WIDTH: 7 FT
DIP OF BOD: 45° N

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 150 FT

CUMMINS (DESCRIP. OF WORKINGS): 150 FT DEEP SHAFT AND SURFACE WORKINGS (KEITH, 1974)

PRODUCTION
YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMNT.</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>0.15</td>
<td>TONS</td>
<td>1882-1952</td>
<td>2% Pb, 2% Cu, 1 OZ/T Ag and 0.3 OZ/T Au</td>
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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 ASSOCIATED IGNEOUS ROCKS: TERT.
IGNEOUS ROCK TYPES: Quartz Latite Porphyry Intrusive; Aplite Dikes and Stocks
AGE OF MINERALIZATION........ TEXT

PERTINENT MINERALOGY........ MASSIVE GARNET, INTERSTITIAL QUARTZ; EPIDOTE AND MUSCOVITE INFRASTRUCTURES IN GAN
GE

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 P., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156

2) SCHRADE, 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) BROWN, J.F. (1959) THE GEOLOGY OF THE CUPRITE MINE AREA, PIMA COUNTY, UNIV. ARIZONA M.S. THESIS, 39 P.


MS THESIS

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

7) FRUNDEN, H., AND F.F. WICKMAN (1970) MOLYBDENITE POLYTOPES IN THEORY AND OCCURRENCE. II. SOME

NATURALLY-OCcurring POLYTOPES OF MOLYBDENITE. AMER. MIN. 55: 1857-1875.


P., P. 141.
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: 1: 0062500
QUAD NO OR NAME: TWIN BUTTES
LATITUDE: 31-53-10N
LONGITUDE: 111-04-39W
UTM NORTHING: TWIN BUTTES
UTM EASTING: TWIN BUTTES
UTM ZONE NO: TWIN BUTTES

TWP: 16S
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, IEMANTITE, POWELLITE;
CHRYSOCCOLA, TNORDITE, MALACHITE, AZURITE, CUPRITE, NATIVE COPPER, BORNITE, COWELLITE, WULFENITE;
BROCHANTITE, MEDMONTITE, TURQUOISE

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS, PYROMETASMATIC AND DISSEMINATED

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT: SMALL VEINS, LARGE PORPHYRY

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS(DESCRIPTION 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, 39,000 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. 53.5 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. OLU DIKES ARE OUT BY THE FAULT, WHICH IS POST-MINERALIZATION. (SHAFIGULLAH AND LANGLOIS, 1978)

SIGNIFICANT ALTERATION:
ALTERATION INCLUDES PROPYLTIC, QUARTZ-SERICITE, POTASSIC, SKARNS, BIOTIZATION, ARGILLIC AND PHYLIC ALTERATION.

GENERAL COMMENTS
SEE RECORDS M800124 & M800125 FOR FURTHER REFERENCES
GENERAL REFERENCES

4) PIMA DISTRICT


29)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, D1-05.


36) DAMON, P. E., 1964, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS: ANNUAL PROGRESS RPT. C00-689-42 TO RESEARCH DIV., UNITED ATOMIC ENERGY COMM.


38) DAMON, P. E., AND ASSOCIATES, 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANN. REPT. NO. C00-689-60: TUCSON, UNIVERSITY OF ARIZONA.


45) DREWES, H., 1975, GEOLOGY OF THE MISSION DISTRICT, PIMA COUNTY, ARIZONA: STANFORD UNIV., PHD THESIS.


48) JECHEL, E. B., 1930, GEOLOGY AND ORE DEPOSITS OF THE MINERAL HILL AREA, PIMA COUNTY, ARIZONA: UNIVERSITY OF ARIZONA THESIS, 51 P.


51) GALE, K., 1966, GEOLOGY OF THE MISSION DISTRICT, PIMA COUNTY, ARIZONA: STANFORD UNIV., PHD THESIS.


NAME AND LOCATION

DEPOSIT NAME: PONTOTOC MINES

MINING DISTRICT/AREA/SUBDIST.: CATALINA/S. CATALINA

COUNTRY CODE: US

STATE CODE: 04

COUNTY: PIMA

QUAD SCALE: 1: 0062500

QUAD NO OR NAME: MOUNT LEMON, ARIZONA

LATITUDE: 32° 19' 56" N

LONGITUDE: 110° 54' 02" W

UTM NORTHING: 3571130

UTM EASTING: 509650

UTM ZONE NO: 12

TWP: 13S

RANGE: 14E

SECTION: 03

MERIDIAN: GILA AND SALT RIVER

ALTITUDE: 2920 FT

POSITION FROM NEAREST PROMINENT LOCALITY: PONTOTOC 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, HOLEYDENITE 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(DESCRIPT. 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE,REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ORE</td>
<td>EST 1 TON</td>
<td>1907</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE,REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
<td>5 TONS</td>
<td>1907-1918</td>
<td>4% CU, 0.5 OZ./AG/T</td>
</tr>
</tbody>
</table>
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.

GEOLGY 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: GANQUE IS QUARTZ, SERICITE, EPIDOTE, ANKERITE, HEMATITE, 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

GEODETICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
HYDROTHERMAL IMPLACEMENT OF SHALLOW MESOTHERMAL INTENSITY

COMMENTS (GEOLOGY AND MINERALOGY):
SULFIDES PRECIPITATED WITH QUARTZ

GENERAL REFERENCES

5) PASHLEY, E. F. 1969, THE TORTILITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ. MS THESIS, 133 P.
6) J. R. 1975, THE TORTILITA-SANTA CATALINA MOUNTAIN COMPLEX: UNIV. ARIZ. MS THESIS, 313 P.
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... MQ30524
RECORD TYPE .......... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE.... 1.2
MAP CODE NO. OF REC... 

REPORTE
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 MT
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
3926000.0    633650.0    +12

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. 
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: (DESCRIPTION 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

GEOLGY 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 GEOLGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURES, NW TEARBREAKS, NE DICHES
SIGNIFICANT ALTERATION:
SICKING OXIDATION ON THE 750 OR DEEPEST LEVEL (PRESUMABLY 250 FT BELOW PRESENT WATER TABLE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
FISSEURE 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, 163P., P. 119.
3) SCHADE, 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) ALBEDINO, H., 1936, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PHD THESIS, 107 P.
5) ALLEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
9) BUHNER, W.C., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
12) ELSINGER, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
13) F Ronald, J.W., 1929, GEOLOGY ANDORE DEPOSITS OF HILTON CAMP, ARIZONA: UNIV. ARIZ., MS THESIS.
16) GALBRATH, F.W., 1940, EMPIRE MOUNTAINS, SOUTHEASTERN ARIZONA (ABSTRACT): GEOLOGICAL SOCIETY OF AMERICA, BULLETIN, V. 51, P. 1927.
17) GALBRATH, F.W., 4. EMPIRE MOUNTAINS OVERTHRUST: PAM-AY, GEOLOGICAL SOCIETY OF AMERICA, BULLETIN, V. 73, P. 377-378 (1940).
21) MAYUGA, M.W., 1940, GEOLOGY OF THE EMPIRE PEAK AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
22) METZ, R., THE PETROGRAPHY OF THE PANTANO BEDS IN THE CIENEGA GAP AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
23) MOORE, R.E., 1968, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
26) SCHAFROTH, DON W., 1. STRUCTURE AND STRATIGRAPHY OF THE CRETACEOUS ROCKS SOUTH OF THE EMPIRE MOUNTAINS, PIMA


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. 140 BULL. 168.

RECORD IDENTIFICATION
RECORD NO. .......... NO30544
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.............. REDINGTON DIST.
MINING DISTRICT/AREA/SUBDIST. REDINGTON DISTRICT/EAST FLANK OF SANTA CATALINA MTS
COUNTRY CODE.............. US
STATE CODE................. 04
COUNTY....................... PIMA

QUAD SCALE
I: 0042500
EMPIRE MOUNTAINS, ARIZONA

UTM NORTHING
UTM EASTING
UTM EASE 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. ...... PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT...... WEAK AND SPOTTY
DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS... PREC, CRET, TERT.
HOST 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 MB00109 & MB00126 FOR FURTHER REFERENCES

GENERAL REFERENCES

1) GEOLGY OF SANTA CATALINA MTS:

2) ACKER, C.J., 1958, GEOLGY OF A SILICEOUS BRECCIA IN THE COLOSAL CAVE AREA, PIMA COUNTY, ARIZONA (H.S. THESIS): TUCSON, UNIVERSITY OF ARIZONI

7) ARIZ. DEPT. MINERAL RESOURCES, 1967, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.


11) BROWN, KONALO GLYN, 1970, GEOCHEMICAL SURVEY OF THE VICINITY OF ORACLE, ARIZONA: ARIZ. STATE UNIV., TEMPE, MS THESIS, 66 P.


14) CLAY, DONALD WAYNE, 1952, STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PIMA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., PHD. THESIS, 183 P.


16) CLAY, DONALD WAYNE, 1952, STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PIMA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P.

17) CLAY, DONALD WAYNE, 1952, STRATIGRAPHY AND PETROLOGY OF THE MINETA FORMATION IN PIMA AND EASTERN COCHISE COUNTIES, ARIZONA: UNIV. ARIZ., MS THESIS, 53 P.
36) Coney, P.J., 1979, TERTIARY EVOLUTION OF CORDILLERAN METAMORPHIC CORE COMPLEXES: SOC. ECON. MINERALOGISTS
37) Coney, P.J., THIS VOLUME, CORDILLERAN METAMORPHIC CORE COMPLEXES: GEO. SOC. AMER. MEMOIR.
38) Cressey, S.C., 1965, ISOTOPIC AGE OF FRESH AND ALTERED IGNEOUS ROCKS AND ASSOCIATED COPPER DEPOSITS,
SOUTHEASTERN ARIZONA (ABSTRACT): GEO. SOC. AMERICA ABSTRACTS WITH PROGRAMS, ANNUAL MEETING, KANSAS CITY,
MISSOURI, P. 36.
BULL. 1218, 94 P.
PEKU AND AKAVAIPA VALLEYS, SOUTH-CENTRAL ARIZONA: USGS MAP MF-236
KEPT. INV. 5516.
46) Damon, P.E., 1959, GEOCHEMICAL DATING OF IGNEOUS AND METAMORPHIC ROCKS IN ARIZONA: ARIZ. GEO. SOC.,
SOUTHERN ARIZONA GUIDEBOOK II, P. 16.
47) Damon, P.E., 1968, APPLICATION OF THE POTASSIUM-ARGON METHOD TO THE DATING OF IGNEOUS AND METAMORPHIC ROCKS
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. ABST., NO. 204, ITEM 12 (1964)
MOUNTAINS, ARIZONA: NATL. ACADEM. SCI. - NATL. RESEARCH COUNCIL PUB. 1075, P. 113-121.
P. 443-453: IN Kulp, J.L., EDITOR GEochRONOLOGY OF ROCK SYSTEMS IN ANNALS: NEW YORK ACADEMY OF SCIENCE, V. 91,
P. 443-453.
YAVAPAI AND COCONINO COUNTIES, ARIZONA: MOGOLLON RIM REGIN GUIDEBOOK, 13TH FIELD CONF., NEW MEXICO GEO. SOC.,
P. 56-57.
METALLOGENETIC ENGINEERS TRANS., V. 235, P. 99-112.
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. GEO. SOC. AM.,
ABSTR. (GAAPBC), VOL. 5, NO. 7, P. 592, 1973 S (SERIAL)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.********** M000630
RECORD TYPE********** X1
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****************** RIDLEY 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 NORHTNG UTM EASTING UTM ZONE NO
3523075.0 516100. +12

1WP****** 185
RANGE**** 15E
SECTION** 21 SE
MERIDIAN* GILA AND SALT RIVER

ALTITUDE.. 4080 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 22 KM SE YABIM 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 EXPLO. OR DEV.:
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 F

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:
GAINE IN BOTH HANGING WALLS FOOTWALL; BOTH HAVE SLICHEVSIDES

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. 122.
8) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
9) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030538
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1.2
MAP CODE NO. OF RECORD.

REPOR TER
NAME. WILT, JAN C.
DATE. 02 04

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. 1: 0062500
QUAD NO OR NAME. 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:
CHALCOCITE, 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 3.0% CU. (KING, 1978)

EXPLORATION AND DEVELOPMENT
PROPERTY IS ACTIVE
YEAR OF DISCOVERY DISCOVERED IN 1955
BY WHOM DISCOVERED BY ARSARCO GEOLOGISTS NOTED 2 SMALL ALTERED AND MINERALIZED OUTCROPS
PRESENT/LAST OWNER ARSARCO

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
DEPTH TO BOTTOM 2000 FT

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
DRILLING BEGAN IN 1957 AFTER COMPETITIVE BIDDING TO THE PAPAGO INDIANS

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMODO, CONC., OXFRBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>LEACHING ORE 681,791 TONS</td>
<td>1967-1972</td>
<td>0.76% CU AND 0.02 OZ/ T AG</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>ORE ACC 8462,131 TONS</td>
<td>1967-1978</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>CU ACC 1115,805 LBS</td>
<td>1967-1978</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>AG ACC 72,390 OZS</td>
<td>1967-1978</td>
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<td></td>
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</table>

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SULFIDE ORE EST. 6902 TONS</td>
<td>1978</td>
<td>0.52% CU</td>
</tr>
<tr>
<td>2</td>
<td>OXIDE ORE EST. 10,500 TONS</td>
<td>1978</td>
<td>1.40% CU</td>
</tr>
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</table>

SOURCE OF INFORMATION (RESERVES/POT RESOURCES): GREFLEY, 1979, 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 ARCULATE 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 MINERALIZATION. ASSOCIATED WITH THE MINERAL ZONES IS A PHYLLIC ALTERATION WHICH IN ITSELF IS INTERANLLY ZONED IN A MANNER SYMPATHETIC TO THE DESCRIBED MINERAL ZONES. THE STRONGEST OF PHYLLIC 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 CHALCOCITE BLANKET. AN UPPER ZONE OF OXIDE COPPER IS CONTAINED WITHIN THE CAPPING AND REPRESENTS OXIDATION OF A CHALCOCITE 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 CHALCOCITE BLANKET. THE CHALCOCITE BLANKET DOES NOT CONFORM TO BEDROCK TOPOGRAPHY AND THE EASTERN PART OF THE ENRICHED ZONE IS PARTIALLY OXIDIZED AND ERODED. THE CHALCOCITE BLANKET RANGES FROM 30 TO 100 FEET IN THICKNESS AND IS THE RESULT OF APPROXIMATE TWOFOLD ENRICHMENT.

GENERAL REFERENCES
4) KEITH, STANION B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P., P. 138
5) AM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
NAME AND LOCATION
DEPOSIT NAME: SENATOR MORGAN MINE
MINING DISTRICT/AREA/SUBDIST: PIMA
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA
QUAD SCALE: I: 0062500
LATITUDE: 31-53-11N
U.T.M. NORTING: 111-04-45W
EASTING: UTM EATING: UTM ZONE N3
THP: 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 COMMODITY: CU AG
MINOR COMMODITY: 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 92.7% (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/SIZE OF DEPOSIT: SHORT LENSES

SIZE/DIRECTIONAL DATA
MAX LENGTH............. 1200 FT

DESCRIPTION OF WORKINGS
UNDERGROUND
COMMENTS (DESCRIPT. OF WORKINGS):
SHAFT OPERATIONS (Keith, 1974)

PRODUCTION
YES

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>EST 1</td>
<td>100,000</td>
<td></td>
<td></td>
</tr>
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</table>

SOURCE OF INFORMATION (PRODUCTION).... KEITH, 1974, p. 138

PRODUCTION COMMENTS.... WORKED FROM 1890'S TO 1913 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.............. PALEOZIC 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 PALEOZIC LIMESTONE ALONG A FAULT CONTACT WITH CRETACEOUS SEDIMENTS. CLOSELY ASSOCIATED WITH LARAMIDE GRANODIORITE
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, P. 136
4) WHITCOMB, H.A., 1948, GEOLOGY OF THE MORGAN MINE AREA, TWIN BUTTES, ARIZONA: UNIV. ARIZ., MS THESIS
7) ARM DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
8) MINES HANDBOOK 1918, 1920, 1925, 1926, 1931 MINEA HILL MINES
9) MACKENZIE, F.D., 1959, PYROMETASOMATIC DEPOSITS AT THE MINERAL HILL AND DAISY MINES: ARIZ. GEOLOG. SOC.
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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.-----------  M030541
RECORD TYPE---------- K1
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 UTM1ZONE NO

TWP....... 18S
RANGE..... 12E
SECTION... 07 SE 04 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 DRE 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.:
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 243.063 LBS 1970-1978
22 AG ACC 8077.220 OZS 1970-1978
23 AU ACC 3.706 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 MoS2 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 699842 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 FRAC TURES IN A LARGE W-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:

SIGNIFICANT ALTERATION:
ALTERATION IN THE ORE ZONE IS PREDOMINANTLY POTASSIC, WITH PHYLLIC 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 FRAC TURES AND NO MAJOR PATTERN HAS BEEN DELINEATED.

PROPYLITIC ALTERATION IS PROMINENT AT SIERRITA AND FORMS A GRADATIONAL HALO AROUND THE POTASSIC AND PHYLLIC ZONES. ORE LIMITS ROUGHLY COINCIDE WITH THE BOUNDARY BETWEEN THE PROPYLITIC AND HIGHER GRADE ALTERATION ASSEMBLAGES. (AIKEN AND WEST, 1979)

GENERAL REFERENCES
2) KEITH, STANTON B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, P. 117-128
6) 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.
18) HILLMAN, BARY, 1972, HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA PORPHYR COPER-MOLYBDENITE DEPOSIT, SOUTHWESTERN ARIZONA: M.S. THESIS, CINCINNATI.
26) SMITH, W.L., 1975, HYDROTHERMAL ALTERATION AT THE ESPERANZA MINE, PIMA COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, DEPT. OF GEOLOGY, UNIVERSITY OF ARIZONA, TUCSON.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. W002605
RECORD TYPE A1
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 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)
PROD ORE=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

C. OSIT 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 CAPPINC, THEY WERE FORMED BY TWOFOOLD 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% NO, 0.07 OZ/1 AG (Galey, 1978)
20 PB ACC 1564.465 LBS
21 AG ACC 3706.850 OZS
22 AU ACC 0.391 OZS
23 MO ACC 5604.744 LBS

GEOLoGY AND MINERALoGY

AGE OF HOST ROCKS.......... PALEOZ, MES, CRET, TERI.

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-EC. 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 THE EAST AND NORTH EAST 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, 179)

LOCAL GEOLOGY
SIGNIFICANT ALTERATION:

The general pattern of hydrothermal alteration and mineralization is a wide propylitic zone with the more intense potassic and phyllitic 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.

Phyllitic 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 phyllitic 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 porphyries 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 phyllitic alteration. These two intense centers are surrounded by a broad linear zone of propylitic alteration. The phyllitic 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). Malachite occurs sparsely, as brownish plates with fluorite and as crystals showing obvious tetartohedires. (Anthony et al., 1977, p. 205)

GENERAL REFERENCES


11) Davis, S.R., 1974, Reconnaissance Geologic Map and Geologic Compilation of the Silver Bell, and West Silver...


NAME AND LOCATION

DEPOSIT NAME: SILVER BELL DISTRICT
MINING DISTRICT/AREA/SUBDIST: SILVER BELL DIST/SILVER BELL AND WEST SILVER BELL MIS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA

LATITUDE: 32-25'-N
LONGITUDE: 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 COMMODITY: CU AG Pb Zn Mo Au
MINOR COMMODITY: NN

MAIN ORE MINERALS:
CHALCOCITE, PYRITE, MOLYBDENITE: CHALCOCITE

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:
- DISSFM. ENRICHED. PYROMETASOMATIC

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION 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

GEOLGY 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: SUPERNICE 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 INTUSIVES. 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:
- SUPERNICE ENRICHED; HYDROTHERMALLY ALTERED

GENERAL REFERENCES
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.


15) Davis, S.R., 1974, Reconnaissance Geologic Map of Part of the West Silverbell Mountains, Scale 1:24,000 (Unpub. ASARCO Inc. Map).


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.


CRIB MINERAL RESOURCES FILE 12

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| COUNTRY CODE.       | US |
| STATE CODE.         | 04 |
| COUNTY.             | PIMA |

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| TWP.       | 17S |
| RANGE.     | 16E |
| MERIDIAN.  | GILA AND SALT R. |

| ALTITUDE.  | 6680 FT |

| POSITION FROM NEAREST PROMINENT LOCALITY: |
| NE OF STRATTON CAMP SPRING; WEST OF MT LEMMON ROAD; SOUTH OF MARBLE PEAK |

| LOCATION COMMENTS: |
| 1/4 OF SEC 20 |

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<th>COMMODITY INFORMATION</th>
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<td>COMMODITIES PRESENT.</td>
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| 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.:
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 ON WORKINGS:
80 FT 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 400 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/POTENT RESOURCES): PETERSON AND CREASEY, 1943, P. 8

COMMENTS (RESERVES/POTENTIAL RESOURCES): THE RESERVES IN THE SOUTHERN MINERALIZED ZONE ON THE STRATTON PROPERTY ARE ESTIMATED TO BE ABOUT 2,000 TONS OF INDICATED ORE AND 9,000 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 POOR IN COPPER TO BE ORE.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS........... CAMP., DEV., MES., PALEOZOIC
HOST ROCK TYPES............. LIMESTONE; ABRIG FM, MARTIN FM, ESCABR2SA 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
LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BEDDING PLANE FAULTS STIKES NW AND DIPS 27 NE; N55 W, DIPS 73 SW

SIGNIFICANT ALTERATION:
SKARN

COMMENTS (GEOLGY AND MINERALOGY):
BORNITE AND MOLYBDENITE ASSOCIATED WITH QUARTZ IN DEPTH

GENERAL REFERENCES
4) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
NAME AND LOCATION

DEPOSIT NAME .................... SUNSET MINE
MINING DISTRICT/AREA/SUBDIST. CABABI DIST.
COUNTRY CODE .................... US
STATE CODE ...................... 04
COUNTY ......................... PIMA

LATITUDE ....................... 32-01-30N
LONGITUDE ...................... 111-55-30W

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR MILDEREN AND STEPPE MINES
LOCATION COMMENTS: LOCATION PROBABLY NOT RIGHT AS IT PLOTS IN GRAVEL; PROBABLY SHOULD BE SEC 23

MAIN COMMOD... P B CU AG
MINOR COMMOD... MO AU

EXPLORATION AND DEVELOPMENT
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, ABM FILE DATA-PAGES
RECORD IDENTIFICATION

RECORD NO. 0000107
RECORD TYPE. XI
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 MD AU MN V ZN

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. PB AG
MINOR PRODUCTS: Cu, Au, Mo

MAIN COMMODITY: Pb, Cu, Ag, Mo
MINOR COMMODITY: 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 EXPL. OR DEV.:
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
DEPT OF WORKINGS BELOW SURFACE: 500 FT
LENGTH OF WORKINGS: 5000 FT

COMMENTS (DESCRIPTION OF WORKINGS):
SHAFTS AND TUNNELS (KEITH, 1974, P. 119): DEVELOPED TO DEPTH OF 500 FT BY SHAFTS, TUNNELS, DRIFTS, INCLINES AND WINSIES AND STOPEs 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 1880'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, HELMITE, 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) SCHADLICH, 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) ALDERING, H., 1938, GEOLOGY OF THE NORTHERN EMPIRE MOUNTAINS, ARIZONA: UNIV. ARIZ., PhD THESIS, 105 P.
4) ALEXIS, C.O., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
6) BORLAND, D.J. 2. GEOLOGIC RECONNAISSANCE OF CIENEGA GAP, PIMA COUNTY, ARIZONA (ABST.): ARIZ. GEOLOG. SOC., V. 1, P. 41 (1958)
8) BUIER, W.E., 1969, THE UPPER PALEOZOIC STRATIGRAPHY OF TOTAL WRECK RIDGE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
12) FEISS, J.W., 1929, GEOLOGY AND ORE DEPOSITS OF MISTANO CAMP, ARIZONA: UNIV. ARIZ., MS THESIS
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. GEOLOG. SOC. GUIDEBOOK II SOUTHERN ARIZ., P. 127-133 (1959)
19) KING, R.D., 1969, MOLYBDENUM AND RHEENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.


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:
CHALCOPYRITFE, PYRITE, CHALCOCITE, COVELLITE

MINOR ORE MINERALS:
MOLYBDENITE, POWELLITE, BORNITE, WULFENITE, SPHALERITE, GALENA, TETRABEDRITE, AZURITE, MALACHITE, BROCHANTITE, CHRYSOCOLLA, MEDMONITE, 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 0.4% TO ABOUT 0.6% COPPER.
TOTAL SULFIDE CONTENT GENERALLY CORRESPONDS WITH TOTAL COPPER CONTENT. IN THE SKARN ZONES OF BETTER COPPER TENSOR 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

COMMENT (DESCRIP. OF WORKINGS):
OPEN PIT OPERATIONS (KEITH, 1974)

PRODUCTION

YES

18 ORE ACC 1297896. TONS 1965-1978
19 CU ACC 543.166 LBS 1968-1978
20 Pb ACC 51.600 LBS 1965-1978
21 Zn ACC 8461.387 OZS 1965-1978
22 Ag ACC 5,996 OZS 1965-1978
23 Au ACC 15292666
MD ACC
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 29 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 0.40% 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 1.10X CU AND CUTOFF AT 0.65X CU. ONLY 28 MILLION TONS OF OXIDE ORE AT 0.45X CU AND CUTOFF AT 0.45X 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 SYNTCLINE. AT THE TOP OF THIS SEQUENCE IS THE TWO-MEMBER ANGELICA ARKOSITE. THE ANGELICA IS UNDERLAIN BY VOLCANICS AND CLASTICS OF TRIASSIC AND POSSIBLE JURASSIC AGE. AN ANGULAR UNCONFORMITY SEPARATES TRIASSIC FROM YOUNGER MESSOZOIC ROCKS. AT THE BASE OF THE MESSOZOIC IS A CARBONATE-RICH CONGLOMERATE WHICH OVERLIES THE PALEOZOICS ALONG A 50 DEGREES SOUTHERLY-DIPPING ANGULAR UNCONFORMITY.

AGE OF ASSOCIATED 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, PALADOPITE, RIOITE, ANTIGORITE, MAGNÉSITE, POTASH FELDSPAR, QUARTZ & ANHYDRITE. OTHER ALTERATION MINERALS OF LESSER ABUNDANCE ARE FORSTERITE, IDIOCRASE, ZOISITE, TALC, CALCITE, SERICITE, AND CLAY MINERALS OTHER THAN NONTRONITE. GARNET AND WOLLASTONITE 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 FRUCTURING, AND PARTIAL REWORKING OF EARLY SULFIDES BY LATER HYDROTHERMAL EVENTS. (BARTER, 1978)
THE BEST GRADE ORE BODIES ARE DEVELOPED IN THE PALEOZOIC SPURS. 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 "ARKOSITE" ORE BODY IS IN THE MESSOZOIC CLASTIC ROCKS SOUTH OF THE PORPHYRY AND WEST OF THE EAST END FAULT. THE AVERAGE COPPER TEND FROM THE SKARN ORE BODIES 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 SYNTCLINE. (KELLY, 1977)

LOCAL GEOLoGY
SIGNIFICANT LOCAL STRUCURES:
THE TWIN BUTTES DEPOSIT IS SEGMENTED BY POSTMINERALIZATION, NORTHEAST-TRENDING NORMAL FAULTS AND LOW-GRADE INTRUSIONS. (BARTER, 1978).

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 OIIPSLIP 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 FRUCTURED. THE PALEOZOIC QUARTZITES, MESSOZOIC 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 ANGADACITE 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, BIOTIZATION, AND LATER SERICITIZATION DEVELOPED MOST STRONGLY ALONG QUARTZ-SULFIDE VEINLETS. IN THESE ROCKS, THERE IS A GENERAL DECREASE IN BIOTITE 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, 1978)

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 INTRUSIVE, 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 FRACUTURED 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 CUVELLITE 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. Other copper-bearing metasomatized beds commonly have alteration halos of actinolite-tremolite, antigorite-magnetite or nontronite. Elsewhere hydothermal alteration might be marked by blocky or pervasive patterns usually associated with disseminated or bunched 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 biotite, phlogopite and some sericite developed in the silstones particularly. Copper sulfide mineral has shown a marked preference for individual beds. Garterized and silicified beds of apparent original high carbonate content are favored horizons. The quartzites and silstones are usually weakly mineralized. Chalcopyrite is the most abundant and widespread primary copper sulfide mineral. Burnite 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 is rather uniformly scattered throughout the skarns in small amounts. The copper oxide minerals are principally chrysocolla and cuprite with lesser amounts of azurite, malachite, and brochantite. There also is a substantial and widespread occurrence of a black, amorphous "mud," high in copper content. Hedmanite, 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 403052S
RECORD TYPE. X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE: 1,2
MAP CODE NO. OF REC.

REPORTER
NAME: WILK, JAN C.
DATE: 79 04

NAME AND LOCATION
DEPOSIT NAME: VERDE QUEEN MINE
SYNONYM NAME: VERDE QUEEN MINE CO., HILTON
MINING DISTRICT/AREA/SUBDIST. EMPIRE/EMPIRE MTS.
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PIMA

QUAD SCALE: 1:006,250
QUAD NO OR NAME: EMPIRE MOUNTAINS, ARIZ.
LATTITUDE: 31-52-20N
LONGITUDE: 110-37-58W
UTM NORTHING: 3526,100.0
UTM EASTING: 53,475,0.0
UTM ZONE NO: 12
THP: 118
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 COMMODITY: PB, AG, ZN
MINOR COMMODITY: CU, AU, MO

MAIN ORE MINERALS: LEAD AND COPPER CARBONATES
MINOR ORE MINERALS:
- SILVER CHLORIDES, Wulfenite.

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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

COMMENT (DESCRIP. OF WORKINGS):
SH AFT 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>3</td>
<td>1897-1928</td>
<td>TONS</td>
<td></td>
</tr>
</tbody>
</table>

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, AND MINOR CU AND AU

GEOL OGY 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 (91 M.Y.)
PERTINENT MINERALOGY........ IRON OXIDES (UETHITE-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, 117 P.
4) ALEXIS, C.J., 1939, GEOLOGY OF THE LEAD MOUNTAIN AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS
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: 1:0062500
QUAD NO OR NAME: VACA HILLS, ARIZONA
LATITUDE: 32°25'40"N
LONGITUDE: 111°31'47"W
UTM NORTING: 3587750
UTM EASTING: 450250
UTM ZONE NO: 12
TWP: 12S
RANGE: 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 (PAS1 OR PRESENT): MAJOR PRODUCTS: Cu Pb Ag
MINOR PRODUCTS: Zn Au

MAIN COMMODITY: Pb Ag
MINOR COMMODITY: Cu Zn Au Mo Fe

MAIN ORE MINERALS:
GALENA, CERUSSITE, CHALCOPYRITE
MINOR URE MINERALS:
CHALCOCITE, PYRITE, SPHALERITE, ANGLESITE WULFENITE, MIMETITE, 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td>15</td>
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<td>CU</td>
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<tr>
<td>16</td>
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<td>EST 0.75</td>
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<tr>
<td>17</td>
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<tr>
<td>18</td>
<td>Zn</td>
<td>EST 0.49</td>
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<tr>
<td>19</td>
<td>Au</td>
<td>EST 0.11</td>
<td>1880-1972</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Ag</td>
<td>EST 0.130</td>
<td>1880-1972</td>
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</table>

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............. ABIRIO 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 NW 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.
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.
6) MCCLYMONDS, NEAL E., 19595. 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- 4016121
RECORD TYPE---------- K1
COUNTRY/ORGANIZATION- USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC. --

REPORTER
UPDATED----------------------- 80 03
BY-------------------------- WILK, 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
IMP..... 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 VAHM 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 MU

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, MOLYDENITE

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 (DESCRIPT. OF WORKINGS):
SHAFTS AND TUNNEL WORKINGS

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE (ELGIN)</td>
<td>60T</td>
<td>TONS</td>
<td>1899-1960</td>
<td>2% CU, 0.3 OZ/T</td>
<td></td>
<td></td>
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<tr>
<td>16 ORE (PEACH)</td>
<td>60T</td>
<td>TONS</td>
<td>1962-1952</td>
<td>5% CU, 2% ZN, AG</td>
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</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1974 P. 125 AND 128
COMMENTS (RESERVES/PUT RESOURCES): ANAMAX MINING CO. PLANS TO MINE PART OF THIS AREA

GEOLGY 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. 139, 156P., P. 125 AND 128.
2) HEYMAN, A.M., 1958, GEOLGY OF THE PEACH-ELGIN COPPER DEPOSIT, HELVETIA DISTRICT, ARIZONA: UNIV. ARIZ. MS THESIS
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.
NAME AND LOCATION

DEPOSIT NAME.................. SUN LODE 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 NORTING UTM EASTING UTM ZONE NO 3509950* 511400* +12

TWP..... 19S 20S
RANGE..... 14E 14E
SECTION.. 35 36 01 02
MERIDIAN.. GILA AND SALI R.

ALTITUDE.. 45005000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 16 MILES (AIRLINE) NW OF PATAGONIA IN MADERA CANYON AREA, Extends into PIMA CO.

COMMODITY INFORMATION

COMMODITIES PRESENT......... MO CU

MAIN ORE MINERALS:

MINOR ORE MINERALS:

GEOLOGY AND MINERALOGY
HOST ROCK TYPES.......... DIORITE

IMPORTANT ORE CONTROL/LOCUS... IN QUARTZ ALONG FAULT AND IN QUARTZ VEINS IN DIORITE

GENERAL COMMENTS
MCCLEARY 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.
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.

LATITUDE: 31°43'22"N
LONGITUDE: 111°35'50"W

UTM NORTHING: 3509925.0
UTM EASTING: 443425.0
UTM ZONE NO: 12

POSITION FROM NEAREST PROMINENT LOCALITY: SE FOOTHILLS OF BABOQUIVARI PEAK 7 MI. W OF SAGBA 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 COMMODITY: AU A
MINOR COMMODITY: 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.:
- Property is inactive

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
- QUARTZ FISSURE VEINS

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
- Shafts and underground workings (Keith, 1974, p. 109)

SOURCE OF INFORMATION (PRODUCTION):
- Keith, 1974, p. 109

PRODUCTION COMMENTS:
- Intermittent production in 1880s 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 Cu and Pb. Several hundred tons of high grade molybdenum ore shipped.

SOURCE OF INFORMATION (RESERVES/POTENTIAL RESOURCES):
- Dept Min Res, 1962, MD Prospects-AZ

COMMENTS (RESERVES/POTENTIAL 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: METAMORPHICSEDIMENTARY BED

IGNEOUS ROCK TYPES: PEGMATITES CUT BY INTRUSIVE DIES

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:
- Partially 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.
2) KING, R.B., 1969, MOLYBDENUM AND RHEINIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.
180, P. 230-236, P. 236 2327
3) ABM FILE DATA. ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
5) KEITH, STANTON, B., 1971, GEOLOGIC GUIDEBOOK 3 - HIGHWAYS OF ARIZONA, ARIZONA HIGHWAYS 85, 86, AND 386: ARIZ. BUR. MINES BULL. 163, 80 P.
6) Donald P.G., 1959, GEOLOGY OF THE FRESNAL PEAK AREA, BABOQUIVARI MOUNTAINS, ARIZONA: U.S. GEOL. SURVEY MAPS.
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., 1956-1959, 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. 163, 80 P.
14) MINE HANDBOOK, 1922
15) MINE HANDBOOK, 1922
16) MINE HANDBOOK, 1922
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............... M000309
RECORD TYPE.............. 11
COUNTRY/ORGANIZATION... USGS
INFORMATION SOURCE..... 1,2
MAP CODE NO. OF REC... 

REPORTRFR
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 QUAD NAME
1: 0062500 TWIN BUTTES

LATITUDE LONGITUDE
31-52-16N 11-07-21W

UTM Northing UTM Easting UTM Zone No
3529750.0 484400.0 +12

TWP........ 105
RANGE..... 12E
SECTION.. 09 SE 16 NW (FILE CARD)
MERIDIAN.. GSR

POSITION FROM NEAREST PROMINENT LOCALITY: NOW 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.
PROPERTY IS ACTIVE
YEAR OF DISCOVERY
FIRST LOCATED AND RECORDED IN 1895 BY P.H. CHAMBERS
BY WHOM
HOPKINS DEVELOPED BY CALUMET AND ARIZONA MIN. CO. IN 1907-08 AND ABANDONED BECAUSE OF
LOW COPPER PRICES
PRESENT/LAST OWNER
OWNED BY PENNZIOIL CO. (DUVAL CORP.)

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSIM.
FORM/SHAPE OF DEPOSIT: ERRATIC SEAMS, BUNCHES

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
200 FT SHAFT AND ADIT OPERATIONS (KEITH, 1974) 216 FT SHAFT WITH UNDERGROUND WORKINGS AND ADIT (ARM 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 ORE 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: TERT.
HOST ROCK TYPES: QUARTZITIC ROCKS

AGE OF ASSOCIATED IGNEOUS ROCKS:
TERT. (53.5 56.7 M.Y.)
IGNEOUS ROCK TYPES:
GRANODIORITE AND QUARTZITIC "SLOW-OUT"

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

IMPORTANT ORE CONTROL/LOCUS:
BRECCIATED QUARTZITIC ROCKS INTRUDED BY LARAMIDE QUARTZ MONZONITE PORPHYRY

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULTING AND FRACURING

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, STANION B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 189, 156 P. P. 135


3) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 156. P. 135


6) BANKS, N.G., 1974, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOU. RES. U.S. GEOL. SURV., V. 2, NO. 2, P. 195-211.


12) 1966, CORRELATION AND CHRONOLOGY OF ORE DEPOSITS AND VOLCANIC ROCKS. U.S. ATOMIC ENERGY COMM. ANNUAL REPORT NO. C00-689-501: TUCSON, UNIVERSITY OF ARIZONA.


14) HILLMAN, B.A., KILINO, T.A., 1972, RESEARCH IN HYDROTHERMAL ACTIVITY AS RELATED TO ORE DEPOSITION AT THE SIERRITA MOLYBDENUM DEPOSIT, PIMA COUNTY, ARIZONA: UNPUBLISHED THESES, CINCINNATI UNIVERSITY.


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.


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

31) WORLD MINING, JUNE 1972, SIERRITA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M002678
RECORD TYPE. 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC...

RECEPT.
UPDATED. 00 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 NUMBER/NAME TWIN BUTTES, ARIZONA
LATITUDE N 31-59-
LONGITUDE W 111-05-
TWP 16S R 12E S 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 COMMODITY CU AG
MINOR COMMODITY MO ZN PB AU

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE
MINOR ORE MINERALS:
SPHALERITE, GALENA, TENNANTITE, TETRAHEDRITE, BORNITE, MAGNETITE, AND HEMATITE, VALLERITE, MAGNETITE;
CHALCOCITE IN LIMITED QUANTITIES. OXIDE MINERALS INCLUDE CHRYSOCOLLA, TENTRIDE, MALACHITE, AND AZURITE AND
CUPRITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
ACCORDING TO PARKINSON (1976), CURRENT AVERAGE ORE GRADES ARE 0.470 CU AND 0.015% MO. SILVER IS ALSO RECOVERED
AS A BY-PRODUCT FROM THE ORES DURING THE SHELFING 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: PALEOZ (PERM) AND MES
HOST ROCK TYPES: THE ALTERED PERMIAN ROCKS IN THE PIT VICINITY BELONG TO THE COLIMA LIMESTONE,
EPITAPIF FORMATION, SCHERER FORMATION, AND CONCHA LIMESTONE MEMBERS OF THE NACO GROUP.
RODOLOP 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
CRETACEOUS UNITS WITHIN THE MINE VICINITY MAY INCLUDE BOTH THE WHITCOMB QUARTZITE AND THE ANGELICA ARKOSE OF
COOPER (1 71). 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: 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 -UBY STAR GRANODIORITE BATHOLITH EXPOSED TO THE SOUTH AND
CREASEY AND KISTLER (1962) AND DAMON AND MAUGER 1966), IS CLOSE TO THE AGE OF ALTERATION OF THE PORPHYRY FROM
THIS REPO-T. 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 YIELD A DATE OF 57 M.Y. (CREASEY AND
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) (Shafiqullah, 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. (Hines, 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 to the 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 limestone and argillite. Molybdenite mineralization is associated in time with alteration in the sense that it is concentrated in quartz veinlets. (Hines, 1973).

Local geology

Significant local structures: Dominant structures are an east-west postmine-al fault in the west rim part of the pit, and strong low angle faulting and shearing which truncates 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 NE and the other less pronounced grouping of faults striking 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 N01 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 fanolomerase and thus also postmineralization. (Himes, 1973).

General comments

See record number 8899998 for references. Record number 8899998 for further geologic information.
RECORD IDENTIFICATION
RECORD NO. ................. M030468
RECORD TYPE ............... XI
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ....... 1,2
MAP CODE NO. OF REC ....... 9

RESEARCHER
NAME .................. WILT, JAN C.
DATE .................. 79 10

NAME AND LOCATION
MINING DISTRICT/AREA/SUBDIST. COPPER CREEK AREA/BUNKER HILL DIST/GALIvro MTS
COUNTRY CODE ............... US
STATE CODE ............... 04
COUNTY ................... PINAL
QUAD SCALE ................. 1:0062500
QUAD NO OR NAME ........... KLONDIKE, ARIZ.
LATITUDE ................ 32°45'47"N
LONGITUDE ................ 110°28'17"W
UTM NORTHING ............. 3624950
UTM EASTING ............... 549550
UTM ZONE NO .............. +12
UTM +12 ZONE ............. 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 COMMODITY: MO ZN FE

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL accommodation

OCCURRENCE accommodation MO ZN FE

MAIN ORE MINERALS:
- Galena, Bornite, Chalcopyrite, Tetrahedrite

MINOR ORE MINERALS:
- Pyrite, Tennantite, Sphalerite, Wulfenite, Azurite, Malachite, Cerargyrite, Limonite, Native Silver,Anglesite, Cerussite, Covellite, Chalcocite, Stromeyerite, Dyscoizite, Psilomelane

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.: 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 (DESIGN 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 (ORF.COMMOD., CONC., OVERBURDEN)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cu</td>
<td>EST 2.1</td>
<td>LB</td>
<td>1948</td>
<td>SIMONS, 1964, P. 132</td>
</tr>
<tr>
<td>2</td>
<td>Pb</td>
<td>EST 31.2</td>
<td>LB</td>
<td>1948</td>
<td>SIMONS, 1964, P. 132</td>
</tr>
<tr>
<td>3</td>
<td>Ag</td>
<td>EST 1.085</td>
<td>DZ.</td>
<td>1948</td>
<td>SIMONS, 1964, P. 132</td>
</tr>
<tr>
<td>ITEM</td>
<td>ACC</td>
<td>AMOUNT</td>
<td>THOUS. UNITS</td>
<td>YEAR</td>
<td>GRADE</td>
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</tr>
<tr>
<td>15 CU</td>
<td>EST</td>
<td>200 LBS</td>
<td>1926-1939</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 PB</td>
<td>EST</td>
<td>4000 LBS</td>
<td>1926-1939</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 AG</td>
<td>EST</td>
<td>119 OZ</td>
<td>1926-1939</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 ORE ACC</td>
<td>1.6 TONS</td>
<td>1921-1948</td>
<td>BLUE BIRD AND RED BIRD GROUPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 CU ACC</td>
<td>68.880 LBS</td>
<td>1921-1948</td>
<td>BLUE BIRD AND RED BIRD GROUPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 PB ACC</td>
<td>1068 LBS</td>
<td>1921-1948</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 AG ACC</td>
<td>37 OZ</td>
<td>1921-1948</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 AU ACC</td>
<td>0.08 OZ</td>
<td>1921-1948</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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, BORNEITE, CHALCOPYRITE, TENNANTITE, ZINCITE, AND PYRITE. SUPPLEMENTARY MINERALS ARE: AZURITE, MALACHITE, CERARGYRITE, CUPRITE, LUSTROUS COPPER, NATIVE SILVER, ANGLESITE, CERUSSITE, COUELITE, NEPHRITE, BORNEITE, WURMITE, DISCOLOZITE, AND PSILOMELANE. COPPER CONTENT INCREASES WITH DEPTH APPARENTLY BECAUSE CHALCOPYRITE AND BORNEITE INCREASE. WULFENITE ON THE 535 LEVEL OCCURS IN WULFENITE PARTLY FILLING OPEN SPACES IN A QUARTZ NETWORK. (KUHN, 1951, P. 65).

**GENERAL REFERENCES**


4) KUHN, T.H. (1938) CHILDS ALDOWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS, ARIZ. BUR. MINES BULL. 145, GEOL. SERIES 12, P. 127-130.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030467
RECORD TYPE 11
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 00625000
QUAD NO OR NAME GALUIRO MTS., ARIZ.

LATITUDE 32-44-45N
LONGITUDE 110-28-35W

UTM NORTHING 3623000.
UTM EASTING 549000.
UTM ZONE NO 12

TWP 6S
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 GALUIRO MTS. 1/2 MILE SE OF CHILOS-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

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

GEOLGY 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 PROPYRHERIZATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
THE AMERICAN EAGLE PIPE REPRESENTS AN EARLY STAGE OF BRECCIATION (KUHN P. 538)

GENERAL REFERENCES

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. 149, GEOL. SERIES 12: 127-130.


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.


DEPOSIT NAME: BEAR CAT CLAIMS
MINING DISTRICT/AREA/SUBDIST: ORACLE DISTRICT
COUNTRY CODE: ............ US
STATE CODE: .............. 04
COUNTY: .................... PINAL
QUAD SCALE: 1:0024000
QUAD NO OR NAME: CAMPO SONIITO, 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........ CLAEMS 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..... N 45 E
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 (DESCRIPTION OF WORKINGS):

In 1941 workings included an open cut 50 feet long by 15 feet deep and a 20 foot inclined shaft (Wilson, 1941, p. 34).

PRODUCTION

YES

SMALL PRODUCTION

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

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......... LORET-FERT

PERTINENT MINERALOGY........... QUARTZ VEINS

GENERAL COMMENTS

SEE AMERICAN FLAG MINE ENTRY FOR INFORMATION ON ADJOINING COPPER-SILVER PRODUCER, ALSO IN BEAR CAT CLAIM GROUP.

GENERAL REFERENCES
1) WILSON, E.D. 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 149, P. 34.
2) BROMFIELD, C.S. (SEE ALSO BUTLER, B.S., 1941), GEOLOGY OF THE MAUDINA MINE AREA, NORTHERN SANTA CATALINA MOUNTAINS, PINAL COUNTY, ARIZONA: ARIZ. UNIV. MS THESIS 63 P., MAPS (1950)


3) Important Catalina Geology:

ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.


RECORD IDENTIFICATION
RECORD NO.--------- 4030483
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 MO PH

MAIN ORE MINERALS:
VANADINITE

MINOR ORE MINERALS:
WULFENITE

LOCAL GEOLOGY
COMMENTS (GEOLOGY AND MINERALOGY):
DOUBLY TERMINATED VANADINITE CRYSTALS (BLAKE, 1981)

GENERAL REFERENCES
2) PENFIELD, S.D., 1886, CRYSTALLIZED VANADINITE FROM ARIZONA AND NEW MEXICO: AMER. JOUR. SCI., V. 32, 3RD SER., P. 441-443.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... 4030472
RECORD TYPE .......... K1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE ... 1:2
FILE LINK ID .......... USM-0040210211
MAP CODE NO. OF REC.

REPORER
NAME ..................... WILT, JAN C.
DATE ..................... 79 10

NAME AND LOCATION
DEPOSIT NAME .......... CALUMET MINE
MINING DISTRICT/AREA/SUDBUS. 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: 00240000 SORONOKA ARIZ.

LATITUDE .................. 33-11-07N
LONGITUDE ................ 110-50-53W

UTM NORTHING .......... 3671630.
UTM EASTING .......... 501740.
UTM ZONE NO .......... +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 (DESCRIPT. OF WORKINGS):
2 SHAFTS ON TOPO MAP

PRODUCTION
YES
SMALL PRODUCTION

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS
PREC
HOST ROCK TYPES:
DIABASE, PINAL SCHIST, PIONEER SHALE, SCANLON 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 (GEOLGY 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 PORPHYRY DIKE WHICH CUTS THE TEAPOT MOUNTAIN PORPHYRY.
GENERAL REFERENCES


CRAIN MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION

RECORD NO. 4030485
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS

INFORMATION SOURCE: 1.2
MAP CODE NO. OF REC.

REPORTER
NAME: WILL, 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

QUAD SCALE: 00240000
QUAD NO OR NAME: PINAL RANCH, ARIZ.
LATITUDE: 33-21-21N
LONGITUDE: 110-59-25W

TMP: 015
RANGE: 13E
SECTION: 12
MERIDIAN: GILA AND SALT RIVER
ALTITUDE: 4000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NE OF SUPERIOR 1/4 MI NE OF CLARK RANCH NORTH OF US HWY 60-70
LOCAIION 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 (DESCRIPTION OF WORKINGS):
ADITS AND PROSPECT PITS

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: TERT
HOST ROCK TYPE: SCHULTZE GRANITE

AGE OF ASSOC. IGNEOUS ROCKS: TERT
IGNEOUS ROCK TYPE: SCHULTZE GRANITE

AGE OF MINERALIZATION: TERT

IMPORTANT ORE CONTROL/LOCUS: SHEAR ZONE CUTTING GRANITE NEAR CONTACT WITH PINAL SCHIST

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEAR ZONE

SIGNIFICANT ALTERATION:
GRANITE WALLROCK IN STOCKWORK IS LARGELEY ALTERED TO MUSCOVITE GREISEN

COMMENTS (GEOLGY AND MINERALOGY):
FLUORITE OCCURS SPARSELY AS MINUTE GRAINS IN GREISEN AND IN VUGS IN QUARTZ

GENERAL REFERENCES
1) ARIZONA BUREAU OF MINES FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. W016136
RECORD TYPE. 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 12
MAP CODE NO. OF REC.

REPUBLICER
UPDATED. 1979 10 10
BY. WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME. COPPER CREEK AREA
SYNONYM NAME. INCLUDES: CHILDS ALDWINKLE, BLUE BIRD, COPPER PRINCE, OLD RELIABLE, GLORY HOLE (GLOBE), BUNKER HILL AND MAGNA MINES 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. 0062500
QUAD NO OR NAME. KLONDIKE

LATITUDE. 32-45- N
LONGITUDE. 110-29- W

UTM NORTHING. 3624000
UTM EASTING. 549000
UTM ZONE NO. 12

TWP. 08 S
RANGE. 18 E
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 IRE MINERALS:
MOLYBDENITE, CHALCOPYRITE BORNITE
MINOR ORE MINERALS:
PYRITE, TENNANTITE, FER-MOLYBDITE, CHALCOCITE, ENARGITE GALENA, SPAHLERITE, 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 (DESCRIPT. OF WORKINGS):
SEVERAL MINES, ADITS AND GLORY HOLES

PRODUCTION
YES
SMALL PRODUCTION

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

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<td>EST</td>
<td>8000 LBS</td>
<td>1933-1938</td>
<td>GUTHRIE AND MOORE, 1978, P. 26</td>
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<tr>
<td>16 MO</td>
<td>EST</td>
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<td>1933-1938</td>
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<td>1905-1930</td>
<td>ELSING AND HEINEMAN</td>
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<td>KUHN, 1921, P. 57</td>
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AGE OF HOST ROCKS................. CRET., 68 M.Y.,
HOST ROCK TYPES................. COPPER CREEK GRANODIORITE, DACITE PORPHYRY, ANESTITE DIKES
AGE OF ASSOCI. 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 JOING SETS

SIGNIFICANT ALTERATION:
SERICITE AND CHLORITE

GEODELICAL 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 (CHILDS-ALDWINKLE, 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


3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2, ARIZONA BUR. MINES BULL. 150, GEOL. SFR. 19, P. 56-65.

4) KUHN, T.H. (1939) CHILDS-ALDWINKLE MINE, COPPER CREEK, ARIZONA, IN SOME ARIZONA ORE DEPOSITS, ARIZ. BUR. MINES BULL. 145, GEO. SERIES 12; 127-130.


38) NORTON, E.A. 1916 - A PRIVATE REPORT ON THE PROPERTIES OF THE COPPER STATE MINING COMPANY.
40) RAND, LENOX, AND STURGIS, EDWARD B. (ED). 1931 MINES HANDBOOK, VOL. 18, PART I. SUCCESSOR TO WEED'S HANDBOOK.
42) WEED, W.H. - 1909 PRIVATE REPORT ON THE OLD RELIABLE MINE.
44) DISCUSSES BRIEFLY THE GEOLOGY, AND LISTS THE PROPERTIES, PRODUCTION, RESERVES, ACTIVITIES, EQUIPMENT, AND OFFICERS OF THE COPPER STATE MINING COMPANY.
COPPER HILL MINE

COTTONWOOD DISTRICT

US

PINAL

15050100

30 -- (1979)

0024000 WINKELMAN, ARIZ.

110-51-47W

32-56-55N

3645420S 512800E +12

05S 14E 36

6 & 8K

3360 FT

3E1NE

BETWEEN THE N. BRANCH OF ROMERO WASH AND S. BRANCH OF SMITH WASH.

SE 1/4

CU MO

CU

MD

MD

CU

MD
MAIN ORE MINERALS:
PYRITE CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE

ANALYTICAL DATA (GENERAL)
TRACE OF MOLYBDENITE IN DRILL CORE: MOLYANOMALY

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PORPHYRY COPPER

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
DRILL HOLES (BEAR CREEK, 1975) CONOCO, 1971

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS................. CRET. PERC.
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. (69-69 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 PORPHYRY INTRUSION; CHLORITE-EPIDOT-CLAY MINERAL ALTERATION OF BIOTITES IN PRECAMBRIAN GRANITE 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-MO POTENTIAL.

GENERAL REFERENCES
1) EVENSEN, JAMES. 1961, GEOLOGY OF THE COPPER HILL AREA, WINKELMAN, ARIZONA: UNIV. ARIZ., MS THESIS, 45 P.
4) SCHWARTZ, ROLAND J. DETAILED GEOLOGICAL RECONNAISSANCE OF THE CENTRAL TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 82 P. (1954)
CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO.********* 000723
RECORD TYPE********** CI
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 KLONDIKE, ARIZ.
LATITUDE LONGITUDE 32-45-12N 110-29-08W
UTM NORTING UTM EASTING UTM ZONE NO 3624850 548210 12
TWP****** 08S RANGE..... 19E SECTION... 10 MERIDIAN.. G65R

ALTITUDE.. 4300 FT

POSITION FROM NEAREST PROMINENT LOCALITY: N OF COPPER CREEK

LOCATION COMMENTS: NE 1/4

COMMODITY INFORMATION
COMMODITIES PRESENT******* CU MD W

PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS.. CU
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

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.:
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:
423 FT

COMMENTS/DESCRIPTION OF DEPOSIT:
ON ADIT LEVEL BRECCIA PIPE IS ELLIPTICAL IN PLAN (150 FT IN ENE DIRECTION AND 280 FT IN NW DIRECTION) (SIMONS, 1964, P. 158)

DESCRIPTION OF WORKINGS

UNDERGROUND

DEPTH OF WORKINGS BELOW SURFACE:
420 FT

COMMENTS/DESCRIPTION OF WORKINGS:
ADIT REPORTED BY NEED (1913) TO BE 420 FT DEEP AND VARIOUS STOPES NOW INACCESSIBLE (SIMONS, 1964, P. 160)

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)

GEOLGY 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 NW-SE; PIPE BOUNDED BY SHORT CURVED PERIPHERAL FAULTS

GENERAL REFERENCES
3) KUHN, T.H., 1951, BUNKER HILL DISTRICT, IN ZINC AND LEAD DEPOSITS, CHAPTER 7, PT. 2: ARIZ. BUR. MINES BULL. 119, GEOLOG. SERIES 12, 127-130.
4) KUHN, T.H. (1938) CHILD-ALDWINKLE MINE, COPPER CREEK, ARIZONA; IN SOME ARIZONA ORE DEPOSITS: ARIZ. BUR. MINES BULL. 115, GEOLOG. SERIES 12, 127-130.
9) ARIZ. DEPARTMENT OF MINES AND MINERAL TECHNOLOGY FILE DATA.
16) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE.
22) KRIEGER, M.H., 1979, ASH-FLOW TUFFS IN THE GALLIPOLI VOLCANICS, NORTHERN GALIUCRI MOUNTAINS, PINAL COUNTY, ARIZONA.


26) PICKARD, R.D., 2. BUNKER HILL MINING DISTRICT OF PINAL COUNTY, ARIZONA: MIN. SCI., V. 66, P. 281-282 (1912)


29) KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030474
RECORD TYPE A1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 12
MAP CODE NR. OF REC.

REPORTER
NAME WILTI, 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 74
COUNTY PINAL
DRAINAGE AREA 15050100

QUAD SCALE 1: 0024000
QUAD No or NAME SANDOKA AR17

LATITUDE 33-06-25N
LONGITUDE 110-56-40W

UTM NORTHING 3666700.
UTM EASTING 505250.
UTM ZONE RD +12

TWP 035
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, MINORchalcopyrite, 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 (DESCRIPTION OF WORKINGS):

PHELPS DODGE DRILLED NORTH OF HERE - 1973?

GEOLGY 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............... RHODOCITE 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 GEOLgy

SIGNIFICANT LOCAL STRUCTURES:
VEINS ORE MINERALIZED FAULTS AND FISSURES

COMMENTS (GEOLGY AND MINERALOGY):

SMALL AMOUNTS OF WULFENITE; OUTER LEAD ZINC ZONE NORTH OF TROY-BUCKEYE-ALICE COPPER

GENERAL REFERENCES
4) ABM FILE DATA, ARIZ. BK. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
**CRIB MINERAL RESOURCES FILE 12**

**RECORD IDENTIFICATION**
- RECORD NO.: MD30476
- RECORD TYPE: XI
- COUNTRY/ORGANIZATION: USGS
- INFORMATION SOURCE: 1.2
- MAP CODE NO. OF RECORD:

**REPORTER**
- NAME: WILT, 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**
- 33-00-26N

**LONGITUDE**
- 110-57-27W

**UTM NORTHING**
- 3651670.

**UTM EASTING**
- 503190.

**UTM ZONE NO**
- 12

**THW:** 055
**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 COMMODITY:** PB, AG
**MINOR COMMODITY:** CU, MO, CR, ZN
MAIN ORE MINERALS:
SILVER BEARING GALENA, PYRITE TENNANTITE

MINOR ORE MINERALS:
WULFENITE, SIDERITE, HEMIHEDRITE WILLEMITE, VANQUELINITE, MINIUM, MIMETITE

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

PRESENT/LAST OWNER............. OWNED BY EDWARD D. 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.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td>15 ORE ACC</td>
<td>.22</td>
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<td>1933-1940</td>
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<td>16 CU ACC</td>
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SOURCE OF INFORMATION (PRODUCTION)... ARM FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.............. TERT., MISS.
HOST ROCK TYPES.............. GRANITIC CONGLOMERATE OF SAN MANUEL FORMATION; NEAR ESCARROSA 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% CR2O3. LATER WULFENITE IS YELLOW AND CHROME FREE.
REFERENCES

4) SCHMIDT, EBERHARD A., 1971, A STRUCTURAL INVESTIGATION OF THE NORTHERN TORTILLA MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUBL. PH.D. THESIS, UNIV. ARIZ., 749 P.
6) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 7030493
RECORD TYPE 41
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE PA
MAP CODE NO. OF RECORD

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 1: 0024000
QUAD NO OR NAME STANFIELD, ARIZ. AND CASA GRANDE WEST, ARIZ.
LATITUDE 32-53-00N
LONGITUDE 111-52-30W
UTM NORTHING 3639000
UTM EASTING 418000
UTM ZONE NO 12

THP 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 NO
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

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<th>YEAR</th>
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<td>SULF ORE</td>
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</table>

SOURCE OF INFORMATION (RESERVES/POT RESOURCES). GREELY, 1978, P. 93

GENERAL COMMENTS
NO PRODUCTION AS YET, RESERVES PROVEN

GENERAL REFERENCES
3) BALLA, J.C. 1972. THE REALTIONSHP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUBL. PH.D. THESIS, UNIV. ARIZ., 132 P.
10) ISRCHRON/WEST, NO. 10, P. 7-10.
11) ISCHRON/WEST, NO. 10, P. 7-10.
16) IDENTON, 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.
17) IDENTON, T.C., AND HAURY, P.S. 1945, EXPLORATION OF THE REWARD (VEKOL) ZINC DEPOSIT, PINAL COUNTY, ARIZONA: U.S. BUR. MINES REPT. OF INV. 3975, 42 P.
THESIS, UNIVERSITY OF ARIZONA.

1) MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEozoIC SEDIMENTARY ORCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA, IN SOUTHERN ARIZONA GUIDEBOOK II, L.A. NEINOL, ED.: TUCSON, ARIZONA, ARIZONA GEOLOGICAL SOCIETY, P. 77-89.

2) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS


6) 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. GOIL. SURVEY, BULL. 1278-E, 78 P.
RECORD IDENTIFICATION
RECORD NO.********** MO00721
RECORD TYPE********** K1
COUNTRY/ORGANIZATION* USGS
INFORMATION SOURCE** 1.2
FILE LINK ID********** USBM-0040210393
MAP CONF NO. OF REC**

REPORTER
UPDATED****************** 79 10
BY************************* WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME************ GLOMY 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. G65K

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:
CHALCOCITE 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 (100 FT ACROSS) IS SMALL

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE 650 FT
COMMENTS(DESCRIPTION OF WORKINGS):
A SHAFT AND SEVERAL LEVELS (1000 FT AT ADIT LEVEL)

PRODUCTION
NO PRODUCTION

SOURCE OF INFORMATION (PRODUCTION)
SIMONS, 1969, 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 (HFRNFELS 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******* CRET-TER1
IMPORTANT ORE CONTROL/LOCUS.. BRECCIA PIPES AT JOINING 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


14) Fleischer, H., 1959, The Geochemistry of Rhenium, with Special Reference to Its Occurrence in Molybdenite: Econ. Geol. 54: 1406-1413.


KUHN, T.H. (1940) GEOLOGY AND ORE DEPOSITS OF THE COPPER CREEK, ARIZONA, AREA. UNIV. ARIZONA PH.D. DISSERTATION, 147 P.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030490
RECORD TYPE. I
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: GULO CIRCLE GROUP
MINING DISTRICT/AREA/SUBDIST.: GOLD CIRCLE DISTRICT
COUNTRY CODE: US
STATE CODE: 204
COUNTY: PINAL
DRAINAGE AREA: 15050703
LAND CLASSIFICATION: 01 (1979)
QUAD SCALE: PUTNAM WASH, ARIZ.
LATITUDE: 32-49-40N
LONGITUDE: 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.. YERT-CRET. (?)
IGNEOUS ROCK TYPES.............. DIKES

AGE OF MINERALIZATION......... LCRET-TERI

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.
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: 1:0024000
LATITUDE: 33°06'45"N
LONGITUDE: 110°54'15"W
UTM NORTHING: 3663620
UTM EASTING: 5078900
UTM ZONE NO: 12
THP: 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 COMMODO: V PB
MINOR COMMODO: ZN MD

MAIN ORE MINERALS:
VANADINITE, DESCLOIZITE

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: NBQ
DIP OF OREBODY: 85 S

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 40 FT

COMMENTS (DESCRIPTION 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: MESC AL LIMESTONE, DIABASE
PERTINENT MINERALOGY: QUARTZ

IMPORTANT ORE CONTROL/LOCUS:
ORE IS IN NBQ FISSURE IN A MESC AL 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
2) COWAN, H.R., AND DREIER, A., 1975, GEOL OGY MAP OF THE KEARNY QUADRANGLE, PINAL COUNTY, ARIZONA: U.S. GEOLOG. SURVEY, GEOL OGY QUADRANGLE MAP GQ-115B.
3) AM File Data, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
5) NEWHOUSE, W.H., 1934, THE SOURCE OF VANADIUM, MOLYBDENUM, TUNGSTEN, AND CHROMIUM IN OXIDIZED LEAD DEPOSITS: A
CR18 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030401
RECORD TYPE. A1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. IA
FILE LINK ID. USRM-0040210053
MAP CODE NO. OF REC. 47

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. 1:0062500
QUAD NO OR NAME. SILVER REEF MOUNTAINS
LATITUDE. 32-31-25N
LONGITUDE. 111-54-09W
UTM NORTING. 3598610
UTM EASTING. 415270
UTM ZONE NO. 17
TWP. 10S
RANGE. 06E
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 NO
PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS. CU
MAIN COMMODITY: CU
MINOR COMMODITY: NO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL

OCCURRENCE: 40

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

PROPERTY IS ACTIVE

YEAR OF DISCOVERY: EARLY 1980's

PRESENT/LAST OWNER:
OWNED IN 1972 BY EL PASO NAT. GAS AND HECLA MIN. CO; BASED FROM PAPAGO INDIANS & PATENTED AND 19 UNPATENTED LODE CLAIMS INCOMPASSING 402 ACRES AND IN ADDITIONAL 10,142 ACRES LEASED FROM PAPAGO INDIANS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
COPPER PORPHYRY (DISSIM); SUPERGENE ENRICHMENT; TACTITE

DESCRIPTION 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.)

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<td>SULFIDE ORE</td>
<td>ACC0009.34</td>
<td>TONS</td>
<td>1976</td>
<td>GREELEY, 1978, P. 22</td>
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<td>OXIDE ORE</td>
<td>ACC10-228</td>
<td>TONS</td>
<td>1976</td>
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<td>4</td>
<td>Cu FROM SULFIDE</td>
<td>ACC66688</td>
<td>LBS</td>
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<td>ACC20007.48</td>
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CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBUR.)

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<td>15</td>
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<td>DRE EST</td>
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SOURCE OF INFORMATION (PRODUCTION)... GREELEY, 1978, P. 49; ARIZ. BUR. GEO. 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

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<th>ITEM</th>
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<td>1969</td>
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<tr>
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<td>TACTITE SULFIDE</td>
<td>300 TONS</td>
<td>1969</td>
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<td>3</td>
<td>OXIDE ORE</td>
<td>2,000 TONS</td>
<td>1969</td>
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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-DRE 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 ALTERATIONS:
POTASSIC, PHYLLIC 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


2) Lakeshore Geology:


3) Geology of Nearby Areas:


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... 0030486
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 N0
3505300. 515850. *12

TWP RANGE SECTION MERIDIAN ALTITUDE
10S 15E 05 08 10 GILA AND SALT R. 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 MILL MINING CO, ORACLE

EXPLOR. AND DEVELOP. COMMENTS:
IN 1962-1965, ADJOINING DEL ORO 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 (DESCRIPTION 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. (DURNIG, 1972)

PRODUCTION

YES

SMALL PRODUCTION

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

ITEM ACC. AMOUNT THOUS. UNITS YEAR GRADE REMARKS
15 CUR-BEARING FLUMO EST TONS 1960-1972

RESERVES AND POTENTIAL RESOURCES

ITEM ACC. AMOUNT THOUS. UNITS YEAR GRADE OR USE
1 CUR HEARING FLUMO OBT 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

Importance of 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.MI, p. 83)

Local Geology

Significant local structures:
The WNW striking Mogul Fault dips 40-60° and had left lateral displacement of 1500 feet since intrusion of a Monzonite Porphyry Dike (Durning, 1972). 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:
Propylitic 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, 1972, p. 84)

General References
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).
8) Catalinas Maps, Etc.: ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
NAME AND LOCATION
DEPOSIT NAME: MAMMOTH GROUP
MINING DISTRICT/AREA/SUBDIST: GOLDFIELDS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: PINAL
QUAD SCALE: 1: 0024000
QUAD NO OR NAME: APACHE JUNCTION, ARIZ.
LATITUDE: 33-27-30N
LONGITUDE: 111-29-15W
UTM NORTING: 3701800
UTM EASTING: 454750
UTM ZONE NO: 12
TPH: 01N
RANGE: 08E
SECTION: 01
MERIDIAN: G & SR
LOCATION COMMENTS: LOCATION ESTIMATED FROM SHAFTS ON TOPO MAP.

COMMODITY INFORMATION
COMMODITIES PRESENT: AU NO MN
MAIN COMMOD: AU

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

DESCRIPTION OF WORKINGS
COMMEN1S (DESCRIP. OF WORKINGS):
MAMMOTH CLAIM SHAFT SUNK BY GEORGE U. YOUNG IN 1914 (CLIPPING FILE)

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMM., CONC., OVERBUR.):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT (THOUS. UNITS)</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
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<tr>
<td>15</td>
<td>ORE ACC</td>
<td>11.31 TONS</td>
<td>1919-1978</td>
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<td>16</td>
<td>AG ACC</td>
<td>1.252 oz</td>
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<td>AG ACC</td>
<td>114 lb</td>
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<tr>
<td>18</td>
<td>CU ACC</td>
<td>.25 lb</td>
<td>1919-1978</td>
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SOURCE OF INFORMATION (PRODUCTION): ABM FILE DATA

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PRC TERT.

HOST ROCK TYPES: PEGMATIC 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. GEOLOGICAL SURVEY BULL. 1355, 103 P.
3) TENNEY, J.B., 1927-29. HISTORY OF MINING IN ARIZONA: UNPUBL. MANUSCRIPT SPECIAL COLLECTIONS, UNIV. ARIZ. LIBRARY AND ARIZ. BUR MINES LIBRARY, TUCSON 514 P., P. 344-5.
4) DOUD, R.W., 1969. PETROGRAPHY AND PETROLOGY OF THE VOLCANIC ROCKS IN THE GOLDFIELDS MOUNTAINS, ARIZONA: ARIZ. STATE UNIV., TEMPE, M.S. THESIS 66 P.
14) ROBERTS, R.J., AND PETERSON, D.W., 1961. SUGGESTED MAGMATIC DIFFERENCES BETWEEN WELDED "ASH" TUFFS AND WELDED

15) SELL, J.D., 1968, CORRELATIONS OF SOME POST-LARAMIDE TERTIARY UNITS, GLOBE (GILA COUNTY) TO GILA BEND (MARICOPA COUNTY), ARIZONA: ARIZ. GEOLOGICAL SOCIETY SOUTHERN ARIZONA GUIDEBOOK III, P. 69-74.


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, GEOLOGICAL SOCIETY OF AMERICA SPEC. PAPER.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.  D000029
RECORD TYPE KIM
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 YEAR'S
MINING DISTRICT/AREA/SUBDIST. MAMMOTH DIST./BLACK HILLS
COUNTRY CODE US
STATE CODE 04
COUNTY PINAL
QUAD SCALE 1: 0024000 MAMMOTH, ARIZ.
LATITUDE 32-42-23N
LONGITUDE 110-41-04W
UTM NORTHING 3618570
UTM EASTING 529600
UTM ZONE NO 12
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 COMMODO... AU, AG, MO, V
MINOR COMMODO... CU

MAIN ORE MINERALS:
- Wulfenite, Vanadinite, Gold in Quartz, Galena, Sphalerite

MINOR ORE MINERALS:
- Anglesite, Cerussite, Malachite, Azurite, Linarite, Brochonntite, Descl0zite, Mottramite

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: 4
PROPERTY IS INACTIVE
YEAR OF DISCOVERY: CLAIMS FIRST LOCATED IN 1879

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
- Fissure Veins

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMODO, CONC., OTERBUR.)

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>16 AU</td>
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<td>20 ZN</td>
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<td>48272.65 LB</td>
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<td>2540.842 LB</td>
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<td>G15A</td>
<td>50 TONS</td>
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<td>G15B</td>
<td>19170.01919</td>
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<td></td>
<td>G15D</td>
<td>YIELD 450,000 LBS MOD3 (.45%)</td>
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MOD03 | EST | 5800 |
| LBS  | 1934-1943 |
| CREASEY, 1950 |
LBS 1934-1943

4210
LBS 1919-1944
SULFENITE

1283
ORE  EST
TONS  1919-1944

2541
ORE  EST
LBS 1919-1944
VANADINITE

4091377
ORE  ACC
TONS  1930-1978

1164733
CU  ACC
LBS  1930-1978

2140071
PB  ACC
LBS  1930-1978

1431526
ZN  ACC
LBS  1930-1978

3016002
AG  ACC
NZ  1930-1978

563667
AU  ACC

GEOLOGY AND MINERALOGY

HDS1 ROCK TYPES. ARHYDLITE (TERI.) AND QUARTZ RONZONITE (PRECAMBRIAN ORACLE GRANITE)

AGE OF ASSOC. IGNEOUS ROCKS. TERT. (22.3 M.Y.)

IGNEOUS ROCK TYPES. RHYNOLITE INTRUSIVE, RHYNOLITE BRECCIA


LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

The Mammoth Fault (striking N22°W, 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, 1939, p. 2E boundary between the granite and lava flows with the flows relatively). Creasey, 1956, V. 72-76. The Turtles Fault, striking N70°E, 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, Shafiquallah et al., 1978) was deposited on mineralized Laramide granodiorite porphyry (57 M.Y., Creasey, 1976) 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 101795, Univ. Ariz. 8208; British Museum 1961, 539; and others).

General Comments

See record number MB99990 for references
GRID MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030487
RECORD TYPE XI
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, COBY 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
I: 0024000 MAMMOTH, ARIZ. 15'; CAMPO-BONITO, ARIZ.

LATITUDE LONGITUDE
32-33-07N 110-43-37W

UTM NORTHING UTM EASTING UTM ZONE NO
3601440 525660 +17

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


COMMODITY INFORMATION
COMMODITIES PRESENT W, AU, PB, QO, CU
PRODUCER(PAST OR PRESENT):  
MAJOR PRODUCTS: W

MAIN COMMODO: W
MINOR COMMODO: AU MO P8 CU

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):  
POTENTIAL: 
OCCURRENCE: AU MO P8

MAIN ORE MINERALS: SCHEELITE

MINOR ORE MINERALS: CERUSSITE, WURFENITE, VANADINITE, MINOR PYRITE, GOLD, GALENA, CHALCOPYRITE, COVELLITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: PROPERT 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. 85-86)

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 175 FT
LENGTH OF WORKINGS: 2000 FT
OVERALL LENGTH OF MINED AREA: 150 FT
OVERALL WIDTH OF MINED AREA: 30 FT

COMMENTS: DESCRIPTION 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 COM普RISE ABOU1,000 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.)

<table>
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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td>15 CONC EST</td>
<td>3</td>
<td>UNITS</td>
<td>1908-1912</td>
<td>1918 MAUDINA MINE</td>
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<td>18 ORE EST</td>
<td>15</td>
<td>SHORT TON UNITS</td>
<td>DALE, 1959, P. 52</td>
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GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: MISS. CAMB.

HOST ROCK TYPES: ESCABROSA LIMESTONE, ARRIGO LIMESTONE (RECRYSTALLIZED TO MARBLE)

AGE OF ASSOCIATED IGNEOUS ROCKS: CRET (?)

IGNEOUS ROCK TYPES: RICE PEAK GRANODIORITE PORPHYRY

AGE OF MINERALIZATION: LCRET-IERI

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):
- CEKUSSITE AND WULFENITE WERE IN UPPER 10 FT OF ORE SHOOT

GENERAL REFERENCES
1) CREASEY, S CYRUS 5. GENERAL GEOLOGY OF MAMMOTH QUADRANGLE, PINAL COUNTY, ARIZONA: USGS BULL. 1218. 94 P., GEOL. MAP, SCALE 1:48,000, SECTIONS (1967), P. 84-87.


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.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.********** US04079
RECORD TYPE********** XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE.... 1,2
FILE LINK ID********** USAM-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 LONGTIUDINE
33-06-50N 111-34-45W
UTM NOITHING UTM EASTING UTM ZONE NO
3663900 445900 4T7
TWP.... 045 RANGE.... 07C
SECTION.... 01
MERIDIAN.  G 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 COMMODITY: 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 (DIAMOND), PINAL SCHIST (GNEISS), DIABASE DIKES
AGE OF ASSOCIATED IGNEOUS ROCKS: CRET. (70 M.Y.) (BALLA, 1972)
IGNEOUS ROCK TYPES: BIOTITE QUARTZ MONZONITE

AGE OF MINERALIZATION: CRET-TERT

IMPORTANT ONE 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 SUITE COPPER DEPOSIT, PINAL COUNTY, ARIZONA: U.S. GEOLOGICAL 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. HUNTING AND MINERAL TECHNOLOGY FILE DATA.
8) BACHAFEE, M.A., AND HESSIN, J.D., 1971, AN EVALUATION OF GEOCHEMICAL SAMPLING IN THE SEARCH FOR CONCEALED "PORPHYRY" COPPER-MOLYBDENUM DEPOSITS ON PEDIMENT LANDS IN SOUTHERN ARIZONA, IN GEOCHEMICAL EXPLORATION (INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, 3RD PNC.), DAN. INST. MIN. METALL., SPEC. VOL., NO. 11, P. 401-409.
WILSON, E.D. 1969 MINERAL DEPOSITS OF THE GILA RIVER INDIAN RESERVATION ARIZONA: ARIZ. BUR. MINES BULL. 179 34 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.: 4030470
RECORD TYPE: 12
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE: 1,2
MAP CODE NO. OF RECORD:

REPORTER
NAME: WILT, JAN C.
DATE: 79 10

NAME AND LOCATION
DEPOSIT NAME: MINERAL CREEK DISTRICT
MINING DISTRICT/AREA/SUBDISTRICT: 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 PAY 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, CHALCOCITE

MINOR ORE MINERALS:
MOLYBDENITE, BORNITE, GALENA, SPHALERITE, TENNANTITE, TETREHEDRITE, COPPER, CUPRITE, CHRYSOCOLLA, CUVELLITE, 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


6) Ariz. Dept. Of MINERAL TECHNOLOGY FILE DATA.

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


9) Banks, N.G., 1975, DISTRIBUTION OF COPPER IN BIOTITE AND BIOTITE ALTERATION PRODUCTS IN INTRUSIVE ROCKS NEAR TWO ARIZONA PORPHYRY COPPER DEPOSITS: JOUR. RES. U.S. GEOLOGICAL SURVEY, V. 2, NO. 2, P. 195-211.


28) James, A.H., 1971, Hypothetical Diagrams of Several Porphyry Copper Deposits: Econ. Geol., v. 66, no. 1, p. 43-47.


NAME AND LOCATION
DEPOSIT NAME................. NINETY-ONE MINE
MINING DISTRICT/AREA/DIST. 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: 00240000 SONDRA 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 TRAY SITE; 3/4 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 (DESCRIPTION OF WORKINGS):
SHAFT WAS APPARENTLY 150 FT DEEP WITH THREE LEVELS

PRODUCTION

YES
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 AG</td>
<td>EST</td>
<td>.05</td>
<td>OZ</td>
<td>1945-1955</td>
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<td></td>
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<tr>
<td>16 CU</td>
<td>EST</td>
<td>.1</td>
<td>LBS</td>
<td></td>
<td></td>
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<td>17 PB</td>
<td>EST</td>
<td>1</td>
<td>LB</td>
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</table>

SOURCE OF INFORMATION (PRODUCTION): ABM FILE DATA

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. PREC
HOST ROCK TYPES.................. MESA LIMESTONE, DIABASE, DRIPPING SPRING QUARTZITE

AGE OF MINERALIZATION............ CRET-TER1

IMPORTANT ORE CONTROL/LOCUS........ ALONG BEDDING PLANES IN LIMESTONE INCLUSIONS IN DIABASE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
11800 STEEPLY DIPPING VEIN

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
TR2 DIKES (PHYNDACITE POMPHYRY DIKES) OOLATE TO 91 MINE MINERALIZATION (63 M.Y.) AN EARLIER MO MINERALIZATIVE IN E PORT OF RATTLE GRANODIORITE (SEC. 23 & 26, T 35, R 14 E) (IS MORE PROMISING)?

COMMENTS (GEOLGY 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

3) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
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) KADY, J.L., 1979, PETROGENESIS OF THE TEA CUP GRANODIORITE, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 160 P.
21) KOSS, C.P. (19258) GEOLOGY OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS. U.S. GEOL. SURV. BULL. 771, 72 P.
22) KARZ, DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
24) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
28) KRIEGER, M.H. (1977) LARGE LANDSLIDES, COMPOSED OF MEGABRECCIA, INTERBEDDED IN MIocene BASIN DEPOSITS, SOUTHEASTERN ARIZONA; USGS PROFESSIONAL PAPER 1008, 25 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... MD30466
RECORD TYPE ............... 41
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/GALUIRO 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  5477800  +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 COMMODITY: Cu
MINOR COMMODITY: 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 11.81 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. %
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

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS: 2200 FT

DESCRIPTION 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, CONC., CONC., OVERBURDEN)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC.</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>1</td>
<td>LEACH CU ACC 5992</td>
<td>LBS</td>
<td>1973</td>
<td>GREELEY, 1976, P. 27</td>
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<td>2</td>
<td>LEACH CU ACC2175</td>
<td>LBS</td>
<td>1974</td>
<td>GREELEY, 1976, P. 27</td>
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<tr>
<td>3</td>
<td>LEACH CU ACC467</td>
<td>LBS</td>
<td>1975</td>
<td>GREELEY, 1976, P. 27</td>
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</table>
### Cumulative Production (Ore, Commod., Conc., Overbur.)

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<thead>
<tr>
<th>Item</th>
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<th>Grade, Remarks</th>
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<tr>
<td>15</td>
<td>ORE</td>
<td>6,83</td>
<td>TONS</td>
<td>1922-1975</td>
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<td>16</td>
<td>CU</td>
<td>10,457</td>
<td>LBS</td>
<td>1922-1975</td>
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<td>17</td>
<td>AG</td>
<td>0,86</td>
<td>OZ</td>
<td>1922-1975</td>
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**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

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<tr>
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<th>YEAR</th>
<th>Grade or Use</th>
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<tbody>
<tr>
<td>1</td>
<td>OXIDE CU</td>
<td>EST</td>
<td>4,000 TONS</td>
<td>1971</td>
<td>0.74% Cu</td>
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**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 Associated Igneous Rocks**: Cret. (68 M.Y.)
- **Igneous Rock Types**: Copper Creek Granodiorite
- **Age of Mineralization**: Cret. (68 M.Y. Creasey and Kisler 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

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030492
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1-2
FILE LINK NO. USBM-0040210934
MAP CODE NO. OF REC.

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

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 32-37-11N
LONGITUDE 111-54-42W

UTM NORTHING 3609250.
UTM EASTING 415400.
UTM ZONE NO. 12

THP. 09S
RANGE. 04N
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 ROBART, 1971 (ROBART MINING CO)

EXPLOR. AND DEVELOP. COMMENTS:
6 CLAIMS AND A MILL SITE CLAIM, 1960'S

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
REPLACEMENT: FAULI 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 (DESCRIPTION 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 WIN/E, 150 BY 75

PRODUCTION
YES
SMALL PRODUCTION

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

ITEM ACC ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
I ORE EST .005 TONS 1884 42000 IN AG

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

ITEM ACC ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 ORE ACC 156.271 TONS 1923-1978 .4 OZ AG/T
16 AG ACC 63.840 OZ 1923-1978
17 PB ACC 26.957 LB 1923-1978
18 Lh 1923-1978
19 AU ACC .005 OZ 1923-1978
RESERVES AND POTENTIAL RESOURCES

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<tr>
<th>ITEM</th>
<th>ACC</th>
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<th>THOUS. UNITS</th>
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<th>GRADE OR USE</th>
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<tr>
<td>ORE ON DUMP</td>
<td>ES006</td>
<td>1864</td>
<td>TONS</td>
<td>5-100</td>
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SOURCE OF INFORMATION (RESERVES/POT RESOURCES): TENNEY, 1927-9

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: DEVT
HOST ROCK TYPES: MARTIN FORMATION QUARTZITE AND SANDSTONE, PORPHYRIC QUARTZ MONZONITE DIKE

AGE OF ASSOC. IGNEOUS ROCKS: TERT-CRET
IGNEOUS ROCK TYPES: DIORITE PORPHYRY DIKES (TENNEY); PORPHYRIC BIOTITE HORNBLENDED 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

2) GEOLGY 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: UNPUBL. MANUSCRIPT, SPECIAL COLLECTIONS, UNIV. ARIZONA LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, 514 P.
4) HAMMER, C.D., 1961, GEOLGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUBL. M.S. THESIS, UNIVERSITY OF ARIZONA.
5) HOGUE, W.G., 1940, GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUBL. M.S. THESIS, UNIVERSITY OF ARIZONA.
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.
9) GEOLOGY OF NEARBY AREAS:
   BALLA, J.C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUBL. PH.D. THESIS, UNIV. ARIZ., 132 P.
   MCCLYMONDS, N.E., 1959, PRECAMBRIAN AND PALEozoic SEDIMENTARY ROCKS ON THE PAPAGO INDIAN RESERVATION, ARIZONA,
ICARPENIER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSIT OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS


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. 1279-E, 78 P.

SELL, JAMES D., 1959, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND ADJACENT PART OF MARICOPA COUNTY, ARIZONA (ABS.): ABS. 1953; GEOL. SOC. AM. SP. PAPER 121, P. 556-557

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.


WILSON, E.D. AND MOORE, R.I., 1959, GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZ. BUR. MINES.


DEPOSIT NAME: POMONA
MINING DISTRICT/AREA/SUBDIST: VEKOL DISTRICT
COUNTRY CODE: US
STATE CODE: A04
COUNTY: PINAL
QUAD SCALE: 1:62500
QUAD NO OR NAME: VEKOL MINS
LATITUDE: 32°35'20"N
LONGITUDE: 112°07'44"W
UTM NORTHING: 3606100
UTM EASTING: 394050
UTM ZONE NO: 12
UTM 7TONE NO: *12
THP......: 0105
KANGE....: 002F
SECTION..: 02
MERIDIAN.: G6SR

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.:
PROPERTY IS INACTIVE
DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEIN

PRODUCTION
YES
SMALL PRODUCTION

CUMULATIVE PRODUCTION (ORE, COMMODO, CONC., OVERBUR.):


SOURCE OF INFORMATION (PRODUCTION)...ABGMT FILE DATA

GEOLGY 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, CHAPUK RHYOLITE AND PHONODORR EE FM. (?)

GENERAL REFERENCES

3) CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VERDE MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS, 100 P.
5) HADLEY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: U.S. GEOI. SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET I.
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. GEOI. SURVEY, BULL. 1278-E, 76 P.
10) JENNEY, J.B., 1934, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, PINAL COUNTY, ARIZONA: CASA GRANDE CHAMBER OF COMMERCE, 24 P.
11) JENNEY, J.B., 1927-29, HISTORY OF MINING IN ARIZONA: UNPUBL. 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.
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RECONNAISSANCE TO DETERMINE GROUND-WATER RESOURCES OF CHIU CHUISCHU AREA, PAPAGO INDIAN RESERVATION, ARIZONA:
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030479
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 79 II

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 FLORENCE ARIZ.
LATITUDE 33-02-48N
LONGITUDE 111-25-45W
UTM NORTHING 3656
UTM EASTING 460

MP 04S
RANGE 09E
SECTION 29
MERIDIAN G & SR

POSITION FROM NEAREST PROMINENT LOCALITY: 2 MILES NW OF FLORENCE

COMMODITY INFORMATION
COMMODITIES PRESENT CU MO

MAIN COMMODITY CU

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS ACTIVE
PRESENT/LAST OWNER........ CONOCO

EXPLOR. AND DEVELOP. COMMENTS:
AZTEC EXPLORATION AND DEVELOPMENT OPERATED IN 1970.

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
POR. Cu.

RESERVES AND POTENTIAL RESOURCES

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<th>ACC AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE OR USE</th>
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<td>MIXED OXS SULF. 500000 TONS</td>
<td>1972</td>
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SOURCE OF INFORMATION (RESERVES/POTENTIAL 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:
SEKARITE AND KAOLINITE

COMMENTS (GEOLOGY AND MINERALOGY):
HOST ROCK INTO WHICH PORPHYRY WAS EMLACED IS PREC

GENERAL REFERENCES
2) WILSON, E.D., 1969, MINERAL DEPOSITS OF THE GILA RIVER INDIAN RESERVATION ARIZONA: ARIZ. BUR. MINES, BULL. 179, 34 P.
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8) MITCHELL, C.M., I. (AND ZANDE, G.L.) AEROMAGNETIC MAP OF THE CASA GRANDE AREA, MARICOPA AND PINAL COUNTIES,

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030482
RECORD TYPE XI
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

THP. 015
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) AIB FILE PAGE
2) USBM RI 5516
RECORD IDENTIFICATION
RECORD NO. 4000334
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1, 2
MAP CODE NO. OF REC.

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

NAME AND LOCATION
DEPOSIT NAME. RARE METALS MINE
MINING DISTRICT/AREA/SUBDIST. RIVIERE DISTRICT
COUNTRY CODE. US
STATE CODE. 04
COUNTY. PINAL
DRAINAGE AREA. 15052100

UTM NORTHING. 3661270.496140.46
UTM EASTING. 496140.4
UTM ZONE NO. 12
TWP. 045
RANGE. 13E
SECTION. 09 09 15
MERIDIAN. GRS
ALTITUDE. 2200 FT

LOCATION COMMENTS: 3 MI. W OF KELVIN 1 MILE S OF GILA R.

COMMODITY INFORMATION
COMMODITIES PRESENT. CU MO
MAIN COMMOD. CU MO
MAIN ORE MINERALS:
CHALCOCITE, 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 RHYOLITE GRANITE AND A LARAMIDE QUARTZ MONZONITE PORPHYRY DIKE. THE QUARTZ VEINLETS CONTAIN MOLYBDENITE ROSETTES AND CHALCOPYRITE. SE WAS NOT DETERMINED.

MOLYBDENITE ROSETTES
B 0.010
E 0.0068
AL 1.4
SI 3.1
CA 0.14
TI 0.002
AG 0.0015
PB 0.12
SI 3.1
CA 0.14
MOLYBDENITE ROSETTES
AL 1.4
SI 3.1
CA 0.14
TI 0.002
AG 0.0015
PB 0.12

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES: FISSURE VEINS

DESCRIPTION OF WORKINGS
COMMENTS (DESCRIPTION OF WORKINGS):
SHAFTS AND DIAMOND DRILL HOLES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS.............. TERT., PREC.
HOST ROCK TYPES................. TEACUP GRANODIORITE UINTRUDES RUIN GRANITE

AGE OF ASSOC. IGNEOUS ROCKS... TERT. (62.9 +/- 1.3 K-AR DAMON) (61.4 +/- 3.2 STUCKLER
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 No. 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
5) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
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15) KRIEGER, M. H., 15, GEOLOGIC MAP OF THE WINKELMAN QUADRANGLE, ARIZONA: OPEN-FILE REP., SCALE 1:24,000
    (1969)
16) BARRETT, L.F., 1972, IGNEOUS INTRUSIONS AND ASSOCIATED MINERALIZATION IN THE SADDLE MOUNTAIN MINING
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17) ROSS, C.P. (19258) GEOLOGY OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS. U.S. GEOLOGICAL SURVEY BULL. 771,
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21) KRIEGER, M. H., CORNWALL, H.R., N.G. BANKS (1968) BIG DOME FORMATION AND REVISED TERTIARY STRATIGRAPHY IN
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: Wilt, Jan C.
- Date: 79 10

Name and Location
- Deposit Name: Ray Mine
- Mining District/Area/Subdist: Mineral Creek Dist./Tortilla-Dripping Spring Mt.
- Country Code: AUS
- State Code: 04
- County: PINAL
- Drainage Area: 15050100
- Land Classification: 01 (1979)

Quad Scale
- Quad No. or Name: Sonora, Ariz.
- Quadrangle Scale: 1:240000

Latitude
- 33-10-28N

Longitude
- 110-59-40W

UTM Northing
- 3670400

UTM Easting
- 500500

UTM Zone No:
- 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:

MAIN COMMODITY:

MINOR COMMODITY:

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, CUPRITF, 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:
PROPERTY IS ACTIVE
YEAR OF DISCOVERY: 4
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.):

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<th>ITEM</th>
<th>ACC</th>
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<td>15 ORE EST</td>
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<td>1911-1976</td>
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<tr>
<td>16 CU EST</td>
<td>27843742</td>
<td>LBS</td>
<td>1948-1976</td>
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<td>17 AG EST</td>
<td>5137.799</td>
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<td>1948-1976</td>
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<td>1948-1976</td>
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<td>LBS</td>
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<td>20 CU EST</td>
<td>2200</td>
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<td>1911-1928</td>
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<tr>
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<td>RAY</td>
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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.

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<td>AU</td>
<td>ACC</td>
<td>49219372 LBS</td>
<td>1930-1978</td>
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<tr>
<td>MO</td>
<td>ACC</td>
<td>100.981 OZ</td>
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RESERVES AND POTENTIAL RESOURCES

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<td>2</td>
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<td>1976</td>
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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 CHALCOCITE. 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-TERN (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 (60.6 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, ET AL, 1972)

AGE OF MINERALIZATION. TERN. (60 M.Y.A.); BANKS AND STUCKLESS, 1973

PERTINENT MINERALOGY. QUARTZ VEINS, CALCITE, RARE ANHYDRITE


LOCAL GEOLOGY


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 are normal, but reverse and thrust faults also occur.

The faultly 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. 9-81). 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 63Ma, Creasy and Kistler, 1967). 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 Handle 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:
Oxidizing the Chalcosite 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).

Hydrogen alteration zoning patterns are affected by host rock composition: in diabase — biotite-clay zone grades into chlorite-sericite 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 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 chalcosite 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
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°57'30" N 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 COMMODITY: Mo Au Ag

MAIN ORE MINERALS: Chalcopyrite, Pyrite, Molybdenite

MINOR ORE MINERALS: Chalcocite, Covellite, Gold, Silver Antlerite, Brochantite, Azurite, Malachite, Chrysocolla

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: 1931
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.)

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SOURCE OF INFORMATION (RESERVES/POT RESOURCES): GREELEY, 1975, p. 93

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: PRECAMB.
HOST ROCK TYPES: PINAL SCHIST, ORDAE 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: CRET-TERT

IMPORTANT ORE CONTROL/LOCUS: VEINLETS AND GRAINS IN INTENSELY FRACTURED AND BRECICATED GRANITE AND MONZONITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
INTENSELY FRACTURED, BRECICATED, AND FAULTED. MOST COMMON MINERALIZED FRACATUES STRIKE NW-70E AND ARE NEARLY VERTICAL. THE SACATON FAULT, A NORMAL FAULT STRIKING N20W AND DIPPING 60-70E, CUTS OFF THE WEST DEPOSIT AND DOWDROPS 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 ARGILIC 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
2) CUMMINGS, K.B., IN PRESS, SACATON PORPHYRY COPPER DEPOSIT, IN TITLEY, S.R., GEOLOGY OF THE PORPHYRY COPPER DEPOSITS, V. 2.
6) BALLA, J. C., 1972, THE RELATIONSHIP OF LARAMIDE STOCKS TO REGIONAL STRUCTURE IN CENTRAL ARIZONA: UNPUB. PH.D. THESIS, UNIV. ARIZ., 132 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
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RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1:2
FILE LINK TO USDM-0040211060
MAP CODE NO. OF RECORD

REPORTER
NAME WILT, JAN C
DATE 79 II

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 JR NAME
1: 0024000 CHRISTMAS ARIZ

LATITUDE 33-02-04N
LONGITUDE 110-41-09W

UTM NORTHING 3654920.
UTM EASTING 529350.
UTM ZONE NO +12

TWP 04S
RANGE 16E
SECTION 35
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, PYRARGYRITE, CHALCOCITE, COVELLITE, BORNITE

ANALYTICAL DATA (GENERAL)
5% DISSEMINATED PYRITE

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

YEAR OF DISCOVERY: SADDLE MIN MINING CO. ORGANIZED IN 1900 BY G. B. CHITTENDEN.

EXPLOR. AND DEVELOP. COMMENTS:
15 PATENTED AND 1 UNPATENTED CLAIM IN 1973 (ROSS)

DESCRIPTION OF DEPOSIT

DEPOSII TYPES:
VEINS, DISSEMINATION, SKARN (PYROMETASOMATIC)

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH: 4 ft
STRIKE OF BODIES: N50E
DIP OF BODY: 60-90

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS: 3450 ft

COMMENTS (DESCRIPTION OF WORKINGS):
5 SHAFTS ON TOPIC 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 MINERALOGY

AGE OF HUSI ROCKS: CRET., TERT.

HOST ROCK TYPES: WILLIAMSON CANYON VOLCANICS, DIORITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS: TERT. (62 M.Y., CREASEY AND HISTLER)

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 CONTROLS/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 OFER CREEK SYNCLINE WITH N40-55 E TENSION FRACTURES PARALLEL TO AXIS OF SYNCLINE INTRUDED BY LARAMIE 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, ZEPHYRITE 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 ZEPHYRITE 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. GEOLOG. SURVEY BULL. 771, 72 P.
3) WILLDEN, R., 1964, GEOLOGY OF THE CHRISTMAS QUADRANGLE, GILA AND PINAL COUNTIES, ARIZONA: U.S. GEOLOG. SURVEY, BULL. 1161-F, 64 P.
4) VALENTINE, JEFFREY, THESIS IN PROGRESS, UNIV. UTAH ON SADDLE MOUNTAIN AREA
5) ARB FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
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: 0024000
LATTITUDE: 32-41-45N
LONGITUDE: 110-41-20W
UTM NORTING: 3617435
UTM EASTING: 529150
UTM ZONE NO: 12
TWP: 35 E
RANGE: 34 S
SECTION: 35 34
MERIDIAN: GILA AND SALT R.
ALTITUDE: 3320 FT.
POSITION FROM NEAREST PROMINIENT 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 COMMODO.... CU MD
MINOR COMMODO.... AG AU

MAIN URE MINERALS:
CHALCOPYRITE, PYRITE, MOLYBDENITE

MINOR URE MINERALS:
MAGNETITE, CHALCOCITE, COYELLITE, BORNITE CHRYCOOLDA, CUPRITE, MALACHITE, NATIVE COPPER, ATRECAMITE,
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. 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.

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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**........ 555E

**DESCRIPTION OF WORKINGS**

**UNDERGROUND**

**COMMENTS (DESCRIPTION OF WORKINGS):**

BLACK DAVEN

**PRODUCTION**

**YES**

**LARGE PRODUCTION**

4 MIXED CU EST

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

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**SOURCE OF INFORMATION (PRODUCTION):** AZ. BUR. GEO. FILE DATA

**RESERVES AND POTENTIAL RESOURCES**

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**SOURCE OF INFORMATION (RESERVES/POT RESOURCES):** THOMAS, 1956; 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 DIKES (CONSIDERABLY ALTERED DIABASE OF TERTIARY-CRETACEOUS AGE).

**AGE OF ASSOC. IGNEOUS ROCKS:** CRETACEOUS-TERTIARY FROM HYDROTHERMAL BIORITE (65 M.Y., 69 M.Y., K-AR, CREASEY, 1965)

**IGNEOUS ROCK TYPES:** MONZONITE PORPHYRY (ALSO CALLED GRANODIORITE PORPHYRY)

**AGE OF MINERALIZATION:** CRET.-TERT. (65 69 M.Y.)

**PERTINENT MINERALOGY:** QUARTZ, SERICITE, KADLNIITE, BIOTITE, AND POTASSIUM FELDSPAR (PHELLED AND CREASEY, 1965, P. 36)

**IMPORTANT ORE CONTROL/LOCUS:** ORE LOCALIZATION IS RELATED TO ROCK PERMEABILITY, WHICH VARIES WITH CLOSENESS OF
FRACTURING AND DENSITY 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:

SIGNIFICANT ALTERATION:
ALTERATION ZONES ARE ARRANGED OUTWARD FROM A POTASSIC CORE THROUGH PHYLIC QUARTZ SERICITE-PYRITE ARGILLIC QUARTZ-KAOLIN-MONTMORILLONITE AND PROPYLEIC (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).

GEODETICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

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 FRAC TURES.

GENERAL COMMENTS
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<td>GILA AND SALT RIVER</td>
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<td>Commodity Information</td>
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<td>Commodities Present</td>
<td>W MO CU</td>
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<tr>
<td>Producer(Past or Present)</td>
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<tr>
<td>Major Products</td>
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<tr>
<td>Main Commodity</td>
<td>W</td>
</tr>
<tr>
<td>Minor Commodity</td>
<td>MO CU</td>
</tr>
</tbody>
</table>
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL: MO, CU
OCCURRENCE: MO, CU

MAIN ORE MINERALS:
PYRITE, WOLFRAMITE, SCHEELITE

MINOR ORE MINERALS:
MOLYBDENUM, 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: 70°SE

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: PEC
HOST ROCK TYPES: PINAL SCHIST

AGE OF ASSOC. IGNEOUS ROCKS: TERT
IGNEOUS ROCK TYPES: SCHULIZE 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 cloits and thin seams of molybdenite, platy crystals of wolframite partly altered to scheelite

GENERAL REFERENCES
1) ARIZONA BUREAU OF MINES FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ************ M030469
RECORD TYPE. ************ X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1, 2
MAP CODE NO. OF REC. 0

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: 0062900 KLODNEY, ARIZ.

LATITUDE. LONGITUDE
32-49-03N 110-29-08W

UTM NORTHING. UTM EASTING UTM ZONE NO
3630950 548200 12

TWP. RANGE. SECTION. MERIDIAN.
075 18E 15 22 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 COMMODITY: Cu Ag Au
MINOR COMMODITIES: Pb Mo V Zn

MAIN ORE MINERALS:
- CHRYSOCOLLA, WULFENITE, VANADINITE

MINOR ORE MINERALS:
- GOLD IN QUARTZ, MALACHITE, AZURITE, DISSIAS COMICHALCITE, 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/ton Au. SORTED CHRYSOCOLLA AVERAGES 20-25% Cu. THE SLAG ASSAYS 2.4% Cu AND 0.02 oz Au/ton.

EXPLORATION AND DEVELOPMENT
- STATUS OF EXPLOR. OR DEV.:
  - EXPLORATION 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. 159)

DESCRIPTION OF DEPOSIT
- DEPOSIT TYPES:
  - FISSURE VEINS
- FORM/SIZE OF DEPOSIT:
  - SPORADIC AND IRREGULAR PODS
- SIZE/DIRECTIONAL DATA
  - SIZE OF DEPOSIT: SMALL

DESCRIPTION OF WORKINGS
- LENGTH OF WORKINGS: 2000 FT
- COMMENTS (DESCRIPTION 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.)

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<th>ITEM</th>
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<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15 ORE EST</td>
<td>100</td>
<td>TONS</td>
<td></td>
<td></td>
<td>7-9% Cu</td>
<td>$4/FT Au</td>
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<td>46</td>
<td>TONS</td>
<td>1870-1928</td>
<td>14%</td>
<td>Cu</td>
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GEOLOGY AND MINERALOGY
- AGE OF HOST ROCKS: PERM., TERT. (29 M.Y.)
- HOST ROCK TYPE: SEDIMENTARY BRECCIA; ESCABRIDA LIMESTONE; LOWER ANDESITE OF GALUIRO VOLCANICS
AGE OF ASSOC. IGNEOUS ROCKS........ TERT. (29 M.Y.)
IGNEOUS ROCK TYPES.............. LOWER ANDESITE OF GALIURU VOLCANICS

AGE OF MINERALIZATION........... TERT (29 M.Y.)
PERTINENT MINERALOGY............. JASPEROID, QUARTZ, BARITE, HEMATITE

IMPORTANT ORE CONTROL/LOCUS: A JASPEROID BRECCIA LAYER 20-25 FT THICK OF THE ESCABROSA LIMESTONE IS OVERLAIN UNCONFORMABLY BY GALIURU 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.). 40 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 VANADINITIE - WULFENITE - QUARTZ ORE OVER 10 FT WIDE. ONE CAVE LINED WITH WULFENITE AND VANADINITE IS REPORTED TO BE 600 FT LONG AND 50-60 FT WIDE (SIMONS, 1964, P. 150)

GENERAL REFERENCES
RECORD IDENTIFICATION

RECORD NO. M00004B
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE NO. OF REC.

REPORTER

UPDATED 11 79
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
3507100. 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: SF 1/4

COMMODITY INFORMATION

COMMODITIES PRESENT.. AG PB CU AU NO

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. AG PB
MINOR PRODUCTS.. CU AU
MAIN COMMODO..... AG  PB
MINOR COMMODO..... MO  CU  AU

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

MAIN ORE MINERALS:

MINOR ORE MINERALS:
COPPER SILICATE. IRON STAIN

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
$1.8/TON IN AG AND AU IN 1880-1902

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 
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 (DESCRIPTION OF WORKINGS):
FIRST DEVELOPMENT WORK DONE IN 1898; 10 STAMP MILL BUILT IN 1902 TO TREAT SMALL TONNAGE; SURFACE TRENCHING BETWEEN TURNING POINT AND JACK RABBIT SHAFTS IS ABOUT 2000 FT (TENNEY, 1934)

PRODUCTION
YES
SMALL PRODUCTION

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

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<th>ITEM</th>
<th>ACC. AMOUNT</th>
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<td>18</td>
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<td>AU</td>
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<td>1937-1946</td>
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SOURCE OF INFORMATION (PRODUCTION).: ABGMT 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 PORPHYRY
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

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. BUK. MINS. LIBRARY, TUCSON, 514 P.

4) HAMMER, O.F., 1961, GEOLOGY AND ORE DEPOSITS OF THE JACRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIVERSITY OF ARIZONA.


7) ARIZ. BUK. 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 ARIZON A BUREAU OF MINES.

9) 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.
   CARPENTER, ROBERT H., 1947, GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS.
   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-F, 78 P.
   SELL, JAMES D., 1969, PRECAMBRIAN, PALEOZOIC, AND MID-TERTIARY SEDIMENTATION IN SOUTHWEST PINAL COUNTY AND
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GEOL. SOC. AM. SP. PAPER 121, P. 556-557
13) HADELY, J.B., 1944, COPPER AND ZINC DEPOSITS IN THE REWARD AREA, CASA GRANDE MINING DISTRICT, PINAL COUNTY, 
ARIZONA: U.S. GEOL. SURVEY SURVEY STRATEGIC MINERALS INV. PRELIM. MAP, SHEET 1.
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) HEIDEL, 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.
4) GEOMYDROLOGY OF SW PINAL CO:
HOWARD, A.D., 1942, 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., 1940, PEDIMENT GAPS OF THE SACATON MOUNTAINS, ARIZONA (ABST.): GEOL. SOC. AM. BULL., V. 51, P. 
1930-1931 (1940)
6) PAHLE, E.F., JR., 1941, SUBSIDENCE CRACKS IN ALLUVIUM NEAR CASA GRANDE, ARIZONA: ARIZ. GEOL. SOC. DIGEST, V. 4, 
P. 91-101 (1941)
1936, NO. 7, P. 91-194 (1941)
8) DENIS, E.F. (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), AND CATTANY, R.E., 
BASIC GROUND-WATER DATA FOR WESTERN PINAL COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 18, 59 P. (1964)
10) HARDT, WILLIAM F., 2011, AND CATTANY, R.E., DESCRIPTION AND ANALYSIS OF THE GEODYNAMIC SYSTEM IN WESTERN 
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12) KISTK, L.R., 2011, SALINITY OF THE GROUND WATER IN WESTERN PINAL COUNTY, ARIZONA: USGS WATER-SUPPLY PAPER 
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13) SKIBITZKE, H.E., 2011, LOCATION OF SITES FOR IRRIGATION WELLS NEAR CHU CHUISCHU, PAPAGO INDIAN RESERVATION, PINAL 
14) YUST, C.B., JR. (SEE ALSO ARMSTRONG, C.A.; FETH, J.W., 10; SKIBITZKE, H.E., 11; Z) GEOPHYSICAL AND GEOLOGICAL 
RECONNAISSANCE TO DETERMINE GROUND-WATER RESOURCES OF CHU CHUISCHU AREA, PAPAGO INDIAN RESERVATION, ARIZONA: 
USGS Mimeo. REP., 19 P., ILLUS., MAP (1953)
RECORD IDENTIFICATION
RECORD NO. 4030479
RECORD TYPE. 1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 12
MAP CODE NO. OF REC. 2

REPORTER
NAME. WILLY, JAN C.
DATE. 79 11

NAME AND LOCATION
DEPOSIT NAME. UPshaw Tungsten Mines Group
MINING DISTRICT/AREA/SUBDIST. Gold Circle District
COUNTRY CODE. US
STATE CODE. 04
COUNTY. PINAL
DRAINAGE AREA. 1505203
LAND CLASSIFICATION. 01 (1979)
QUAD SCALE. QUAD NO OR NAME
1: 003400 PUTNAM WASH, ARIZ.
LATITUDE. LONGITUDE.
32-50-30 N 110-52-00 W
TWP. 07S
RANGE. 14E
SECTION. 11
MERIDIAN. 66 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.............. ORACLE (RUIN) GRANITE

AGE OF ASSOC. IGNEOUS ROCKS.. TERT - CRET. (?)
IGNEOUS ROCK TYPES........... DIKES

AGE OF MINERALIZATION......... LC RET - TERI

PERTINENT MINERALOGY......... QUARTZ

IMPORTANT ORE CONTROL/LOCUS.. QUARTZ VEINS CARRY GOLD AND TUNGSTEN

GENERAL REFERENCES
1) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
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 VEKOL MOUNTAINS
1: 0062500
LATITUDE LONGITUDE
32-35-15N 112-03-22W
UTM NORTHING UTM EASTING UTM ZONE NO
3605850 400950 12

TMP........ 105
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 PR AG

MAIN COMMOD....... CU MO
MINOR COMMOD.... IN 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)

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RESERVES AND POTENTIAL RESOURCES

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SOURCE OF INFORMATION (RESERVES/POT RESOURCES): GRIELEY. 1975, P. 85 FROM NEOMONT MIN. CORP. FIGURES

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: CRET., PRECAMB., CAMB., DEV
HOST ROCK TYPES: LARAMIDE PORPHYRITIC DACITE TO DIORITE AND FINE GRAINED QUARTZ MONZONITE INTRUSIONS; CAMBRIAN BOSA QUARTZITE AND ABRIGO FORMATION, DEVONIAN MARTIN FORMATION AND MISSISSIPPIAN ESCABROSA LIMESTONE; PRECAMBRIAN DIABASE

AGE OF ASSOCIATED IGNEOUS ROCKS: CRET.
IGNEOUS ROCK TYPES: QUARTZ, FELDSPAR AND HORNBLENDE PORPHYRIES (QUARTZ MONZONITE)

AGE OF MINERALIZATION: LCRET-TERM

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: FRACKURES

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
2) VEKOL DEPOSIT:


3) CARPENTER, ROBERT H. 1947. GEOLOGY AND ORE DEPOSITS OF THE VEKOL MOUNTAINS PINAL COUNTY, ARIZONA: STANFORD UNIV. PH.D. THESIS, 100 P.


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9) TENNEY, J.B. 1927-29. HISTORY OF MINING IN ARIZONA: UNPUBLISHED MANUSCRIPT, SPECIAL COLLECTIONS, ARIZONA UNIVERSITY LIBRARY AND ARIZ. BUR. MINES LIBRARY, TUCSON, ARIZONA, 514 P., P. 333-337.


3) GEOLOGY OF VEKOL MTS AND NEARBY AREAS:


4) WILSON, E.D., AND MOORE, R.T. 1959. GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZONA BUREAU OF MINES.


7) HAMMER, D.F. 1960. GEOLOGY AND ORE DEPOSITS OF THE JACKRABBIT AREA, PINAL COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, UNIVERSITY OF ARIZONA.


9) HAMMER, D.F. 1960. GEOLOGIC MAP OF PINAL COUNTY, ARIZONA: ARIZONA BUREAU OF MINES.


11) HOUGH, WILLIAM G. 1940. GEOLOGY OF THE NORTHERN PART OF THE SLATE MOUNTAINS, PINAL COUNTY, ARIZONA: UNPUBLISHED M.S. THESIS, ARIZONA UNIVERSITY.

CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO. 00345
RECORD TYPE: AXI
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE: 1, 2
FILE LINK ID: USBM-0040210841
MAP CODE No. OF REC:

REPORTER
NAME: MILT, 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: 1: 0024000
QUAD NO OR NAME: SONDRA, ARIZ.
LATITUDE: 33-08-53N
LONGITUDE: 110-53-03W
UTM NORTHING: 3667500 -
UTM EASTING: 510040 -
UTM ZONE No: +12
THP: 035
RANGE: 14E
SECTION: 23 26
MERIDIAN: G AND SR.
ALTITUDE: 3400 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 COMMODITY: 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: Property is inactive

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
  Copper Porphyry

DESCRIPTION OF WORKINGS
COMMENTS (DESIGN. OF WORKINGS):
  Tested by shallow surface drilling by Inspiration Cons. Copper Co. in 1966-67; geochemical sampling by Amax in 1972

GEOLGY 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 of Rattler Granodiorite Pluton in the area outlined in field A (S.B. & ITH unpublished data).
GENERAL REFERENCES
2) KEITH, S.B., UNPUB DATA.
5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.......... 4000483
RECORD TYPE......... A1
COUNTRY/ORGANIZATION... USGS
INFORMATION SOURCE... 1,2
FILE LINK ID.......... USBM-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. EASTING. ZONE NO
3623150
548550
412
TWP. RANGE.. SECTION...
08S 16E 11
MERIDIAN. ALTITUDE...
GILA AND SALT R. 4150 FT
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 MD PB ZN AG AU AS SB BI

MAIN COMMOD....... CU MD
MINOR COMMODITY: Pb Zn

MAIN ORE MINERALS:
- Molybdenite, Bornite, Chalcopyrite

MINOR ORE MINERALS:
- Tennantite Pyrite, Ferromolybdenite, Chalcocite, Enargite, Rare Calena and Sphalerite, Malachite, Azurite, Cuprite, Covellite, Native Copper

ANALYTICAL DATA (GENERAL)

<table>
<thead>
<tr>
<th>Element</th>
<th>Mo</th>
<th>W</th>
<th>Cu</th>
<th>Ag</th>
<th>Au</th>
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<tbody>
<tr>
<td>Mo</td>
<td>58.2%</td>
<td>0.015</td>
<td>0.017</td>
<td>0.022</td>
<td>0.072</td>
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<tr>
<td>W</td>
<td>0.14</td>
<td>0.007</td>
<td>0.010</td>
<td>0.030</td>
<td>0.032</td>
</tr>
<tr>
<td>Cu</td>
<td>0.19</td>
<td>0.007</td>
<td>0.022</td>
<td>0.030</td>
<td>0.032</td>
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<tr>
<td>Fe</td>
<td>0.072</td>
<td>0.031</td>
<td>0.035</td>
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</table>

TOTAL 99.4%

MINOR COMMODITY: PB ZN

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV: 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 (DESCRIPTION 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ORE</td>
<td>ACC</td>
<td>87,021 TONS</td>
<td>1936</td>
<td>SIMONS, 1964, P. 154</td>
<td></td>
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CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 MO</td>
<td>ACC</td>
<td>694,782 LBS</td>
<td>1933-1938</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Cu</td>
<td>ACC</td>
<td>5859,033 LBS</td>
<td>1933-1938</td>
<td></td>
<td></td>
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<tr>
<td>17 Ag</td>
<td>ACC</td>
<td>26,938 OZ</td>
<td>1933-1938</td>
<td></td>
<td></td>
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<tr>
<td>18 Au</td>
<td>ACC</td>
<td>.723 OZ</td>
<td>1933-1938</td>
<td></td>
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<tr>
<td>19 ORE</td>
<td>EST</td>
<td>529 TONS</td>
<td>1933-1938</td>
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<tr>
<td>20 ORE</td>
<td>EST</td>
<td>200 TONS</td>
<td>1933-1965</td>
<td></td>
<td></td>
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<tr>
<td>21 Cu</td>
<td>EST</td>
<td>8356 LBS</td>
<td>1933-1965</td>
<td></td>
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<tr>
<td>22 Ag</td>
<td>EST</td>
<td>36.4 OZ</td>
<td>1933-1965</td>
<td></td>
<td></td>
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<tr>
<td>23 Au</td>
<td>EST</td>
<td>.944 OZ</td>
<td>1933-1957</td>
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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-ERT

PERTINENT MINERALOGY............ CHLORITE AND QUARTZ MATRIX; SOME AпатITE 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

GEOLLOGICAL 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, MASSIFS 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-ALDWINKE 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,
     FELDSPARK, AND TOURMALINE, WHICH GRADUALLY DESTROYED THE ROCK, UNTIL, IN PLACES, IT WAS ENTIRELY REPLACED BY
     SECONDARY MINERALS.
     METALLIC MINERALS ARE CONSIDERED LATER THAN GANGLUE MINERALS.

COMMENTS (GEOLOGY AND MINERALOGY):
  THE COPPER CREEK GRANODIORITE INTRUDES PRECAMBRIAN, PALEOZOIC, AND MESOZOIC ROCKS, AND IS OVERLAIN BY GALLIUM
  VOLCANICS OF MIOCENE AGE (ANDERSON, 1968).

GENERAL COMMENTS
  SEE RECORD NUMBER MB99993 FOR REFERENCES
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- M030452
RECORD TYPE---------- X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE... 1
FILE LINK ID.......... USBM-GO40210989
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 DIS.
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........... NO

MAIN ORE MINERALS:

MINOR ORE MINERALS:

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
NAME AND LOCATION
SYNONYM NAME................. INCLUDES ALTA, AMERICAN, AZTEC, BASIN, BENDER, BLACK EAGLE, BLUE EAGLE, BLUE NOSE,
BUFFALO, CALIFORNIA, CHRISTMAS GIFT, HORSESHOE, FLUR, HARDEN, HERMOSA, HUMBOLDT, JANUARY & NORTON,
SALVADORE, SONOITA CREEK - ALUM CANYON, SUNNYSIDE & VOLCANO, FRENCH & WORLD 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 UWO-42-23W
THP 0225 0235
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 COMMODITY ZN PB AG AU CU Mn
MINOR COMMODITY F BA AL3 MO
MAIN ORE MINERALS:  
SPHALERITE, GALENA, PYRITE

MINOR ORE MINERALS:  
CHALCOPYRITE, SPECULARITE, RUBY SILVER, ARGENTITE, GERARDYRITE, TETRAHEDRITE, CHALCOCITE BORNITE ALABANDITE  
SILVER FRALIDES, CERUSSITE, SMITHSONITE FREIBERGITES, PEARLITE SILVER ANTIMANIDES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.  
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:  
LODES & VEINS, DISSEMINATED

FORM/SHAPE OF DEPOSIT: IRREGULAR & LENSING

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
SHAFT, TUNNEL, ADIT, & OPEN PIT OPERATIONS

PRODUCTION

SMALL PRODUCTION

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

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<tr>
<th>ITEM</th>
<th>ACC.</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tr>
<td>15</td>
<td>ORE</td>
<td>1300</td>
<td>TONS</td>
<td>1850-1965</td>
<td>5.5% Pb</td>
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<td>16</td>
<td>Pb</td>
<td>72</td>
<td>TONS</td>
<td>1850-1965</td>
<td>6.6% Zn</td>
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<td>17</td>
<td>Zn</td>
<td>86</td>
<td>TONS</td>
<td>1850-1965</td>
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<tr>
<td>18</td>
<td>Ag</td>
<td>9.2000</td>
<td>OZ</td>
<td>1850-1965</td>
<td>0.24% Cu</td>
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<td>19</td>
<td>Cu</td>
<td>3.1</td>
<td>TONS</td>
<td>1850-1965</td>
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<tr>
<td>20</td>
<td>Au</td>
<td>4.3</td>
<td>OZ</td>
<td>1850-1965</td>
<td>0.003 OZ/T Au</td>
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<tr>
<td>21</td>
<td>Mn</td>
<td>10</td>
<td>LONG TONS</td>
<td>1850-1965</td>
<td>ARGENTIFEROUS SMELTER FLUX</td>
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</tbody>
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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 ASSOCIATED IGNEOUS ROCKS:
CRET. - TERT.

IGNEOUS ROCK TYPES:
prob intruded below by a laramide gneissic 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, ARGILIC, 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. R., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 55-60, 70.
3) HARSHAW DISTRICT REFERENCES:
   - KARTCHNER, W.E. (1944) THE GEOLOGY AND ORE DEPOSITS OF THE HARSHAW DISTRICT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZONA PH.D. DISSERTATION, 100 P.
   - 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.
   - BAKER R.C. THE GEOLOGY AND ORE DEPOSITS OF THE PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: UNIV. MICH., PHD THESIS (1962)
   - ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
   - 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.
   - ROODNAR, R.J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ., UNPUB. M.S. THESIS, 70 P.
   - VON FAY, S., 1965, "HARDSHELL AREA, ASARCO COMPANY REPORT.
   - COURTNGHT, J.H., 1968, "HARDSHELL PROJECT - SILVER-MANGANESE ORE, PROJECT 3103, ASARCO CENICAL RESEARCH LABORATORIES, SOUTH PLAINFIELD, NEW JERSEY.
   - DALLA VISTA, A., 1969, "HARDSHELL PROJECT GEOCHEMICAL SAMPLING," ASARCO COMPANY REPORT.
RECORD IDENTIFICATION

RECORD NO.--------- 403407
RECORD TYPE--------- Z
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 MI. WRIGHTSON

LATITUDE LONGITUDE
31-44- N 110-55- W

THP...... 021S 023S
RANGE.... 014E 015E
MERIDIAN... GILA AND SALT R.
ALTITUDE... 4800-7200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: ELEPHANT HEAD SOUTH TO SONDITA CREEK

COMMODITY INFORMATION

COMMODITIES PRESENT.... Pb Ag Zn Cu Au

MAIN ORE MINERALS:
GALENA, ARGENTITE PYRITE, TETRAHEDRITE, CHALCOPYRITE, CHALCOCITE, SPHALERITE BORNITE

MINOR ORE MINERALS:
CHRYSCOLLAS, AZURITE, COVELLIETE, MALACHITE BARITE, URANIINITE, 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 DISSERATION.

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
- NUMEROUS SCATTERED MINES AND PROSPECTS (KEITH, 1975)

CUMULATIVE PRODUCTION (ORE, COMMODES, CONCENTRATES, OVERBURDEN)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC.</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15</td>
<td>ORE</td>
<td>EST 56 TONS</td>
<td>1680-1974</td>
<td>16.7% Pb, 5% Zn, 0.93% Cu, 8.6 oz/t Ag, 0.02 oz/t Au</td>
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<tr>
<td>16</td>
<td>Pb</td>
<td>EST 9.4 TONS</td>
<td>1680-1974</td>
<td>16.7% Pb</td>
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<tr>
<td>17</td>
<td>Zn</td>
<td>EST 2.8 TONS</td>
<td>1680-1974</td>
<td>5% Zn</td>
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<tr>
<td>18</td>
<td>Cu</td>
<td>EST .52 TONS</td>
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<td>0.93% Cu</td>
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<td>20</td>
<td>Au</td>
<td>EST 1.26 OZ</td>
<td>1680-1974</td>
<td>0.02 oz/t Au</td>
<td></td>
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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:
- TERTIARY CRETACEOUS, JURASSIC, PALAEOZOIC

HOST ROCK TYPES:
- SQUAW GULCH GRANITE (JUR.);
- HORQUILLA LIMESTONE (PENN.);
- JOSEPHINE CANYON DIORITE (TERT.).

AGE OF ASSOCIATED IGNEOUS ROCKS:
- TERTIARY CRETACEOUS

IGNEOUS ROCK TYPES:
- TERTIARY QUARTZ VEINS;
- CRETACEOUS VOLCANICS;
- JOSEPHINE CANYON DIORITE (TERT.);
- SQUAW GULCH GRANITE (JUR.).

PERTINENT MINERALOGY:
- LIMONITE, SILICA

IMPORTANT ORE CONTROL/LOCUS:
- TERTIARY QUARTZ VEINS AND RHODOLITE PORPHYRY DIKES;
- TERTIARY QUARTZ DIORITE;
- FRACTURED ZONES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
- SHALLOW OXIDATION, ALTERATION

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
- SUPREGENE ENRICHMENT;
- REPLACEMENT OF PALEOZOIC LIMESTONE

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2) SCHRADER, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY
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34) WHITACRE, W.T., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS
35) BLAKE, W.P., 1961, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., SCHOOL OF MINES
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48) THE MINES HANDBOOK, VOL. XV-SVII, 1922-1925, BY W.H. WEDD; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. 00350
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
SYNONYM NAME .......... PALMETTO DISTRICT INCLUDES: COLICELLO & LURAY, DOMINO EUROPEAN (YUENA 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 .............. 2:
QUAD NO OR NAME ..... 62500
NOGALES, ARIZ.
LATITUDE ............ 31-26-45N
LONGITUDE ........... 110-48-05W
UTM NORTHING ........ 3478825.
UTM EASTING .......... 518950.
UTM ZONE NO ........... +12
TWP ................... 02S 02S
RANGE ................. 01S 01S
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 ORE MINERALS:
GALENA, CERUSSITE, NATIVE SILVER

MINOR ORE MINERALS:
WULFENITE, CHALCOPYRITE, GOLD, MALACHITE AZURITE, PYRITE, MOLYBDENITE

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEIN, DISSEMINATED
FORM/SHAPE OF DEPOSIT: IRREGULAR, TABULAR, LENSING

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
(KEITH, 1975) NUMEROUS BUT MOSTLY SHALLOWS SMALL OPERATIONS

PRODUCTION
SMALL PRODUCTION

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

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15</td>
<td>CU</td>
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<td>1850-1974</td>
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<tr>
<td>17</td>
<td>Pb</td>
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<td>19</td>
<td>Zn</td>
<td>101 TON</td>
<td>1850-1974</td>
<td>TRACE</td>
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<tr>
<td>20</td>
<td>ORE</td>
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<td>1850-1974</td>
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<td>3.57 D/1</td>
<td>AG, 0.17% Pb, Au Zn</td>
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</table>

SOURCE OF INFORMATION (PRODUCTION):
KEITH, 1975

PRODUCTION COMMENTS:
PROSPECTED AND MINED SINCE MID 1800's

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
PREC., JUR., TRI

HOST ROCK TYPES:
PRECAMBRIAN BIORITE OR BIOTITE HORNBLINDE QUARTZ MONZONITE, PRECAMBRIAN
HORNBLINDE-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 MELAN.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
- FAULT ZONE
- SHEAR ZONES
- CONTACT ZONES

SIGNIFICANT ALTERATION:
- OXIDIZED COPPER MINERALIZATION; ALTERED JUR. GRAN.

GEOLGICAL 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

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    IN CácSON (ED.), SOUTHERN ARIZONA GUIDEBOOK III: ARIZ. GEOL. SOC., P. 49-58.


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18) SCHRADE, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZ.
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21) FETH, J.H., GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUND-WATER 
22) PROBERT, F.H., 1914, THE THREE R MINE, PATAGONIA DISTRICT, ARIZONA: MIN. SCI. PRESS, V. 109, NO. 5, P. 
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27) KING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL. 
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4) GEOLOGY OF SANTA RITA MTS (SURROUNDING AREA):
   DREWES, HARALD, 1970, GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: 
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10) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA 
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UNIV. ARIZ. MS THESIS, 81 P. (1964)
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CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030419
RECORD TYPE. A2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE 1,2

RECORD NO. M030419
RECORD IDENTIFICATION
RECORD TYPE. A2
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE 1,2

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 PITCHBLende;
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 (DESCRIPT. OF WORKINGS):
RELATIVELY SHALLOW SHAFTS, ADITS AND OPEN CUTS

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

<table>
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<tr>
<th>ITEM</th>
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<th>AMOUNT</th>
<th>THOUS.</th>
<th>UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<td>15 ORE EST</td>
<td>1 TONS</td>
<td>1850-1972</td>
<td>15 OZ/T AG, 0.22 OZ/T AU, 15.9% PB, 0.25% CU, TRACE U, TRACE ZN</td>
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<td>16 ORE EST</td>
<td>1 OZ</td>
<td>1850-1972</td>
<td>15 OZ/T AG</td>
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<tr>
<td>17 PB EST</td>
<td>.216 OZ</td>
<td>1850-1972</td>
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<tr>
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<td>1850-1972</td>
<td>0.25% CU</td>
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<td>19 U EST</td>
<td></td>
<td>1850-1972</td>
<td>SMALL AMOUNT</td>
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<tr>
<td>20 ZN EST</td>
<td>200 LB</td>
<td>1850-1972</td>
<td>TRACE ZN</td>
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SOURCE OF INFORMATION (PRODUCTION)... KEITH , 1975

PRODUCTION COMMENTS.... WORKED SINCE MID-1800'S WHEN HIGH GRADE AG POCKETS MINED

GEOLOGY AND MINERALOGY

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
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6) CUNNINGHAM, JOHN E., 1964, GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV.
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12) 177-807. LAND USE AND LAND COVER AND ASSOCIATED MAPS FOR ATASCOSA MOUNTAINS, ARIZONA. LAT 31 TO 31 30',

LON 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.)
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............... AMERICAN P反感 AMERICAN P反感 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)
SYNONYM NAME............. INCLUDES: AMERICAN P反感 AMERICAN P反感 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 31-310 31 42*N 110-450 50*W
UTM northing UTM easting UTM zone no 3490000 1500000 1500000 1500000
ZONE CODE 225 225 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 7N AU BA MD
PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS.. PB AU CU AG

MAIN COMMODITY CU PB AG AUW
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/DESCRIPTION OF WORKINGS:
NUMEROUS SCATTERED PROSPECTS AND SMALL MINES (KEITH, 1975)

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

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<th>AMOUNT THOUS. UNITS</th>
<th>GRADE/REMARKS</th>
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<td>4 TONS</td>
<td>1870-1972</td>
<td>11.8% Pb</td>
</tr>
<tr>
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<td>1870-1972</td>
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<td>1870-1972</td>
<td>0.097 OZ/ T Au</td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1975

PRODUCTION COMMENTS: WORKED SINCE THE LATE 1870'S AND UP THROUGH THE 1900'S.

GEOLGY 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


3) ROHRBACHER, R.C., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 81 P.


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


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


DEPOSIT NAME: FORMERLY A PART OF THE TYNDALL DISTRICT; INCLUDES FOLLOWING CAMPS: FOSTER-TREMAIN PROSPECTS, JACK MOUNTAIN, MCCLERN CAMP, ROBINSON CAMP, LITTLESHOT CAMP (MADERA CANYON), CURRY CAMP, OLD MADERA MINING CO. CAMP AND THE FOLLOWING PROPERTIES AND MINES: CARRIE NAIDON, CENTRAL, COPPER KING, COPPER QUEEN, FLORIDA, GREAT WESTERN, HELEN GOULD, IRON CLIFF, IRON MASK (MCCLERN), IRON MASK (LITTLESHOT), JACKSON, LEAD, LONE STAR, LUCKY LEDGE, MITH, MOLYBDENITE, OLD BALDY, SAWMILL, SPEAR, STAR POINTIER, 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: 62500

LATITUDE: 31-42-21N
LONGITUDE: 110-51-32W

TWP.: 020S
RANGE.: 014F
SECTION.: 01 12

ALTITUDE: 5200-7000 FT

POSITION FROM NEAREST PROMINENT LOCALITY: IS ABOUT 3 1/2 MILES WIDE AND EXTENDS FROM THE MCCLERN 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 MD

MAIN COMMOD: CU PB ZN MD AG AU
MAIN ORE MINERALS:
CHALCOPYRITE CHALCOCITE 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 (DESCRIPTION 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............ MADEIRA 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) SCHRADE, 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.
4) SCHRADE, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA
3) GEOLOGY OF SANTA RITA Mts:


Drewes, Harald, 1966, Oxidation of a Sulfide Body, Glove Mine, Santa Cruz County, Arizona: Econ. Geol., V. 61, No. 4, P. 731-743.


CRIMP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. MO30411
RECORD TYPE.............. C7
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 SWARM
SYNONYM NAME.............. GOLD TREE MINE, EL PLOMO MINE, BCR, 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: 67500 AT 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 SALERD

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
**OCCURRENCE(S) OR POTENTIAL PRODUCT(S):**

| POTENTIAL OCCURRENCE | PUPBA 81 S8 AS |

**MINOR ORE MINERALS:**

- ARGENTITE
- MOLYBDENITE
- BARITE, TETRAHEDRITE
- CERUSSITE
- SPECULAR
- HEMATITE
- MALACHITE
- AZURITE
- CHALCOCITE

**EXPLORATION AND DEVELOPMENT**

**STATUS OF EXPLOR. OR DEV.**

PROPERTY IS INACTIVE

**YEAR OF DISCOVERY**

1687

**BY WHOM**

DISCOVERED BY JESUIT PRIESTS OF TUMACACORI MISSION

**PRESENT/LAST OWNER**

LULLY, A. STEINFELD AND CO., ALIO CONSOLIDATED MINES, SMLTG. AND TRANSPORTATION CO., ALIO COPPER CO., SOUTHWEST DEVELOPMENT CO., HENDERSON, BRADFORD, SONO, LAGUNA, MORENO, LONG CONTACT MG. CO., BER 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 (DESCRIPTION OF WORKINGS):**

EXTENSIVE TUNNEL AND SHAFT OPERATIONS; ALTG TUNNEL IS 1632 FT LONG; MOST SHAFTS ARE WATER FILLED.

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>3.5 TONS</td>
<td>1680-1972</td>
<td>12% Pb, 1% Oz/Ag, 3% Cu, minor Zn and Au.</td>
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</table>

**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:** MESOZOIC CRET TERT JUR
HOST ROCK TYPES


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 ACROSS FRACTURE

IMPORTANT ORE CONTROL/LOCUS TENSION FRACTURES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION KAOLINIZATION IN FAULT GAUGE

GEOLICAL PROCESSES OF CONCENTRATION OR ENRICHMENT SUPERNINE 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) 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.
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) ISLIER, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
18) KUHKBAKER, R.G., 1964, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS
21) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA-CRUZ VALLEY, ARIZONA: UNIV. 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) POPPEN, C.T. THE GEOLOGY OF THE ROSEMONT MINE, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 107 P., MAPS (1940)
26) HEWETT, DAVID A., GEOLOGY OF THE BOX CANYON AREA. SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P. (1966)
31) HELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
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.
39) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
41) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
43) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.................. 4001447
RECORD TYPE............... XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE...... 1,2
MAP CODE NO. OF REC.

REPORTER
UPDATED.......................... 79 OB
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 NGXIEL
LATITUDE LONGITUDE
31-20-26N 110-41-40W
UTM NORTHING UTM EASTING UTM ZONE NO
3467200 529075 +12
THP........ 0245
KANGE.... 016E
SECTION.. 15
MERIDIAN.. GRSR
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 COMMODITY....... Cu Mo Au
MAIN ORE MINERALS:
Pyrite, Chalcopyrite, Molybdenite
MINOR ORE MINERALS: AZURITE, MALACHITE

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS: 14% CU, $6-$8/1 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 (DESCRIPTION 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 1900'S; NOT LOCATED OR WORKED UNTIL JANUARY 1908

SOURCE OF INFORMATION (RESERVES/POT RESOURCES)... KEITH, AZ. 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. (50 +/- 5 M.Y.)
IGNEOUS ROCK TYPES........... BIOTITE HORNBLende GRANODIORITE AND APLITE

AGE OF MINERALIZATION....... TERT. (50 +/- 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
2) SCHRADE, 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) SCHRADE, F.C., AND HILL, J.M., 1910, SOME OCCURRENCES OF MOLYBDENITE IN THE SANTA RITA AND PATAGONIA
4) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE MORALES 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.
7) 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

GENERAL GEOLOGY OF PATAGONIA MTS:
KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.

REFERENCES TO GENERAL GEOLOGY OF THE PATAGONIA MOUNTAINS

    CAMELO HILLS VOLCANICS: U.S. GEO. SURVEY BULL. 1194-M.
11) HAYES, P.T., AND DREWS, M., 1968, MesoziC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R.
    HAYES (ED.), SOUTHERN ARIZONA GUIDEBOOK: ARIZ. GEO. SOC., P. 49-59.
12) SCHRADE, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA
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) ROBINS, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867:
    P. 449.
16) THE COPPER HANDBOOK: VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY M.J. STEVENS, 1900-1911; EDITED
    AND PUBLISHED BY W.H. WOOD, 1912-1914; HOUGHTON, MICHIGAN.
17) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
18) PELLEGRINO, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA: MINE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913,
    EDITED AND PUBLISHED BY N.J. STEVENS. 1900-1911; EDITED AND PUBLISHED BY N.H. WEED, 1912-1914;
    HOUGHTON, MICHIGAN.
19) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... 1030399
RECORD TYPE ............... T1
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ....... 1,2
MAP CODE NO. OF REC. ....... A

REPORTER
NAME ......................... WILT, JAN C.
DATE ......................... 79 09

NAME AND LOCATION
DEPOSIT NAME ............... BONANZA MINE
SYNONYM NAME ............... DUQUESNE MG. & 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 .......................... 02E
RANGE ....................... 01E
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 COMMODITY ZN CU PB AG
MINOR COMMODITY 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; Zn: Ag = 1.3 (Lehman, 1975, 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.:
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 (DESCRIPTION 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS, YEARS</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE ACC</td>
<td>9.58 TONS</td>
<td>1945-1957</td>
<td>6.60% Cu, 6.10% Zn, 0.40% Pb, 4.40 oz/t Ag (Lehman, 1978, P. 127)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 ORE EST</td>
<td>55 TONS</td>
<td>1880-1957</td>
<td>7% Zn, 3% Cu, 1% Pb, 4 oz/t Ag, minor Au (Keith, 1975, P. 76)</td>
<td></td>
<td></td>
</tr>
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</table>

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; RHODOLITE AND TRACHYTE TUFFS OF DUQUESNE VOLCANICS

PERTINENT MINERALOGY: IN A GARNET-QUARTZ GANGLUE
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
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:
   - Schrader, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. MILL: USGS BULL. 582, 373 P.
   - Simmons, 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
   - Ariz. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
   - C.E. (1962)
   - D.C. (1966)
   - R.C. (1966)
   - D.C. (1966)
   - R.C. (1966)
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25GRAYBEAL, 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.


27GRAYBEAL, 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.


30GRAYBEAL, 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.


32GRAYBEAL, 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.


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)
RECORD IDENTIFICATION
RECORD NO. MOD1429
RECORD TYPE. M
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. PATAGOA/S. PATAGONIA MTS
COUNTRY CODE. US
STATE CODE. 04
COUNTY. SANTA CRUZ
QUAD SCALE. 62500
QUAD NO OR NAME. NOGALES, ARIZ.
LATITUDE. 31-22-51N
LONGITUDE. 110-46-05W
UTM NORTHING. 3471650.
UTM EASTING. 522100.
UTM ZONE NO. +12
TWP. 02S
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 MD

MAIN COMMOD. CU AG
MINOR COMMOD. AU PB MD
MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, BORNITE

MINOR ORE MINERALS:
MOLYBDENITE, AZURITE, MALACHITE, COVELLITE, AND GALENA

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
PROPERTY IS INACTIVE

YEAR OF DISCOVERY:
LOCATED IN 1895

BY WHOM:
LOCATED BY MICHAEL MALONEY

PRESENT/LAST OWNER:
MALONEY, BLACK MOUNTAIN MG CO.
RANCHO DEL ORO MG CO. IN 1910, GOODVIEW MG AND MLG CO., KIND COPPER CO., CORONADO 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:
EXTENSIVE TUNNEL OPERATIONS AND MINES. (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
15 ORE
16 ORE

ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
EST .85 TONS 1895-1950 3% Cu, 1 OZ/T Ag, MINOR Au AND Pb
EST .5 TONS 1897-1898 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.

GEOLGY 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. 982, 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 I-762


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. BIRD, 1912-1914; HOUGHTON, MICHIGAN

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

8) ARIZ. BUR. GEOL. AND MINERAL TECHNOLOGY FILE DATA


10) GEDOLY OF PATAGONIA DISTRICT:

ELSING, M.J., AND HEINEMAN, K.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140

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


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


9) HAYES, P.T., AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA, IN S.R. TITTLEY (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


15) Brown, J.R., 1868, Mineral resources of the States and Territories west of the Rocky Mountains, 1867: P. 449.
26) Geology of surrounding area (Santa Rita Mts.):
CRI9 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.**********  H030416
RECORD TYPE********** A1  
COUNTRY/ORG IDENTIFICATION USGS
INFORMATION SOURCE********* 12
MAP CODE NO. OF RECORD

REPORTER
NAME*********************** WILT, JAN C.
DATE*********************** 79 09

NAME AND LOCATION
DEPOSIT NAME**************** CARIRIE NATION MINE
MINING DISTRICT/AREA/SUBDIST. OLD BALDY DIST/NW. SANTA RITAS
COUNTRY CODE************** US
STATE CODE***************** PA
COUNTY********************* SANTA CRUZ

QUAD SCALE
1: 62500
MT. WRIGHTSON

LATITUDE
31°41'53"N

LONGITUDE
110°52'32"W

UTM NORTHING
3506800'

UTM EASTING
511800'

UTM ZONE NO
12

TWP******** 02OS

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 COMMODITY********** CU PB ZN MO

MAIN DRE MINERALS:
PYRITE, CHALCOPYRITE, MALACHITE, BORNITE, GALENA
MINOR ORE MINERALS:
Sphaerite, Molybdenite Specularite

ANALYTICAL DATA (GENERAL)
Copper said to average 3%

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
PROPERTY IS INACTIVE
PRESENT/LAST OWNER:
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 OREBODIES: WNW
DIP OF OREBODIES: 90

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE: 30 FT
LENGTH OF WORKINGS: 350 FT

COMMENTS (DESCRIPTION OF WORKINGS):
Adit, shallow shaft; losses 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 174 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) (Grewe, 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

3) GEOLOGY OF SANTA RITA MTS:


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


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


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


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.

27) GRAYBEAL, F.I., 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) JONES, H.O., 1967. THE GEOLOGY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
33) ANYHONY, J.L., 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) JORDAN, G.R., 1964. GEOLGY 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., SCHOOL OF MINES.
DEPOSIT NAME: DANIELS MINE
SYNONYM NAME: SEE ELEPHANT HEAD GROUP IN TYNDELL DIST.
MINING DISTRICT/AREA/SUBDIST. OLD BALDY DIST/W. SANTA RITA MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: SANTA CRUZ CO.
QUAD SCALE: 1:62500
LATITUDE: 31°43'-32N
LONGITUDE: 110°52'-13W
UTM NORTHING: 3509800
UTM EASTING: 512330
UTM ZONE NO: 12
TWP: 010S
RANGE: 014E
SECTION: NW 01
MERIDIAN: GILA AND SALT R.
ALTITUDE: 5200 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
3) GEOLOGY OF SANTA RITA MTS:
5) DREWES, H., 1960. NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
12) DREWES, H., 1975. INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MIN. RES., PHOENIX.
13) BIRD. A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27.


31) ISKOL, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

32) HEATWOLE, DAVID A., 1966, GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 70 P.


36) KUCK, P.H., 1974, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUBL. PHD THESIS, UNIV. ARIZ.

37) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE KICKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.


39) MINE HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEED, PUBLISHED BY THE STEVENS COPPER HANDBOOK CO., N.Y.

40) THE MINES HANDBOOK VOL. XV-XVII, 1922-1926, BY W.H. WEED, PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
NAME AND LOCATION
DEPOSIT NAME: PATAGONIA DIST (DUQUESNE, MOWRY MINES)
SYNONYM NAME: PATAGONIA DISTRICT INCLUDES: AUGUSTA, BUENA VISTA, EDNA, DUQUESNE-WASHINGTION, 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, POCOHONTAS, PRIDE OF THE WEST, PROTO, 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: 1:0062500
QUAD NO OR NAME: NOGALES AND LOCHIEL, ARIZ.
LATITUDE: 31-25- N
LONGITUDE: 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 W W

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS: AG PB ZN CU
MINOR PRODUCTS: AU MO W
MAIN COMMODITY: ZN PB CU
MINOR COMMODITY: 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, pyrhhotite

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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.)

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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 Comoro Canyon, Cretaceous Bisbee formation, Tertiary biotite-hornblende granodiorite and syenodiorite.
AGE OF ASSOCIATED 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 GRANIDORITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES: SHEAR ZONES; COMPLEX FAULTS AND FOLDS

SIGNIFICANT ALTERATION: ZONES OF STRONG SILICIFICATION

GENERAL REFERENCES

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50) HEIKES, V. C., 1906. NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R-2. 6828.

51) HEIKES, V. C., 1906. NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R-2. 6828.

52) HEIKES, V. C., 1906. NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. R-2. 6828.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.*********** M030392
RECORD TYPE********** XI
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.............. DOMINO MINE GROUP
SYNONYM NAME.............. OLD CHIEF, SAN LOU, BROWNEE
MINING DISTRICT/AREA/SUBDIST. PALMETTO/W PATAGONIA MIS.
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

TMP....... 0275
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.
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 (DESCRIPTION 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 | HOUS. UNITS | YEAR GRADE | REMARKS
--- | --- | --- | --- | --- | ---
15 ORE EST | .35 TONS | 1800-1937 | 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) PHEN

AGE OF ASSOC. IGNEOUS ROCKS: JURASSIC (160 +/- M.Y.)
IGNEOUS ROCK TYPES: INTRUDED BY GRANITIC INTRUSIVE OF COMO RD CANYON

PERTINENT MINERALOGY: QUARTZ & GAUGE GANvUE

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
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47) GEOLGY OF AREAS NEAR PALMETTO DISTRICT:

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


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


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

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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-WASHINGTUN GROUP INCLUDES: ANNIE, BELMONT, BONANZA, CALIFORNIA-GRASSHOPPER,
DAVE ALLEN, DOUBLE STANDARD, DUQUESNE, EMPIRE, ESTELLE & LAUGINE, 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  112

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 COMMODITY: ZN, PB, CU, AG
MINOR COMMODITY: AU, W, MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL: W, MO

MAIN ORE MINERALS:
CHALCOPYRITE, CUPFERRIOUS, PYRITE, SPHALERITE, GALENA

MINOR ORE MINERALS:
MAGNETITE, ARGENTITE, GOLD, PYROHOTITE, 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.: 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: MACO GROUP LIMESTONES, MOSTLY CONTACT METAMORPHOSED

AGE OF ASSOCIATED 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 ALTERATIONS
OXIDIZED TO VARIOUS DEPTHS

GENERAL REFERENCES
1) KEITH, S.M., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 76-79.
3) GEOLOGY OF DUQUESNE-WASHINGTON CAMP:
   SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LOCHEIL QUADRANGLES, SANTA CRUZ COUNTY, ARIZONA: U.S. GEOl. SURVEY MISC. INV. MAP 1-762
5) EBLESON, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
8) PROUT, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 18 P., MAPS (1907)
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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) SAVIUK, P.H., 1979, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.


25) GRAYBEAL, F.I., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZ., TUCSON.

26) GRAYBEAL, F.I., 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. MIN. RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.


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


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00363
RECORD TYPE A
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

NORTHING EASTING 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 40 CU

MAIN COMMOD W
MINOR COMMOD. NO CU

MAIN ORE MINERALS:
SPORADIC SCHEELITE
MINOR ORE MINERALS:  
MINOR MOLYBDENITE AND COPPER CARBONATES

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.  
PROPERTY IS INACTIVE

PRESENT/LAST OWNER: JULIO, COKONAGO MINES IND., DISCOVERY PROCESS INC., RANDALL

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
(KEITH, 1975) ADIT AND OPEN CUT OPERATIONS

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

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>ORE</td>
<td>ACC</td>
<td>24 TONS</td>
<td>1968-1971</td>
<td>1.3% WO3</td>
<td></td>
</tr>
</tbody>
</table>

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


7) ELSING, N.J., AND HEINEMAN, R.E., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

8) CARPENTER, MeMo, 1940, MINE OPERATIONS IN THE PATAGONIA DISTRICT: MIN. JOUR., V. 24, NO. 3, P. 68.


15) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MINERAL RESOURCES, PHOENIX.


ENERGY COMM. CONTRACT AT(111-689), ANNUAL PROGRESS REPORT NO. C00689, UNIV. ARIZ. GEOCHRONOLOGY LABS., P. AIII-1-8.


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 MO

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
MAIN OCCURRENCE MO
MINOR OCCURRENCE MO

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: ARI. DEPT. MIN. RES., PHOENIX.
**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**: 62500
- **LATITUDE**: 31-42-36N
- **LONGITUDE**: 110-55-26W
- **UTM NORTHING**: 3508100
- **UTM EASTING**: 507170
- **UTM ZONE NO**: 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 9

**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
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, DISSEMINATED

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA:
MAX WIDTH: 10
DIP OF OREBODY: 80

DESCRIPTION OF WORKINGS:

LENGTH OF WORKINGS: 1500 FT

COMMENTS (DESCRIP. OF WORKINGS):
ADIT AND SHAFT: 1500 FT TUNNEL

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE (% PB, 3 OZ/1 T AG, MINOR Cu, Zn, Au)</th>
</tr>
</thead>
</table>
| 15 ORE EST | 95 TONS
| | 1900-1914 | 8% Pb, 3 OZ/1 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

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 TERTIARY RHYOLITE PORPHYRY OF GARDNER CANYON AND BOX CANYON DIKE SWARMS AND PLUTON (26 M.Y. K-AR, 40 M.Y. Pb) (DREWES, MAP 1-614)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
SHEARED, FAULT OFFSETS TERTIARY RHYOLITE DIKE

SIGNIFICANT ALTERATION:
ALTERED, SERICITIZED
1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, p. 85.
6) ARIZ. RUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
10) DREWES, H., 1969, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 915, 75 P.
19) 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.
20) ANTHONY, J.W., 1951, GEOLOGY OF THE MONTOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
21) SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONTOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
22) KOHRBACHER, R.C., 1946, GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
24) BLAKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ., MS THESIS.
25) THOMAS, WALTER L., GEOLOGY AND ORE DEPOSITS OF THE ROSEMONT AREA, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
26) POPOFF, C., THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.
27) MICHEL, FRED A., JR., GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS.
28) JOHNSON, YARD H. (SEE ALSO MCKELVEY, V.E., 1), THE GEOLOGY OF THE HELVETIA MINING DISTRICT, ARIZONA: UNIV. ARIZ., MS THESIS.
MS THESIS 70 P. (1966)


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.


34) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY R.N. WEED; PUBLISHED BY THE MINES HANDBOOK CO., N.Y.


36) ELSEY, N.J., AND HEINEMANN, R.E., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.


41) AKIZ, 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.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030400
RECORD TYPE. 41
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. GUADUITE 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: 625-X LOCHIEL, AZ.

LATITUDE LONGITUDE
31-23-54N 110-44-14W

UTM NORTING UTM EASTING UTM ZONE NO
3473550. 525000. +12

TWP...... 0235
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 MOYR, NEAR PROVIDENCIA CANYON, ON SOUTH FLANK OF RED HILL

LOCATION COMMENTS: WEST CENTER, PROTRACTED

COMMODITY INFORMATION
COMMODITIES PRESENT. CU AG AU PB AN MD

MAIN COMMOD. CU AG AU
MINOR COMMOD. PR ZN MD
MAIN ORE MINERALS:
PYRITE, CHALCOPYRITE, CHALCOCITE MOLYBDENITE

MINOR ORE MINERALS:
GALENA, SPHALERITE ARGENTITE GOLD MAGNETITE; BROWNISH TUNGSTEN MINERAL, FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: 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/SIZE OF DEPOSIT:
SHE/DIRECTIONAL DATA
MAX WIDTH............. 6000 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

SOURCE OF INFORMATION (PRODUCTION)... KEITH, 1975, P. 80

RESERVES AND POTENTIAL RESOURCES
ITEM ACC AMOUNT 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 1979 = 58 +/- 3 M.Y.

IGNEOUS ROCK TYPES........... EQUIGRANULAR AND PORPHYRITIC GRANODIORITE, DIORITE, APLITE DIES
AGE OF MINERALIZATION

TEXT: (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 GRANODIORITE CENTRAL PORTION OF PORPHYRITIC GRANODIORITE WAS THE SOURCE OF THE MINERALIZATION (GRAYBEAL, 1972, P. 41)

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

SHEETED SHATTERED, CRUSHED GRANODIORITE; 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):

MOLYBDENUM IS IN VUGS AND DISSEMINATED IN THE ALTERED ROCK

GENERAL REFERENCES

1) KEITH, S.H., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 89.
6) 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.
5) BIRD, A. I. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES I: 27 P.
7) SELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
9) SCHRAEGER, F.C., 1915, SOME FEATURES OF THE ORE DEPOSITS IN THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA.
12) FETH, J.H., GEOLOGIC AND GROUND-WATER RECONNAISSANCE OF THE PATAGONIA AREA, ARIZONA: USGS GROUNDWATER BRANCH MIMEO.
13) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA:
21) SUNKES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONIA: UNPUB. M.S. THESIS, UNIV. ARIZ., 44 P.
22) THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913. EDITED AND PUBLISHED BY H.J. STEVENS, 1900-1914; HOUGHTON, MICHIGAN.
CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO. 4030409
RECORD TYPE: XI
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-O'DONNELL MINE, ROVER CLAIM, ZOMBIE AND ZECO CLAIMS AT SOUTH ENO, BLACKSMITH ADIT, O.K. MINE.

MINING DISTRICT/AREA/SUBDIST.: TYNDALE DIST./S.W. SANTA RITA MTS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: SANTA CRUZ
QUAD SCALE: 62500
QUAD NO OR NAME: MT. WRIGHTSON
LATITUDE: 31-39-35N
LONGITUDE: 110-56-47W

UTM NORTHING: 3502500.
UTM EASTING: 505100.
UTM ZONE NO: +12

THP: 0205
RANGE: 014E
SECTION: 30
MERIDIAN: GILA AND SALT R.
ALTITUDE: 4240-4400 F1

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........

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, 1923

BY WHO............... ORIGINALLY LOCATED BY DAN J. SHEEHY, EDWARD T. SHEEHY, JERRY SHEEHY, PAT J. SHEEHY, AND A. O'DONNELL
PRESENT/LAST OWNER...... SUNRISE MINING CO., SANTA CRUZ SILVER-LEAD CO., ARIVAIA MINING CORP., COLORADO FUEL AND IRAN STEEL CORP.

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:

FISSURE FILLING; LIMESTONE REPLACEMENT

DESCRIPTION OF WORKINGS
UNDEGROUND
DEPTH OF WORKINGS BELOW SURFACE, 360 FT
LENGTH OF WORKINGS................. 5000 FT

COMMENTS (DESCRIPT. 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, 60 FT MINZE 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>TONS</th>
<th>YEAR</th>
<th>OZ/T</th>
<th>AG</th>
<th>PB</th>
<th>ZN</th>
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<td>1 ORE</td>
<td>ACC</td>
<td>.064</td>
<td>1911</td>
<td>7.4</td>
<td>0.1</td>
<td>34.7%</td>
<td>12.0%</td>
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<td>2 ORE</td>
<td>ACC</td>
<td>.0269</td>
<td>1912</td>
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<td>13.3%</td>
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<tr>
<td>3 ORE</td>
<td>ACC</td>
<td>.0433</td>
<td>1912</td>
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<td>0.1</td>
<td>34.7%</td>
<td>17.0%</td>
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<td>4 ORE</td>
<td>ACC</td>
<td>.1673</td>
<td>1914</td>
<td>8.2</td>
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<td>28.8%</td>
<td>14.2%</td>
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<tr>
<td>5 ORE</td>
<td>ACC</td>
<td>.2108</td>
<td>1914</td>
<td>21.6</td>
<td>0.1</td>
<td>17.0%</td>
<td>9.9%</td>
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<td>7 ORE</td>
<td>ACC</td>
<td>.0623</td>
<td>1917</td>
<td>4.9</td>
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<td>25.9%</td>
<td>9.9%</td>
<td>ZN</td>
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SHIPPED TO OZARK S AND M CO., COFFEVILLE, KANSAS
CUMULATIVE PRODUCTION (ORE, COMM., CONC., OVERBUR.)

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>ACC 29.26 TONS 1911-1972</td>
<td>6-11.2 OZ/T AG, 10.6-43.1% Pb, 7.8-34.7% Zn, 0.0-4% Cu (Olson, 1961)</td>
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<td>16</td>
<td>ORE</td>
<td>ACC .6823 TONS 1911-1949</td>
<td>3.9-9.4 OZ/T AG, 14.7-34.5% Pb, 10.3-18.1% Zn, (Olson, 1961)</td>
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<td>17</td>
<td>ORE</td>
<td>ACC .8847 TONS 1951-1952</td>
<td>7.7 OZ/T AG, 25.7% Pb, 4.1% Zn, 0.1% Cu (Olson, 1961)</td>
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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 4.9285 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

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. PENN., JUR.
MOST ROCK TYPES.................. PENNSYLVANIAN MORQUILLA LIMESTONE, JURASSIC QUARTZ MONZONITE CORRELATED WITH SQUAW GULCH GRANITE.

AGE OF ASSOC. IGNEOUS ROCKS.. JUR. CRET., TERT.
IGNEOUS ROCK TYPES.............. JURASSIC GRANITE AND QUARTZ MONZONITE CORRELATED WITH SQUAW GULCH GRANITE; TERTIARY QUARTZ LADITE DIKES (DREWS) AND LADITE PORPHYRY AND DACITE PORPHYRY SILLS (OLSON); 1/2 MILE TO EAST IS CRETACEOUS RHODACITE WELDED TUFF MEMBER OF SALERO FORMATION

PERTINENT MINERALOGY.......... QUARTZ, CHLORITE, LIMONITE, SPECULAR HEMATITE; LATER DEPOSITS OF MAD (MANGANITE, PYROXALITE, 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 LIMESTONIE 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 ORE 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 KAOLINIZATION 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 M899999 FOR REFERENCES
CPIB MINERAL RESOURCES FILE 1Z

RECORD IDENTIFICATION
RECORD NO. .......... M0011445
RECORD TYPE. .......... X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1:2
MAP CODE NO. OF REC..

REPORTER
UPDATED. ................. 79 08
BY. ........................ WILLY, 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°23'21" 110°46'34"W

UTM NORTHING. UTM EASTING. UTM ZONE NO
3472575. 521300. 12

TWP. ...... 024S
RANGE. .... 016E
SECTION. 36
MERIDIAN. G4SR

ALTITUDE. 4500 FT

POSITION FROM NEAREST PROMINENT LOCALITY: PROVIDENCE CANYON IN PATAGONIA MTS

COMMODITY INFORMATION
COMMODITIES PRESENT. ....... CU MO 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:
DISSEMINATED

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/DESCRIPTION OF WORKINGS:
SHAVTS 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, COMMODORE, CONC., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>EST .025</td>
<td>TONS</td>
<td>1915-1920</td>
<td>27% Pb, 1.07% Cu, 23 OZ/T Ag, 0.02 OZ/T Au</td>
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SOURCE OF INFORMATION (PRODUCTION): AZ. BUR. MINES FILE DATA.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS................. TERT. JUR
HOST ROCK TYPES.................. JURASSIC GRANITE OF COMORO CANYON; FN GN, OK GY, QUARTZ DIORITE (SCHRADER); SYENODIORITE (SIMONS)

AGE OF ASSOCIATED 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.)
PERSISTENT MINERALOGY........... QUARTZ VEIN

IMPORTANT ORE CONTROL/LOCUS..... NEAR CONTACT OF TERTIARY SYENODIORITE INTRUDING JURASSIC GRANITE OF COMORO CANYON
GENERAL REFERENCES
8) Belsing, M.J., and Heineman, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 140.
11) Bird, A.L. (1917-18), RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
14) Akiz, DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
26) Surles, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 94 P.
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, 10 P., MAPS (1907)


34)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.


37)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.

38)GRAYBEAL, F.L., 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.


52)DREWES, H., 1966, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOG. SURVEY BULL. 1274-C.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............. M030413
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............... GRINGO MINE
SYNONYM NAME............... FRANCIS GROUP, TEMPORAL GROUP
MINING DISTRICT/AREA/SUBDIST. WRIGHTSON DIST/SANTA RITA MIS
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....... 02S
RANGE..... 01E
SECTION.. 36
MERIDIAN. GILA AND SALT R.

ALTITUDE.. 4250-4400 F

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.. Au Pb Cu
MAIN COMMODO: AU AG PB CU
MINOR COMMODO: 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.: 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

COMMENT (DESCRIPTION OF WORKINGS):
SHAFT OPERATIONS (KEITH, 1975) SEE MAP OF WORKINGS IN SCHRADER, 1915

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TON</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>0.1</td>
<td>TONS</td>
<td>1890-1937</td>
<td>0.13 OZ/T Au AND 0.5 OZ/T Ag</td>
<td></td>
</tr>
<tr>
<td>16 ORE EST</td>
<td>0.04</td>
<td>TONS</td>
<td>1890-1937</td>
<td>6% Pb, 4% Cu, 12 OZ/T Ag</td>
<td></td>
</tr>
</tbody>
</table>

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

TERTIARY QUARTZ VEINS PROBABLY RELATED TO NEARBY TERTIARY GRINGO GULCH PLUTON.

DOMINANT DACITE PROPHYLAX PHASE (60 M.Y. B.C.) (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.A., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 89.

2) SCHRADE, F.C., 1915, MINERAL DEPOSITS OF THE SANTA RITA AND PATAGONIA MOUNTAINS, ARIZONA, WITH CONTRIBUTIONS BY JAMES M. HILL: USGS BULL. 582, P. 73-222.


4) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOLOGICAL SURVEY, MISC. GER. INV. MAP. P-613

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


31) 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


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.


40) 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.


GROSS COPPER PROSPECT
GROSS BELT CONSISTS OF SERIES OF MINES FROM NATIONAL MINE (1 3/4 MILE S.W. OF DOMORA 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 Mшки
COUNTRY CODE.............. US
STATE CODE............... 04
COUNTY.................. SANTA CRUZ
QUAD SCALE............. 062500
QUAD NO OR NAME........ NOGALES
LATITUDE................ 31-23-08N
LONGITUDE.............. 110-46-17W
UTM NORTHING............ 3472260
UTM EASTING............. 521750
UTM ZONE NO............. 12
UTM NORTHING............ 3472260
UTM EASTING............. 521750
UTM ZONE NO............. 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 GNAJOLITE CANYON ABOUT 1 1/4 MILES NE OF GOLDEN ROSE MINE

LOCATION COMMENTS: NW 1/4, SEC 36, PROTRACTED

COMMODITY INFORMATION
COMMODITIES PRESENT.......... Cu NO
MAIN COMMODITY: Cu

MAIN ORE MINERALS:
CHALCOPYRITE, PYRITE, MOYBDENITE

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 TYPE:
DISSEM.

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE: 80 FT
COMMENTS (DESCRIPTION OF WORKINGS):
SHAFT 80 FT DEEP

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: TEXT.
HOST ROCK TYPES: QUARTZ MONZONITE, GENERAL AREA HAS GRANITE PORPHYRY AND UNDERLYING DIORITE
(SCHRADER)

AGE OF ASSOCIATED IGNEOUS ROCKS: TEXT. (58 +/- 5 M.Y.)
IGNEOUS ROCK TYPES: BIDOTITE HUNKBLENDE GRANODIORITE (SIMONS 1974)

AGE OF MINERALIZATION: TEXT. (58 +/- 5 M.Y.)

GENERAL REFERENCES:

1) GENERAL REFERENCES:


3) GEOLOGY OF PATAGONIA MTS:


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


9) BIELSING, M.J., AND HEINEMAN, R.E.S., 1934, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.


CRIA MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 403087
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 HARD SHELL MINE
SYNONYM NAME RICHARDSON, EMPIRE MG & MILLG CO., HARD SHELL 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 1:24000
QUAD NO OR NAME
I: P24000
HARSHAW, ARIZ.

LATITUDE LONGITUDE
31°27'-34"N
110°42'-59"W
TWP 23S
RANGE 016E
SECTION C O A PROTRACTED
MERIDIAN GILA C SALT R.
ALTITUDE 5125 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MI SW OF HARSHAW

COMMODITY INFORMATION
COMMODITIES PRESENT PB AG MN CU ZN AU MO

PRODUCER (PAST OR PRESENT):
MAJOR PRODUCTS PB AG CU
MINOR PRODUCTS ZN AU MN

MAIN COMMON PB AG MN
MINOR COMMON CU AN AU MO
ORE MINERALS:
ARGENTIFEROUS CERUSSITE, ANGLESITE, CCERARGYRITE & SILVER FRALIDES

MINOR ORE MINERALS:
COPPER & GOLD, ARAUNITE, PSILOMELANE, SMITHSONITE, HYDROZINCITE PYROUSITE, MANGANITE, PYROMORPHITE, WULFENITE, MIMETITE, HEMEMORPHITE

EXPLORATION AND DEVELOPMENT

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, LENSGING

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 (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, COMMODO, CONC., OVERTURE)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>EST</td>
<td>35 TONS</td>
<td>1896-1964</td>
<td>6% Pb, 60% Ag, 0.5% Cu, MINOR Zn, Au</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Mn</td>
<td>ORE EST</td>
<td>1 TON</td>
<td>1896-1920</td>
<td>40% Mn</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Pb</td>
<td>EST</td>
<td>5,000 LBS</td>
<td>1896-1920</td>
<td>ELSING &amp; HEINEMAN, 1936, p. 100</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION) .. KEITH, 1975

GEOLGY 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 GAGE & 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) SCHRAEDER, 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) HARSHAW GEOLOGY:
5) ELSON, M. J., AND HEINEMAN, R. E. S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. ARIZ. BUR. MINES BULL. 140, P. 100.
7) VON FAY, S., 1965, "HARD SHELL AREA," ASARCO COMPANY UNPUBLISHED REPORT.
8) COURTRIGHT, J. H., 1966, "HARD SHELL PROJECT - SILVER-MANGANESE ORE, PROJECT 3103," REPORT NO. 4327, ASARCO CENTRAL RESEARCH LABORATORIES, SOUTH PLAINFIELD, NEW JERSEY.
9) DALLA VISTA, A., 1969, "HARD SHELL PROJECT GEOCHEMICAL SAMPLING," ASARCO COMPANY UNPUBLISHED REPORT.
11) KOIHZ, FLEETWOOD, JR., 1979-5071, GENESIS OF THE HARDSHELL SILVER BASE METAL MANGANESE DEPOSIT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, IN PROGRESS.
15) APRIZ, BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
4) HARSHAW GEOLOGY:
9) BODNAR, R. J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 70 P.
9) GRAYBEAL, F.I., 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. 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.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00372
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 MINE
MINING DISTRICT/AREA/SUBDIST. HARSHAW DIST
COUNTRY CODE US
STATE CODE 04
COUNTY SANTA CRUZ
QUAD SCALE 62500
QUAD NO OR NAME LOCHIEL ARIZ.
LATITUDE 31-27-22 N
LONGITUDE 110-42-33 W
UTM NORTHING 3680000
UTM EASTING 527650
UTM ZONE NO 12

IWP 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 MD

MAIN COMMOD AG MN
MINOR COMMOD PB CU AU MD
MAIN ORE MINERALS:
CERARGYRITE, OTHER SILVER CHLORIDES

MINOR ORE MINERALS:
MINOR MOLYBDENUM STAINING

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  
PROPERTY IS INACTIVE
YEAR OF DISCOVERY......... FIRST LOCATED IN 1877
PRESENT/LAST OWNER........ HERMOSA MINING CO. PRIETUS MINES CO. FINLEY HERMOSA MG. E 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 OREMODY....... 33 DEG N

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 500 FT
LENGTH OF WORKINGS........... 7,000 FT

COMMNTS/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/FT AG MANGANESE SILVER ORE LARGELY USED AS SMELTER FLUX.
16 EST  1880-1930  1,000,000 OZ OF AG (ELSING & HEINEMAN, U.06, 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 POMPHRY BRECCIA ALONG A FAULT ZONE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:

OXIDIZED

GENERAL REFERENCES


3) HERMUSA MINE AREA GEOLOGY


SIMIRES, 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.


8) KARICHNER, 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.


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


16) GRAYBEAL, F.T., 1972, THE PARTITION OF TRACF ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE
ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.


21) KOUTZ, FLEETWOOD, J. F., 1979-80, GENESIS OF THE HARNESS SILVER BASE METAL - MANGANESE DEPOSIT, PATAGONIA MOUNTAINS, ARIZONA: UNIV. ARIZ., UNPUBLISHED M.S. THESIS, IN PROGRESS.


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


CRIM MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................. 9030397
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................. 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
31-22-14 N 110-41-44 W

UTM NORTHING UTM EASTING UTM ZONE NO
3470550 528050 +12

WP........ 0245
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 AC AU MD W

PRODUCER(PAST OR PRESENT): MAJOR PRODUCTS.. ZN PB AG
MINOR PRODUCTS.. CU AU

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

OCCURRENCE

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=8.01; Zn: Pb=2.11; 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.
PROPERTY IS INACTIVE

YEAR OF DISCOVERY
LOCATED ABOUT 1800
BY WHOM
LOCATED BY HENRY HOLLAND

PRESENT/LAST OWNER
HOLLAND SMITG. AND MG. CO., COUGHLIN, BARTLETT, DUQUESNE MG. AND REDUCTION CO., CALLAMAN
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............ 60 W

DESCRIPTION OF DEPOSIT:
THE ORE ZONES DIP 45-65 W BETWEEN THE SURFACE AND 100 FT. LEVEL, THEN ABRUPTLY SLEEPENS 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

DESCRIPTION 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, COMM. CONC., OREWUR.)

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 ORE EST 80 TONS 16 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 (MAUER AND DAMON, 1975)
IGNEOUS ROCK TYPES................. GRANIDIORITE DYES AND SILLS; NEARBY MASS OF LIGTY-GY, MO-C GN; EQUIGRANULAR TO PORPHYRTIC GRANIDIORITE

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, TREMOLITE AND OTHER METAMORPHIC MINERALS

IMPORTANT STRUCTURE/LOCUS... MINERALIZATION IS AT THE FOOTWALL OF THE SKARNS REPLACING THE CHERTY LIMESTONE MEMBER OF THE EPITAPH DOLOMITE ADJACENT TO ITS CONTACT WITH SCHECHERS 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:
PUSH DUE 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 SLEEPING 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.R., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 77
7) AKIZ, BUR. GEOLOGY AND MINERAL TECHNOLOGY FILM DATA.
9) SIMONS, F.S., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
14) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1; 27 P.


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.

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

7) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
11) JHRBACHER, ROBERT G., GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ. MS THESIS, 61 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)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030409
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
MAP CODE NO. OF REC.

REPORTER
NAME WILL, JAN C.
DATE 79 09

NAME AND LOCATION
DEPOSIT NAME IVANHOE MINF
SYNONYM NAME COMMERICAL TUNNEL & SHAFT
MINING DISTRICT/AREA/SUBDIST. TYNDALL DIST/S W SANTA RITAS
COUNTRY CODE US
STATE CODE 04
COUNTY SANTA CRUZ
QUAD SCALE 1:62500
QUAD NO OR NAME MT. WRIGHTSON, ARIZ.
LATITUDE 31-33-42N
LONGITUDE 110-48-03W
UTM NORTHING 3491620.
UTM EASTING 518900.
UTM ZONE NO 12

IMP 115
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:
- Chalcocite, Tetrahedrite and Chlorides
- Chalcopyrite and Pyrite
- Galena

MINOR ORE MINERALS:
- Copper Carbonates, Cerussite, Wulfenite
- Silver Halides (Horn Silver and Ebulite)

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 Mo, 300 ppm Sb, 300 ppm Bi, 200 ppm Ag especially near the north and east 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 Mfg. Co. (1915), Johnson, Tobin and Beasley, Hopkins, Ives, Hurd

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
- Quartz Fissure Vein

FORM/SHAPE OF DEPOSIT: SPOTTIE ORE SHOOTS

SIZE/DIRECTIONAL DATA
- MAX WIDTH: 5 FT
- STRIKE OF OREBODY: E-W
- DIP OF OREBODY: 80 DEG

DESCRIPTION OF WORKINGS
UNDERGROUND
- DEPTH OF WORKINGS BELOW SURFACE: 250 FT
- LENGTH OF WORKINGS: 2700 FT

COMMENT (DESCRIP. OF WORKINGS):
- SHAFT OPERATIONS (Keith 1975): EXTENSIVE UNDERGROUND WORKING FROM SHAFT (Keith ABM FILE DATA

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15 ORE EST</td>
<td>.42 TONS</td>
<td>1905-1942</td>
<td>51 OZ/T AG</td>
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GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: JUR (145 M.Y. KAR) (161 M.Y. PB)

HOST ROCK TYPES: Squaw 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 Mar is near by (Drewes); Gray Andesite overlies Granite with Diabase in the tunnel also (Schneider).

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 S.E OCCURS IN THE MORE FRACTURED AREA NEAR THE INTERSECTION OF THE INFERRED PRE-PALEOCENE FAULT AND TWO BRANCHES 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:


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. 214-216


5) General references:


MOUNTAINS, ARIZONA: USGS BULL. 430, P. 154-163.


BIRKING, R.B., 1969, MOLYBDENUM AND RHENIUM, IN MINERAL AND WATER RESOURCES OF ARIZONA: ARIZ. BUR. MINES BULL.

180, P. 230-238.

ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.


ARC. BUR. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN THE ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.

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


SEEM, J.M., JR., 1964, ORIGIN AND DISTRIBUTION OF MOLYBDENUM IN THE VICINITY OF THE GLOVE MINE, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

ANTHONY, J.W., 1951, GEOLOGY OF THE MONOSA-COTTONWOOD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

SULIK, J.F., 1957, STRATIGRAPHY AND STRUCTURE OF THE MONOSA CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

JROHRBACHER, R.H., 1964, GEOLOGY OF THE TEMPORAL GULCH-VANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS.

WHITACRE, H.E., 1964, THE GEOLOGY OF THE MADERA-AQUA CALIENTE CANYONS AREA, SOUTHERN ARIZONA: UNIV. ARIZ., MS THESIS.

HUESKE, W.P., 1901, SKETCH OF THE MINERAL WEALTH ADJACENT TO THE SANTA CRUZ VALLEY, ARIZONA: UNIV. ARIZ.

ARIZ. SCHOLL OF MINES.


PAPPS, C. THE GEOLOGY OF THE ROSEMONT MINING CAMP, PIMA COUNTY, ARIZONA: UNIV. ARIZ., MS THESIS, 10 P., MAPS (1940).

MICHNER, FRED A., JR. GEOLOGY OF THE KING MINE, HELVETIA, ARIZONA: UNIV. ARIZ., MS THESIS.


HEATWOLE, DAVID A. GEOLOGY OF THE BOX CANYON AREA, SANTA RITA MOUNTAINS, PIMA COUNTY, ARIZONA: UNIV. ARIZ.

GEOLOGY OF SURROUNDING AREAS IN SANTA CRUZ COUNTY:


MORRISON, FRANCES A., 1972, THE PARTITION OF TRACE ELEMENTS AMONG COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZON.


MINES HANDBOOK AND COPPER HANDBOOK, V. XII-XIV, 1916-1924, BY W.H. WEEDS; PUBLISHED BY THE STEVENS COPPER
11) THE MINES HANDBOOK, VOL. XV-XVII, 1922-1926, BY W.H. WEED: PUBLISHED BY THE MINES HANDBOOK CO., N.Y.
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:
WULFFNITF, 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 CERUSITE

GENERAL REFERENCES
2) PELLEGRIN, A.L. (1911) RARE MINERALS IN SOUTHERN ARIZONA. MINING WORLD, V. 34, P. 450.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030393
RECORD TYPE. 41
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
NORTELES, ARIZ.

LATITUDE
LONGITUDE
31-26-21N 110-48-32W

THP 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.  

PROPERTY IS INACTIVE

PRESENT/LAST OWNER...... STOCKTON, J. GUSTILLER & CURTIS, LAS JARILLAS MG. CO., GROSS.

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:  
FISSURE VEINS

FORM/SHAPE OF DEPOSIT: LENSGING

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.)

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15 ORE EST</td>
<td>.1 TONS</td>
<td>18??-1924</td>
<td>190.07 AG/TON, MINOR CU, 37% Pb, 0.1 OZ Au/TON</td>
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SOURCE OF INFORMATION (PRODUCTION)... KEITH, 1975

PRODUCTION COMMENTS.... MINED BY MEXICANS PRIOR TO 1880 AND RADICALLY TO 1924 (KEITH 1975). 1904-1905 SHIPPED $5000 WORTH OF ARGENTIFEROUS GALENA AVERAGING 40Z Pb, 175 OZ AG/T AND 1 OZ Au/T, AND MINOR CU.

GEOLGY 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.. LENSGING FISSURE VEINS; VEIN PARALLELS AN INTRUSIVE DIORITE DIKE IN QTZ MONZONITE (MOGER 1969 P. 5)

LOCAL GEOLOGY
SIGNIFICANT LOCAL STRUCTURES:

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
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
24) Schrader, F.C., 1913, Alunite in Patagonia, Arizona, and Bovard, Nevada: Econ. Geol., Vol. 8, No. 8, P. 752-767.
4) Geology of Santa Rita Mts (Surrounding Area):
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO................ MOD1476
RECORD TYPE................ XI
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........ 024 S
RANGE..... 016 E
SECTION... 22
MERIDIAN.. GCSR

ALTITUDE.. 5400 FT

POSITION FROM NEAREST PROMINENT LOCALITY: SOUTH 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 INTERNATIONAL BOUNDARY POST 113

COMMODITY INFORMATION
COMMODITIES PRESENT......... CU AG FE MD AU

MAIN COMMOD..... CU AG
MINOR COMMOD.... AU FE MD
MAIN ORE MINERALS:
PYRITE CHALCOPYRITE AND MOLYBDENITE HORNITE

MINOR ORE MINERALS:
MOLYBDENITE SPECULARITE FILMS OF CHALCOCITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER........ OWNED BY CAPTAIN O'CONNOR (1910), DON HAMERLY, HAVERLY

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 90 FT
COMMENTS (DESCRIPTION OF WORKINGS):
3 SHAFTS AND 65 FT LONG AND 120 FT. LONE 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 .001 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

GEOLGY 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 (GEOLGY 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
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.
9) PATAGONIA DISTRICT:
14) BIRD, A.T., 1916-17, RESOURCES OF SANTA CRUZ COUNTY, ARIZONA: BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 12, 27 P.
18) SURLES, T.L., 1978, CHEMICAL AND THERMAL VARIATIONS ACOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUB. M.S. THESIS, 54 P.
24) YOUNG, P.C., 1959, SURFACE GEOLOGY AND SOIL GEOCHEMISTRY GEOCHEMISTRY OF THE RUEA VIsta MINE AREA, PATAGONIA MOUNTAINS, SANTA CRUZ COUNTY, ARIZONA: COLORADO SCHOOL MINES, M.S. THESIS, 38 P.
25) KUCK, P.R., 1978, THE BEHAVIOR OF MOLYBDENUM, TUNGSTEN, AND TITANIUM IN THE PORPHYRY COPPER ENVIRONMENT: UNPUB. PHD THESIS, UNIV. ARIZ.
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.


HEIKES, V.C., 1906, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY MIN. RES.

HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY MIN. RES.

HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES.


HEIKES, V.C., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOL. SURVEY MIN. RES.

HEIKES, V.C., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOL. SURVEY MIN. RES.

HEIKES, V.C., 1906, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1906: U.S. GEOL. SURVEY MIN. RES.


THE COPPER HANDBOOK; VOL. I THRU XI, 1900-1913, EDITED AND PUBLISHED BY W.H. WEEDE, 1912-1914; HOUGHTON, MICHIGAN.


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00378
RECORD TYPE A
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 MOWRY MINE
SYNONYM NAME PATAGONIA, ENTERPRISE
MINING DISTRICT/AREA/SUBDIST. PATAGONIA DISTRICT
COUNTRY CODE US
STATE CODE 04
COUNTY SANTA CRUZ CO.

QUAD SCALE 1: 0062500
QUAD NO OR NAME LOCHIEL ARIZ.

LATITUDE 31-25-42N
LONGITUDE 110-42-12W

UTM NORTHING 3476920.
UTM EASTING 528200.
UTM ZONE NO. 312

TWP 0235
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, BSEIHEMITE, 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 SWAIN, MOWRY MINES CO., SANTA CRUZ MG. AND
SMTG. 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..... N73E
DIP OF OREBODY........ 90N

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 500 FT
LENGTH OF WORKINGS.................. 15,000 FT

COMMENTS (DESCRIPTION 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.,CONE.OVERTUR)

<table>
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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS.UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<td>15 ORE EST</td>
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<td>200 TONS</td>
<td>1900-1952</td>
<td>4% Pb, 3 OZ/T Ag, MINOR Cu, Zn, Au</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 MN ORE EST</td>
<td>7.5</td>
<td>LONG TONS</td>
<td>1917-1946</td>
<td>25% Mn</td>
<td></td>
<td></td>
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</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1975, P. 81

PRODUCTION COMMENTS.... 1 1/2 MILLION DOLLARS WORTH OF LEAD AND SILVER IN EARLY 60'S (SCHRADER, 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 NGABBO) 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 NODULES 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

GEOLICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
DEEP OXIDATION TO 300 FT LEVEL AND SUPERCLEAN, 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. LITTLE WULFENITE BEGINS ON 300 FT LEVEL

GENERAL REFERENCES
1) GENERAL REFERENCES:
5) SMITH, C.F. (1956) THE GEOLOGY AND ORE DEPOSITS OF THE MOWRY MINE AREA, SANTA CRUZ COUNTY, ARIZONA. UNIV. ARIZONA M.S. THESIS, 15 P.
6) SIMMONS, J.W. THE SILVER-LEAD DEPOSITS OF THE MOWRY MINE, MOWRY, SANTA CRUZ COUNTY, ARIZONA: ARIZ. MIN. BULL. 140, P. 100
9) AKIZ, BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
12) WILSON, E.D., 1930, MANGANESE ORE DEPOSITS IN ARIZONA: ARIZ. MIN. BULL. 127, P. 94.
3) GEOLOGY OF PATAGONIA DISTRICT:
7) BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY. ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1: 27 P.
HAYES, P.T., AND DREWES, H., 1968, MESOZOIC SEDIMENTARY AND VOLCANIC ROCKS OF SOUTHEASTERN ARIZONA. IN S.R.
10) ARIZ. DEPT. MINERAL RESOURCES, 1962, MOLYBDENUM PROSPECTS IN ARIZONA: ARIZ. DEPT. MIN. RES., PHOENIX.
17) THE COPPER HANDBOOK; VOLS. 1 THRU 10, 1900-1915, EDITED AND PUBLISHED BY H.A. STEVENS, 1900-1915; EDITED AND PUBLISHED BY W.H. WOEG, 1915-1914: HOUGHTON, MICHIGAN.
19) PELLEGRINI, A.L., 1911, RARE MINERALS IN SOUTHERN ARIZONA: MINING WORLD 34: 450.
21) SURLES, T.L., 1970, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUBL. M.S. THESIS, 54 P.
24) REYNOLDS, F.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.
27) GRAYBEAL, F.R., 1972, THE PARTITION OF TRACE ELEMENTS BETWEEN COEXISTING MINERALS IN SOME LARAMIDE INTRUSIVE ROCKS IN ARIZONA: PH.D. DISSERTATION (UNPUBLISHED), THE UNIVERSITY OF ARIZONA, TUCSON.
28) GRAYBEAL, F.R., 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.
33) MEVEES, HENRY C., 1966, NONPEGMATITIC BERYLLIUM OCCURRENCES IN ARIZONA, COLORADO, NEW MEXICO, UTAH, AND FOUR ADJACENT STATES: U.S. BUR. MINES REPT. INV. XI-1, 602 P.
36) HEIKES, W.O., 1908, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1908: U.S. GEOLOG. SURVEY, MIN. RES.
37) HEIKES, W.O., 1908, PT. 1, P. 286-313.
38) HEIKES, W.O., 1909, ARIZONA, IN MINERAL RESOURCES OF THE UNITED STATES, 1909: U.S. GEOLOG. SURVEY MIN. RES.
4) GEOLOGY OF SURROUNDING AREA (SANTA RITA MTS.): DREDS, HAROLD B., GEOLOGIC MAP OF THE SAHUARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS.
MISC. GEOLOG. INV. MAP 1-613, SCALE 1:48,000 (1970)


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


10) DREWES, HARALD, 1971, PRELIMINARY GEOLOGIC MAP OF THE MOUNT WRIGHTSON QUADRANGLE, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: U.S. GEOLOG. SURVEY, MISC. GEOLOG. INV. MAP. 1-614

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

12) DREWES, HARALD, 1972, ROAD LOG FOR SOUTHERN SANTA RITA MOUNTAINS, SANTA CRUZ AND PIMA COUNTIES, ARIZONA: USGS OPEN-FILE REP., DENVER, COLO., 6 P. (1966)
O'CONNOR PROSPECT

PATAGONIA DIST./PATAGONIA MTS.

US

SANTA CRUZ

62500 LOCHIEL, ARIZ.

31-22- N 110-41-45W

GILA AND SALT R.

5700 FT

1/4 MILE WEST OF BELMONT INE

PROTRACTED

CU MO PB

GALENA, CHALCOPYRITE, PYRITE, MOLYBDENITE

PROPERTY IS INACTIVE
DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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-hornblende granodiorite (SIMONS)

AGE OF MINERALIZATION.............. TERT. (58 +/- 5 M.Y.)

PERTINENT MINERALOGY.............. DRUSY QUARTZ

GENERAL REFERENCES

2) O'CONNOR OR BELMONT:
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
5) SELRING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
11) BIRD, A. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES I: 27 P.
18) BROWNE, J.R., 1868, MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE ROCKY MOUNTAINS, 1867: P.

20) WILSON, E.D., 1944, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 140.

21) PELLEGRIN, A.L., (1911) RARE MINERALS IN SOUTHERN ARIZONA: ARIZ. BUR. MINES BULL. 68.


31) PELLEGRIN, A.L., (1911) RARE MINERALS IN SOUTHERN ARIZONA: ARIZ. BUR. MINES BULL. 68.


33) J. SURLES, P.T., 1978, CHEMICAL AND THERMAL VARIATIONS ACCOMPANYING FORMATION OF GARNET SKARNS NEAR PATAGONIA, ARIZONA: UNIV. ARIZ. UNPUBL. M.S. THESIS, 54 P.


7) DREWES, H., 1968. NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOLOGICAL SURVEY BULL. 1274-C.
11) KOMRBACHER, ROBERT G. GEOLOGY OF THE TEMPORAL GULCH-MANSFIELD CANYON AREA, SANTA CRUZ COUNTY, ARIZONA: UNIV. OF ARIZONA, MS THESIS, 81 P. (1964)
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030557
RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REG.

REPORTER
NAME: WILT, JAN C.
DATE: 80 03

NAME AND LOCATION
DEPOSIT NAME: OLD BALDY COPPER MINE
MINING DISTRICT/AREA/SUBDISTRICT: OLD BALDY?
COUNTRY CODE: US
STATE CODE: 04
COUNTY: SANTA CRUZ

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

LATITUDE: 31° 42' 58" N
LONGITUDE: 110° 51' 35" W

UTM NORTHING: 3508850.0
UTM EASTING: 513300.0
UTM ZONE NO: 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 LITLESLOT CAMP AND 1/4 MILE N OF LUCKY LEDGE MINE

COMMODITY INFORMATION
COMMODITIES PRESENT: CU MO AG AU FE PB

MAIN COMMODITY: CU
MINOR COMMODITY: 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...... 60°SE

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
65 FT DRIFT

GEOLOGY AND MINERALOGY

IGNEOUS ROCK TYPES........... LAMPROPHYRIC "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. 592, 373 P., P. 176-177, 99 IN MAP.
3) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
RECORD IDENTIFICATION
RECORD NO. 4030403
RECORD TYPE. AZ
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE.. 1,2
MAP CODE NO. OF REC.

RECORD IDENTIFICATION
RECORD NO. 4030403
RECORD TYPE. AZ
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE.. 1,2
MAP CODE NO. OF REC.

REPRESENTATION
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. NOGALES, ARIZ.
LATITUDE. 31-23-17N
LONGITUDE. 110-45-52W
UTM NORTHING. 3472400
UTM EASTING. 522500
UTM Zone No. +12

Wray 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 COMMON. CU MO

MAIN ORE MINERALS:
CHALCOPYRITE. PYRITE. MOLYBDENITE

MINOR ORE MINERALS:
BORNIIE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. PROPERT. IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
DISSEM.
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
DEPTH TO BOTTOM: 1000 FT
COMMEN15 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 SYINODIORITE (SIMONS)

AGE OF ASSOC. IGNEOUS ROCKS: TERT. (58 +/- 5 M.Y.)
IGNEOUS ROCK TYPES: INTRUDED BY DIKES AND MASSES OF GRANITE PORPHYRY (SCHRADER)

AGE OF MINERALIZATION: TERT. (58 +/- 5 M.Y.)

GENERAL REFERENCES

1) GENERAL REFERENCES:
7) ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.

3) GEOLOGY OF PATAGONIA DISTRICT:
   KEIM, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
   ELSING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
   BIRD, A.T. (1916-17) RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 29, COUNTY RESOURCES SERIES 1:27 P.


16) Browne, J.R., 1868. Mineral resources of the states and territories west of the Rocky Mountains, 1867; 449.

17) The Copper Handbook: Vol. I Thru XI, 1900-1913; Edited and Published by H.J. Stevens, 1900-1911; Edited and Published by H.J. Weed, 1912-1914; Houghton, Michigan


RECORD IDENTIFICATION
RECORD NO.............. 4030389
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............. 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 LATITUDE
31-30-30N 110-43-07W
UTM NORTHING UTM ZONE NO
UTM266810N 156
TWP....... 0225
RANGE.... 016F
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 COMMODO........ CU MO
MINOR COMMODO....... PB ZN

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL....... CU MO
MAIN ORE MINERALS:
CHALCOCITE, PYRITE, ENARGITE, CHALCOPYRITE

MINOR ORE MINERALS:
MOLYBDENITE SPHALERITE, TETRAMEDRITE MAGNETITE

ANALYTICAL DATA (GENERAL)
LEAD EXCEEDING 100 PPM IN HIGH PYRITE ALTERATION ZONES & DIMINISHING WITH DEPTH. MOLYBDENUM EXCEEDING 20 PPM OCCURS THROUGHOUT HOLE IN PHYLLIC ALTERATION; IN SOME AREAS OF PHYLLIC & 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. 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 (DESCRIPTIONS OF WORKINGS):
ADITS (KEITH ARM FILE DATA)

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS TERTIARY
HOST ROCK TYPES RED MOUNTAIN VOLCANICS (LATITIC TO TRACHYTIC TUFFACEOUS VOLCANICS) CORRELATED WITH GRINGO GULCH VOLCANICS TO NORTH AND WEST WHICH HAVE BEEN KA DATED AT 50.3 & 50.4 +/- 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, ANBYDRITE, SERICITE, ALUNITE

LOCAL GEOLOGY
SIGNIFICANT ALTERATION:
HIGH PYRITE PHYLLIC ALTERATION SURROUNDED BY PYRITIC-ARGILLIC AND PROPYLLITIC ALTERATION; HIGH PYRITIC PHYLLIC ALTERATION SURROUNDED BY PYRITIC-ARGILLIC AND PROPYLLITIC ALTERATION; WITH DEPTH SULFUR DECREASES & CHANGES FROM NEAR SURFACE, SULFUR-RICH PHYLLIC ALTERATION, THROUGH WEAK POTASSIC ALTERATION TO LOW SULFUR POTASSIC ALTERATION AT DEPTH.

GENERAL REFERENCES
I) GENERAL REFERENCES:
2) ROONAR, R. J., 1978, FLUID INCLUSION STUDY OF THE PORPHYRY COPPER PROSPECT AT RED MOUNTAIN, ARIZONA: UNIV. ARIZ., UNPUBL. M.S. THESIS, 70 P.

3) RED MOUNTAIN GEOLOGY:
   ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
   5) SCHRADE, 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:
   5) BAKFR, R. C., THE GEOLOGY AND ORE DEPOSITS OF THE SANTA CRUZ COUNTY ARIZONA: UNIV. MICH. PhD THESIS (1962)
   6) 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.
   7) ELSING, M. J., AND HEINEMAN, R. E. S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

   9) KARTCHNER, W. E. (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.
   12) DREWES, HARALD R., GEOLOGIC MAP OF THE SAHARITA QUADRANGLE, SOUTHEAST TUCSON, PIMA COUNTY, ARIZONA: USGS MISC. INV. MAP I-613, SCALE 1:48,000 (1970)
   14) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY BULL. 1274-C.
   17) DREWES, H., 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.
CRIR MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030405
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 79 08

NAME AND LOCATION
DEPOSIT NAME 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):
MAIN OCCURRENCE MO
MINOR OCCURRENCE MO

MAIN ORE MINERALS:
TALC

MINOR ORE MINERALS:
FERRIMOLYBDITE

EXPLORATION AND DEVELOPMENT
PRESEN/LAST OWNER FORMER OWNERS, ADDRESS UNKNOWN, REPORTED MO AS THE PRINCIPAL METAL

DESCRIPTION OF WORKINGS
LENGTH OF WORKINGS 150 FT

COMMENTS DESCRIPTION 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.
NAME AND LOCATION

DEPOSIT NAME............... SANTO MINO 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... 66S

POSITION FROM NEAREST PROMINENT LOCALITY: 2 1/2 MI. SW OF DUGOUTLINE

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-18-69: 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.

<table>
<thead>
<tr>
<th>Element</th>
<th>Mass %</th>
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<tr>
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<tr>
<td>Si</td>
<td>1.2</td>
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<tr>
<td>Ca</td>
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<tr>
<td>Fe</td>
<td>0.17</td>
</tr>
<tr>
<td>Cu</td>
<td>0.059</td>
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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.

<table>
<thead>
<tr>
<th>Element</th>
<th>Mass %</th>
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<td>Ti</td>
<td>0.0002</td>
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<tr>
<td>Cr</td>
<td>0.0030</td>
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<tr>
<td>Fe</td>
<td>0.0086</td>
</tr>
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</table>

TOTAL 99.1 %
MOS2  96.3 %

MGO  0.0040
AL2O3  0.98
SIO2  2.0
CAO  0.021 & TI02  TR-0.003 & CR2O3  0.004% & FES2  0.19  CUS  0.0024

TOTAL  99.5 % (KUCK, 1978, P. 187-198.)

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. %
PROPERTY IS INACTIVE
PRESENT-LAST OWNER........ MIAMI COPPER CO., SOUTHERN COPPER MINES CO., BEYERLE, SANTO NIDO MG. CO., YOUNG AND
GARDNER, SANTO NIDO LESSEES, HAVALEA 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE</td>
<td>ACC</td>
<td>20.1 TONS</td>
<td>1900-1955</td>
<td>7% Cu, 1 OZ/T Ag, MINOR Au, 1% MOS2</td>
<td></td>
</tr>
<tr>
<td>16 ORE</td>
<td>ACC</td>
<td>0.2 TONS</td>
<td>1930's</td>
<td></td>
<td>MO ORE</td>
</tr>
<tr>
<td>17 MO CONC</td>
<td>ACC</td>
<td>0.016 TONS</td>
<td>1930's</td>
<td></td>
<td>MOS2</td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION).... KEITH, 1975

PRODUCTION COMMENTS.... WORKED SPORADICALLY FROM EARLY 1900's THROUGH 1955, PRODUCING SOME 20,1000 TONS OF ORE
AVERAGING ABOUT 7% Cu, 1 OZ/TON Ag, 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. (50 ± M.Y.)
IGNEOUS ROCK TYPES........... BIOTITE-HORNBLENDE GRANODIORITE (SIMONS)

AGE OF MINERALIZATION.......... TERT. (50 ± M.Y.)
PERTINENT MINERALOGY.......... PADS 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 LAMANIDE 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):
MOLYBDENTITE AS LARGE BODIES OF FN-GN MASSIVE MATERIAL AND MOLYBDENITE AS GOOD CRYSTALS IN QUARTZ VEINS WITH PYRITE

GENERAL COMMENTS
SEE RECORD NUMBER MB999999 FOR REFERENCES
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00385
RECORD TYPE A1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1, 2
MAP CODE NO. 00385

REPORTER
NAME WILT, JAN C.
DATE 79 08

NAME AND LOCATION
DEPOSIT NAME SIMPLON MINE
MINING DISTRICT/ANFA/SUBDIST. DUQUESNE-WASHINGTSON GROUP/PATAGONIA DIST/SE PATAGONIA MTS
COUNTRY CODE USA
STATE CODE 04
COUNTY SANTA CRUZ

QUAD SCALE 1
QUAD NO OR NAME 62500
LOCHEL, ARIZ.

LATITUDE 31°23.09' N
LONGITUDE 110°41.55' W

UTM NORTING 3472225'
UTM EASTING 528700'
ZONE NJ +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, NORT OF WASHINGTON GULCH

COMMODITY INFORMATION
COMMODITIES PRESENT Zn CU PB AG NO

MAIN ORE MINERALS:
SPHALERITE, CHALCOPYRITE, GALENA, PYRITE, PYRRHOTITE

MINOR ORE MINERALS:
ARGENTITE, BORNMITE, DIGENITE, MOLYBDENITE
ANALYTICAL DATA (GENERAL)
Zn: Cu=4.0; 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 TUFTS 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-TIASSIC (?) 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:
2) SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOGALES AND LUCHIEL QUADANGLES, 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.


28) Brown, J.K., 1866, Mineral Resources of the States and Territories west of the Rocky Mountains, 1867: P. 449.


41) GEOLOGY OF SURROUNDING AREAS (SANTA RITA MTS):
   DREWEES, 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)


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

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 RANGE SECTION
024S 012E 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 COMMODOugen AG PB AU
MINOR COMMODOugen CU ZN MO U

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, PYRITE CERUSSITE

MINOR ORE MINERALS:
MINOR CHALCOPYRITE WULFENITE, VANADINITE, TRACES OF URANIUM

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.: 4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER: KELTY AND ALLEN, MILLER, BLANKENSHIP, PYEATT, CASON, GRAYHILL

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:
SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT: SPOTTY

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: CRETACEOUS
HOST ROCK TYPES: QUARTZ LIMEITE VOLCANICS
IGNEOUS ROCK TYPES: BRECICATED RHYOLITE PROPPHRY

PERTINENT MINERALOGY: SILICIC GANNE

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) ROBERTSON, R.L., 1954, SUNSET CLAIMS, PAJARITO DISTRICT DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONN.
5) NELSON, F.J., 1969, THE GEOLOGY OF THE PENA BLANCA AND WALKER CANYONS AREAS, SANTA CRUZ COUNTY, ARIZONA:
6) CUNNINGHAM, JOHN E., 1964, GEOLOGY OF THE NORTH TUMACACORI FOOTHILLS, SANTA CRUZ COUNTY, ARIZONA: UNIV.
7) ARIZ., PH.D. THESIS, 139 P.; (ABS.) DISSENT. ABS., V. 25, N. 12, PT. 1, P. 7202 (1956)
8) ARIZ. BUR. GEOL. AND MINERAL TECHNOLOGY FILE DATA.

3) GEOLOGY OF NEARBY AREAS:
SIMONS, F.S., 1974, GEOLOGIC MAP AND SECTIONS OF THE NOSALES AND LOCHIEL QUADRANGLES, SANTA CRUZ COUNTY,
ARIZONA: U.S. GEOL. SURVEY 435 INC. INV. MAP 1-752
5) DREYER, H.A. AND COOPER, J.R., 1973, RECONNAISSANCE GEOLOGIC MAP OF THE WEST SIDE OF THE SIERRITA MOUNTAINS,
PIMA COUNTY, ARIZONA; U.S. GEOL. SURVEY MF-538
6) REED, R.K., 1966, STRUCTURE AND PETROGRAPHY OF THE FRAJITI PEAK AREA, SANTA CRUZ COUNTY, ARIZONA; UNIV.
ARIZ., M.S. THESIS, 64 P.
7) KNIGHT, L.H., 1970, STRUCTURE AND MINERALIZATION OF THE ORO BLANCO MINING DISTRICT, SANTA CRUZ COUNTY,
ARIZONA: UNIV. ARIZ., PH.D. THESIS, 177 P.
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.)
NAME AND LOCATION
DEPOSIT NAME: THUNDER MINE
SYNONYM NAME: STANDARD
MINING DISTRICT/AREA/SUBDIST: HARSHAW
COUNTRY CODE: US
STATE CODE: 04
COUNTY: SANTA CRUZ
UTM NORTHING: 3478700
UTM EASTING: 523900
TWP: 023S
RANGE: 016E
SECTION: 07
MERIDIAN: GILA & SALT R.
ALTITUDE: 5900 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 2/3 MILE S OF SUNNY SIDE 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

MAIN ORE MINERALS: PYRITE, CHALCOPYRITE
MINOR ORE MINERALS:
TETRAHEDRITE, MOLYDENITE

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. # PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES: DISSEM.

DESCRIPTION OF WORKINGS
COMMENTS (DESCRIPTION OF WORKINGS):
82 FT TUNNEL

GEOLOGY AND MINERALOGY
AGE OF HOST ROCKS................. TRI, TRI-JUR
HOST ROCK TYPES.................. MT WRIGHTSON FORMATION (RHODOLITIC TO LITITIC LAVA & TUFF, & TUFFACEOUS SANDSTONE)
(TRIASSIC), INTRUSIVE 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 ENE 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.
5) KEEHIL, 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 HARSHAW DISTRICT, SANTA CRUZ COUNTY, ARIZONA, UNIV. ARIZONA M.S. THESIS, 98 P.
7) JELSING, M.J., AND HEINEMAN, R.E.S., 1956, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.
NAME AND LOCATION

DEPOSIT NAME: Tiajuana
SYNONYM NAME: Tiajuana, Santa Maria, and Santa Cruz patented claims

MINING DISTRICT/AREA/SURDIS: Tyndall Dist./Santa Rita Mts.

COUNTRY CODE: US
STATE CODE: 04
COUNTY: Santa Cruz

QUAD SCALE: 1:62500
QUAD NO OR NAME: MT. WRIGHTSON, ARIZ

LATITUDE: 31°40.07'N
LONGITUDE: 110°52.23'W

UTM-NORTHING: 3503500.
UTM-EASTING: 912050.
UTM-ZONE: 11

THP: 0205
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 COMMODITY: AG, CU, Pb, Zn
MINOR COMMODITY: 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, ZPHERITE, MOLYDENITE, IRON AND MANGANESE AND COPPER OXIDES, SPECULARITE

EXPLORATION AND DEVELOPMENT

YEAR OF DISCOVERY: DISCOVERED IN EARLY 1860'S
PRESENT/LAST OWNER: TIAJUANA MG. CO., WILSON, BEKINS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPE(S):
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 (DESCRIPTION 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: ORE, CONC., OVERBUR.
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, ABM FILE DATA

PRODUCTION COMMENTS:
WORKED FROM SILVER CHLORIDES IN 1870'S AND SOME SPORADIC MINING THROUGH 1968.

GEOLoGY AND MINERALOGY
AGE OF HOST ROCKS

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, Pb) (Drewes) on trend with Tertiary quartz vein.

AGE OF ASSOCIATED IGNEOUS ROCKS

IGNEOUS ROCK TYPES
(Same as KIA)

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


31) Schoen, School of Mines.
38) Bigg, B.T., 1972, The Partition of Trace Elements Among Coexisting Minerals in Some Laramide Intrusive


RECORD IDENTIFICATION
RECORD NO. 4030394
RECORD TYPE. XI
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 1: 62500
QUAD NO OR NAME NOGALES, ARIZ.
LATITUDE 31-26-45N
LONGITUDE 110-48-05W
UTM NORTING 3478825.
UTM EASTING 518950.
UTM ZONE NO +12
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 ND V

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS AG PB
MINOR PRODUCTS CU AU

MAIN COMMOD AG PB
MINOR COMMODO... AU CU ZN Mn

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL...... ZN Mn

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. 
PROPERTY IS INACTIVE

PRESENT/LAST OWNER........ FORMER OWNERS INCLUDE STOCKTON, YACKMAN & MERRITT MINES CO., MONARCH MG. & MILG. CO., TAFT MG. & EXPLORATION CO., MELVILLE SYNDICATE, NEWCOMER, CUMMINGS

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIPTION 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, COMMODO., CONC., OVERHR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE ACC</td>
<td>.2 TONS</td>
<td>1910-1942</td>
<td>70</td>
<td>12/ 74G</td>
<td>25% Pb, MINOR Cu &amp; Au</td>
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</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION)... KEITH, 1975, P. 74

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS................. PREC
HOST ROCK TYPES.................... HORNBLende-RICH METAMORPHIC & IGNEOUS ROCK, & BIOTITE OR BIOTITE HORNBLende QUARTZ MONZONITE

AGE OF ASSOC. IGNEOUS ROCKS... JUR (150 +/- 20 M.Y.)
IGNEOUS ROCK TYPES................. GRANITE OF COMO HO 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) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191, P. 74.
3) TRES DE MAYO MINE AREA GEOLOGY:

4) Geology of Surrounding Areas (Santa Rita Mts.):
**CRIIM MINERAL RESOURCES FILE 12**

**RECORD IDENTIFICATION**
- RECORD NO: 00390
- RECORD TYPE: 11
- COUNTRY/ORGANIZATION: USGS
- INFORMATION SOURCE: 1.2
- MAP CODE NO. OF RECORD: RE

**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: D4
- COUNTY: SANTA CRUZ

**QUAD SCALE**
- QUAD NO OR NAME: 62500
- NOGALES, ARIZ.

**LATITUDE**

**UTM NORTHING**
- UTM EASTING: 3480200, 572450
- UTM ZONE NO: 412

**TWP**
- RANGE: 023S
- SECTION: 01E
- MERIDIAN: GILA & SALT R.

**ALTITUDE**
- 5300 FT

**POSITION FROM NEAREST PROMINENT LOCALITY:**
- 13 MILES NE OF NOGALES IN C311 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, TENVANTITE & PSILONELANE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  
PROPERTY IS INACTIVE
PRESENT/LAST OWNER  
HENDERSON, VENTURA MINES, INC., BEYERLE

DESCRIPTION OF DEPOSITS

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 (DESCRIPTION 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

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
</table>
| ORE ACC | 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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>USE</th>
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<tbody>
<tr>
<td>ORE EST</td>
<td>3,600 TONS</td>
<td>1966</td>
<td>0.40% Mo, 52%, 0.22% Cu</td>
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</tbody>
</table>

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% MO52 AND 0.22% CU.
GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: TERT

HOST ROCK TYPES: MT WRIGHTSON FORMATION

AGE OF ASSOC. IGNEOUS ROCKS: JUR. (160 +/- 20 M.Y.), TERT

IGNEOUS ROCK TYPES: GRANITE OF COMOBO 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 365 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. 131, P. 74.
   HELMSING, M.J., AND HEINEMANN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ., ARIZ. BUR. MINES BULL. 140.

2) GENERAL REFERENCES:
   ARIZ. BUR. GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
RECORD IDENTIFICATION
RECORD NO.................. M030412
RECORD TYPE............... XI
COUNTRY/ORGANIZATION...... USGS
INFORMATION SOURCE....... 1.2
MAP CODE NO. OF RECE...  

REPORTER
NAME.......................... WILT, JAN C.
DATE.......................... 79 09

NAME AND LOCATION
DEPOSIT NAME............... 7 CLAIMS, 140 ACRES
SYNONYM NAME.............. CASANEGA - DALY MINING AND REDUCTION CO.
MINING DISRIRCI/AREA/SUOSDIST. TYNDALL
COUNTRY CODE............... US
STATE CODE.................. 04
COUNTY...................... SANTA CRUZ
POSITION FROM NEAREST PROMINENT LOCALITY: AMADOVILLE

COMMODITY INFORMATION
COMMODITIES PRESENT....... CU AG AU PB MD
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 SHOOTS

SIZE/DIRECTIONAL DATA
SIZE OF DEPOSIT......... 3400 FT
MAP WIDTH............... 8 FT

DESCRIPTION OF WORKINGS
COMMENTS(DESCRIP. OF WORKINGS):
GENERAL REFERENCES
1) KEITH, S.B., 1975, INDEX OF MINING PROPERTIES IN SANTA CRUZ COUNTY, ARIZONA: ARIZ. BUR. MINES BULL. 191.
2) SCHRADEL, 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) JEFFERSON, J.M., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: UNIV. ARIZ. BUR. MINES BULL. 140.
6) BIRD, A.T., (1916-17), RESOURCES OF SANTA CRUZ COUNTY, ARIZ. BUR. MINES BULL. 191, COUNTY RESOURCES SERIES 1: 27 P.
10) DREWES, H., 1968, NEW AND REVISED STRATIGRAPHIC NAMES IN THE SANTA RITA MOUNTAINS OF SOUTHEASTERN ARIZONA: U.S. GEOL. SURVEY PROF. PAPER 575-D, 75 P.


30) Olson, H.J., 1966, Oxidation of a sulfide body, Glove mine, Santa Cruz County, Arizona: Econ. Geol. V. 61, No. 4, P. 731-743.


43) Geology of Santa Cruz Co.


CRIO MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.********** 030507
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: 34-34- N
LONGITUDE: 113-12-30W
POSITION FROM NEAREST PROMINENT LOCALITY: WEST OF BEVERING GULCH
LOCATION COMMENTS: LOCATION APPROXIMATE

MAIN ORE MINERALS:

MINOR ORE MINERALS: WULFENITF

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 1
PROPERTY IS INACTIVE

GENERAL REFERENCES
CRSB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00396
RECORD TYPE CI
COUNTRY/ORGANIZATION JSGS
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 1:0020000
QUAD NO OR NAME WILHOIT ARIZ.

LATITUDE 34-29-27N
LONITUDE 112-35-40W

THP 13N
RANGE 05W
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 MO 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

GEOLGY AND MINERALOGY
IGNEOUS ROCK TYPES .......... PORPHYRY DIKE

GENERAL REFERENCES
1) ARM FILE DATA (CLIPPING FILES FROM 1916)
2) A & C MICROFILM
DEPOSIT NAME: BAGDAD COPPER CORP
MINING DISTRICT/AREA/SUBDIST: EUREKA DISTRICT
COUNTRY CODE: US
STATE CODE: 04
COUNTY: YAVAPAI
QUAD SCALE: I: 62500
QUAD NO OR NAME: BAGDAD
LATITUDE: 34°35'01"N
LONGITUDE: 113°12'23"W
UTM NORTHING: 3920875.
UTM EASTING: 297625.
UTM ZONE NO: 11
THP: 014N
RANGE: 009W
SECTION: 04
MERIDIAN: GCSR

COMMODITY INFORMATION
COMMODITIES PRESENT: CU

MAIN ORE MINERALS:

MINOR ORE MINERALS:
HyPOGENE ORE MINERALS INCLUDE PYRiL, CHALCOPiRiTE, MOlyBDENiTE, SphaleriTET, GaLENA, TETRAHEDRITE, ARSENOPiRiTET, GOlD, ARGENTiTE, MAGNETiTE, ILMENiTE, HEMATiTE, WOLFRAMiTE, SCHELiTE; SUPErGENE MINERALS INCLUDE CHALCOiCITE, COVELLiCITE, COPPER, COPRITE, MALACHiTE, AzurITE, CHRYSOCOLLA, CHALCANTHlTE, ANiLERTET, MELAnOCHALCIte, HEMiMorPHlTiTE, SMithSONiTE, GOSLARiTE, COMiCHALCIte, SILVER, CRARGYRITE, CERUSiTE, ANgLiSiTE, BAYLEYiTE, SWARTZlTE, ANDERSoNlTE, PHARMACOSiDERiTE, WULFENiTE, PYRoMORPHlTiTE, FERRiMOlyBDlTE

COMMODITY COMMENTS:
MILL FOR BAGDAD AREA RECOVERED MOlyBDENiTE IN 1944-45 AND AGAIN IN LATTER PART OF 1951 AND IN 1952 (ANDERSON
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, COMMODO, CONC., OVERBURS)

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<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15</td>
<td>ORE</td>
<td>ACC 54344.43 TONS</td>
<td>1929-1978</td>
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<tr>
<td>16</td>
<td>Cu</td>
<td>ACC 1036179. LBS</td>
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<td>17</td>
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<tr>
<td>18</td>
<td>Ag</td>
<td>ACC 2437.32 LBS</td>
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<tr>
<td>19</td>
<td>Au</td>
<td>ACC 2.884 NMS</td>
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<tr>
<td>20</td>
<td>Mo</td>
<td>ACC 7101.786 LBS</td>
<td>1951-1975</td>
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</tbody>
</table>

GEOLOGY AND MINERALOGY
PERTINENT MINERALOGY
GANGUE MINERALS INCLUDE QUARTZ, MUSCOVITE, ORTHoclase, Albite, Biotite, CHLORITE, Rutile, BARITE, MANGANO SIDERITE, ChALCEDONY, Gypsum, FRANCOLITE, HISINGERITE, CLAY.

GENERAL REFERENCES
RECORD IDENTIFICATION
RECORD NO. M002767
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. BLACK HAWK PROSPECT MINE
MINING DISTRICT/AREA/SUBDIST. CHERRY CREEK DIST./BRADSHAW MTS
COUNTY. YAVAPAI

QUAD SCALE. 62500
QUAD NO OR NAME. MINGUS MOUNTAIN

LATITUDE. 34-35-51N
LONGITUDE. 112-01-48W

UTM NORTHING. 3828700.
UTM EASTING. 405560.
UTM ZONE NO. +12

TP. 014N
RANGE. 003E
SECTION. 16
MERIDIAN. G5R

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF CHERRY

COMMODITY INFORMATION
COMMODITIES PRESENT. NO AU

MAIN ORE MINERALS:
MINOR ORE MINERALS:
MOLYBDENITE

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 230 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, 1953, P. 176

PRODUCTION COMMENTS.... CLAIMED THAT 30 CARS OF GOLD ORE AVERAGING $25/TON WERE SHIPPED.

GENERAL REFERENCES
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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M003351
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1,2
MAP CODE 43. 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 12 13
MERIDIAN. GCSK

ALTITUDE.. 5700 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 19 MILES BY ROAD NE OF BAGDAD

COMMODITY INFORMATION
COMMODITIES PRESENT......... W RE BI MO CAF AU AG

PRODUCER(PAST OR PRESENT): W

MAIN COMMOD...... W
MINOR COMMOD.... MO CAF AU AG BI BE
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):  
POTENTIAL... 91 BE

MAIN ORE MINERALS:  
WOLFRAMITE

MINOR ORE MINERALS:  
PYRITE, SPECULARITE, BISMUTHINITE, SCHELITE, MOLYBDENITE, GOLD, SILVER, CHALCOPYRITE

ANALYTICAL DATA (GENERAL)  
0-12% Bi; 0.15-0.5% REO; 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: 072W
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 0062.000 LBS 1915 - 1935 70% WO3
16 WO3  ACC 0126.240 LBS 1951 - 1956

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS: PREC
HOST ROCK TYPES: MORMBLEND GEORITNE, 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 outcrop.

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) DAFE, V.B., 1961, TUNGSTEN DEPOSITS OF GILA, YAVAPAI, MOHAVE COUNTIES, ARIZONA: U.S.G.S. INFORMATION CIRCULAR 8078, P. 43
2) WILSON, E.D., 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZONA BUREAU OF MINES BULLETIN 149, P. 21
CRI MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030494
RECORD TYPE A1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,7
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 1978

NAME AND LOCATION
DEPOSIT NAME BLUE BIRD VEIN MINE
SYNONYM NAME GOLD KING GROUP.
MINING DISTRICT/AREA/SUBDIST. PECK DIST/BRADSHAW MTS.
COUNTRY CODE US
STATE CODE 04
COUNTY YAVAPAI
QUAD SCALE
QUAD NO OR NAME 1: 0062500 CROWN KING
LATITUDE 34-14-50N
LONGITUDE 112-19-40W
TWP 11N
RANGE 01W
SECTION 35
MERIDIAN GILA AND SALT R.
ALTITUDE 6500 FT

LOCATION COMMENTS: NEAR GOLD KING GROUP NEAR PINE GROVE DIST.

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
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.
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) ABAM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
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
THF..... 13N
RANGE.... 03W
SECTION.. 07
MERIDIAN. GCSK
POSITION FROM NEAREST PROMINENT LOCALITY: ABOUT 5 MILES E. OF SKULL VALLEY

COMMUNITY 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 (GEOLGY AND MINERALOGY):
VEIN IN FAULT ZONE
GENERAL REFERENCES


2) JOHNSTON, W.P. 1955, GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH PHD THESIS (1955)


6) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEO. SURVEY REPORT.


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


10) KRIEGER, MEDORA H., RECONNAISSANCE GEOLOGIC MAP OF THE I9ON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA:

USGS MISC. GEO. INV. MAP 1-504, SCALE 1:62,500 (1967)


12) FELSENB. 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.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030497
RECORD TYPE XI
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 1: 0062500
QUAD NO OR NAME MINGUS MIN, ARIZ.
LATITUDE 34-39-10N
LONGITUDE 112-07-20W

TWP 15N
RANGE 02E
SECTION 24
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 (DESCRIPTION OF WORKINGS):
SHORT ADIT

GEOLGY 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 (GEOLGY AND MINERALOGY):
SCATTERED MOLYBDENITE CRYSTALS IN A QUARTZ VEIN; COATINGS OF FERRIMOLYBDITE, MALACHITE AND LIMONITE

GENERAL REFERENCES
1) ANDERSON, C.A., AND CREASEY, S.C., 1956, GEOLOGY AND ORE DEPOSITS OF THE JEROME AREA, YAVAPAI COUNTY, ARIZONA:
U.S. GEOLOGICAL 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. GEOLOGICAL SURVEY GEOLOG. QUAD. MAP GQ-715, SCALE 1:50,000.
4) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA):
U.S. GEOLOGICAL SURVEY ATLAS, FOLIO 126, II P.
5) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIBS MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M03416
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 CLIMAX CLAIM
MINING DISTRICT/ARFA/SUBDIST. WHITE PICACHO
COUNTRY CODE US
STATE CODE 04
COUNTY YAVAPA

UHP 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 COMMODITY
MINOR COMMODITY

MAIN ORE MINERALS:
MINOR ORE MINERALS:
POWELLITE, PYRITE, HEMATITE, LIMONITE, CHALCOPYRITE, AZURITE, MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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, COMM, CONC., OVERBUR.)

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<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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GEOLOGY AND MINERALOGY

HOST ROCK TYPES: HORNBLende-RIOTITE SCHIST

AGE OF ASSOC. IGNEOUS ROCKS: PREC (?)

IGNEOUS ROCK TYPES: APLITE DIKE & MONZONITE (?) PORPHYRY DIKES CUT VEIN

PERSISTENT MINERALOGY: QUARTZ VEINS: EPIDOTE, DIOPSIDE, BROWN GARNET, CALCITE, CHLORITE, ACTINOLITE

IMPORTANT ORE CONTROL/LOCUS: ORE ZONES CONFORM TO SCHISTOSITY; SCHEELITE VEINS ARE IN THE EPIDOTIC 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 MILKY 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
6) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. MOD0107
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 WESHERLY FROM PRESCOTT

COMMODITY INFORMATION
COMMODITIES PRESENT. CU

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

PRODUCTION
YES

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

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PRODUCTION COMMENTS. 100,000 T. 3% COPPER TO APRIL 1943. SOME SILVER, GOLD, MOLYBDENUM. UNDERGROUND PRODUCTION

LOCAL GEOLOGY
COMMENTS (GEOLOGY AND MINERALOGY): 2 VEINS IN IGNEOUS ROCK

GENERAL REFERENCES
4) JOHNSTON, W.P., GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH PHD THESIS (1955)
8) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOL. SURV. OPEN-FILE REPORT.
10) ARM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS.
14) ELISING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
15) 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.
CIN MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............... M003621
RECORD TYPE............ A2
COUNTRY/ORGANIZATION.. USGS
INFORMATION SOURCE.... 1.7
MAP CODE NO. OF REC... 00

REPORTER
UPDAGED................. 02 02
BY........................ WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME............. COPPER BASIN DISTRICT
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN/SIERRA PRIETA
COUNTRY CODE............. US
STATE CODE............... 04
COUNTY................... YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: KIRKLAND-IRON PSRINGS

LATITUDE LONGITUDE
34-29-00N 112-35-00W

W1P..... 13N
RANGE..... 03W
SECTION.. 20 21 29
MERIDIAN..... GSR

ALTITUDE.. 4800-7150 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 7 MI 4SW OF PRECINT

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 COMMODITY... CU MO AU AG PB
MINOR COMMODITY... ZN F

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL........ M3
MAIN ORE MINERALS: 
CHALCOPYRITE PYRITE

MINOR ORE MINERALS: 
MOLYBDENITE BORITE 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
PROPERTY IS ACTIVE
YEAR OF DISCOVERY........ DISTRICT OFFICIALLY RECOGNIZED ABOUT 1890
PRESENT/LAST OWNER........ OWNED BY PHELPS DODGE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
BRECCIA PIPES; PORPHYR CUPRIT
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

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<td>1973</td>
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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 0.12% Mo.

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........ CRETI. 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:

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 roof 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 loosened 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 MINERALIZED 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
3) JOHNSTON, W.P., GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZONA: UNIV. UTAH, PHD. THESIS (1955)
6) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY, OPEN-FILE REPORT.
8) JABO FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
INDUSTRY OF ARIZONA IN 1975-1976, SPECIAL REPORT NO. 2, P. 93-87.


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

13) GAMBER, 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.

NAME AND LOCATION
DEPOSIT NAME: COPPER BASIN
MINING DISTRICT/AREA/SUBDIST: COPPER BASIN DIST./SIERRA PRIETA RANGE/BRADSHAW MIS
COUNTRY CODE: US
STATE CODE: 04
COUNTY: YAVAPAI
QUAD SCALE: I
QUAD NO OR NAME: I: 0024000
IRON SPRINGS; WILHOIT, AZ
LATITUDE: 34-29- N
LONGITUDE: 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/SIZE 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" COALESC 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 PHYLLIC ALTERATION IS SURROUNDED BY A POTASSIC ZONE WHICH GRADES OUTWARD TO A HALO OF PROPYLITIC ALTERATION. (CHRISTMAN, 178, P. 72).

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT: BRECCIA IN THE COPPER BASIN DEPOSIT IS MUCH MORE PERVERSIVE 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)


GENERAL REFERENCES
2) JOHNSTON, W.P., 1955, GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPAI COUNTY, ARIZ.: UNIV. UTAH, PHD THESIS
5) THOMSEN, D.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN
YAVAPAI COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY, OPEN-FILE REPORT NO. 76-413, 51 P.

6) ANDERSON, C.A., 1945, LOMA PRIETA MINE, COPPER BASIN, YAVAPAI COUNTY, ARIZONA: U.S. GEOLOGICAL SURVEY, OPEN-FILE REPORT.


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


10) KRIEGER, MEDORA H., RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPAI COUNTY, ARIZONA: USGS MISC. GEOLOGICAL INVESTIGATION MAP I-504, SCALE 1:62,000 (1967)


12) ELSING, M.J., AND HEINEMAN, R.J., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.

13) MILLER, 1973, COPPER BASIN DISTRICT: U.S. ATOMIC ENERGY COMM., PRELIM. RECONNAISSANCE REPORT, 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. DISSERTATION, 95 P.


COPPER HILL MINING DISTRICT/AREA/SUBDIST. COPPER BASIN/SIERRA PRIETA RANGE
COUNTRY CODE................. US
STATE CODE.................... 04
COUNTY......................... YAVAPAI
QUAD SCALE................. 24000
WILHOTT QUAD NO OR NAME
LATITUDE.................. 34-29-26N
LONGITUDE.................. 112-35-15W
UTM NORTHING............. 3917510.0
UTM EASTING............... 354245.0
UTM ZONE NO.............. +12
RANGE............ 003W
SECTION........... 20
MERIDIAN................. GESR

COMMODITY INFORMATION
COMMODITIES PRESENT.............. CU EO
MAIN ORE MINERALS:
MOLYBDENITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4

DESCRIPTION OF WORKINGS
UNDERGROUND
Production

Yes

Cumulative Production (Ore, Cond., Conc., Overbur.)

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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 ferrimolybdate, a bright yellow oxide. Johnston and Lowell, 1961

Comments (Geology and Mineralogy):
Mineralized brecciated quartz diorite

General References


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.  M004333
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1, 2
MAP CODE NO. OF RECORD

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
THP....... 11N
RANGE.... 01W
SECTION... 33 NC
MERIDIAN. 06SR
ALTITUDE.. 5750 FT
POSITION FROM NEAREST PROMINENT LOCALITY: 4 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.)

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SOURCE OF INFORMATION (PRODUCTION).... LINDGREN, 1925, P. 176

PRODUCTION COMMENTS.... A FEW YEARS AGO (IN 1920'S) 100 TONS OF $9 GOLD ORE FROM THIS VEIN WAS MILLED

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS............. PREC
HOST ROCK TYPES............... BRAUSHAW GRANITE; BRADY BUTTE PROPHYRITIC GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. PREC
IGNEOUS ROCK TYPES............ BRADY BUTTE PROPHYRITIC GRANODIORITE (ANDERSON AND BLACET)

IMPORTANT ORE CONTROL/LOCUS.. VEIN IS PARALLEL TO BUSTER VEIN

GENERAL REFERENCES
5) LINDGREN, W., 1926. ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL., 782, 192 P.
7) BLACET, P.M., 1964. GEOLOGIC MAP OF THE SE 1/4 MOUNT UNION QUADRANGLE, YAVAPAI CO., ARIZ: U.S. GEOL. SURVEY
14) BLACKETT, P.M., 1968, PRECAMBRIAN GEOLOGY OF THE SE 1/4 MOUNT UNION QUADRANGLE, BRADSHAW MOUNTAINS, CENTRAL ARIZONA: STANFORD, CALIF., STANFORD UNIV., PH.D. THESIS, 294 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 IDENTIFICATION
RECORD NO. .............. M003473
RECORD TYPE .............. X2
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ....... 1,2
MAP CODE NO. OF REC. .......

REPORTER
UPDATED .............. 80 02
BY ....................... MILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME .............. EUREKA DIST.
SYNONYM NAME .............. BAGOAD DIST.
MINING DISTRICT/AREA/SUBDIST. EUREKA DIST.
COUNTRY CODE .............. US
STATE CODE .............. 04
COUNTY .................... YAVAPAI

LATITUDE .................. 34-35-00N
LONGITUDE .............. 113-13-00W

THP .............. 014N
RANGE .............. 009W
SECTION .............. 17

COMMODITY INFORMATION
COMMODITIES PRESENT ........ AU AG CU PB ZN RH W MJ

PRODUCER(PAS1 OR PRESENT): MAJOR PRODUCTS ... CU MJ
MINOR PRODUCTS ........ AU AG PB ZN

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

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
POTENTIAL ........ RH W U FE
OCCURRENCE ........ RH W U FE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. ....
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 Tungstena Mine. (Anderson et al., 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 1917. 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.

GEOLGY 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, et al., 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-chalcopyrite 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 shear systems, and the minor mineralized fractures which 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 et al., 1955).

SIGNIFICANT ALTERATION: Hypogene alteration and mineralization of the quartz monzonite resulted in the formation of quartz, orthoclase, albite 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. Transformed 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, et al., 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—CHALCOPRyITE VEINS, WHICH INDICATE THAT THE 
MOLYBDENITE IS YOUNGER THAN THE CHALCOPRyITE. MOLYBDENITE, FeS2, THE BRILLIANT GRAY FLAKY SULFIDE OF MOLYBDENUM IS 
COMMON IN THE BAGDAD MINE, OCCURRING IN QUARTZ—PYRITE VEINS THAT ARE LATER THAN THE PYRITE—CHALCOPRyITE VEINS. THE CRYS 
TALS 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, Fe03M003H2O, FERRIMOLYBDITE, SOMETIMES KNOWN AS MOLYBDITE, 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.O. STRUBELL, JR. (1955) GEOLOGY AND ORE DEPOSITS OF THE BAGDAD AREA, YAVAPAI 
COUNTY, ARIZONA. U.S. GEDL. SURV. 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. 252.
7) SUMMARY OF EVIDENCE SHOW THAT A SET OF NORTHWEST AND NORTHEAST CONJUGATE SHEARS LOCALIZED IGNEOUS INTRUSIONS 
AND FRACTURING, CONTROLLING COPPER MINERALIZATION.
8) ANDERSON, C.A., 1950, ALTERATION AND METALLIZATION IN THE BAGDAD PORPHYRY COPPER DEPOSIT, ARIZONA: ECON. 
GEOOL. V. 45, P. 609—628, P. 617, 618.
10) BRIEF ACCOUNT OF THE PRE—CAMBRIAN ROCKS AT BAGDAD AND RELATIONSHIP TO OTHER PRE—CAMBRIAN ROCKS IN ARIZONA.
11) ANDERSON, 1952, BAGDAD EXPANDS COPPER MILL—RECOVERS BY—PRODUCT MOLYBDENITE—UPS COPPER RECOVERY BY PH 
12) ANONYMOUS, 1946, BAGDAD MAKES A COMEBACK: MIN. WORLD, V. 8, NO. 6, P. 24—29. LARGELY A DISCUSSION OF THE 
GLORY—HOLE MINING METHOD STARTED IN 1945.
13) ANONYMOUS, 1952, BAGDAD EXPANDS COPPER MILL—RECOVERS BY—PRODUCT MOLYBDENITE—UPS COPPER RECOVERY BY PH 
CONTROL: MIN. WORLD, V. 14, NO. 11, P. 30—33. DESCRIPTION OF MILL OPERATIONS IN 1951.
14) ANONYMOUS, 1951, BAGDAD LEARNS TO TRUCK: MIN. WORLD, V. 13, NO. 10, P. 14—19. GOOD DESCRIPTION OF PIT 
OPERATIONS IN 1951.
P. 141.
16) ALDRICH, L.T., WETHERILL, G.W., AND DAVIS, G.L., 1957, OCCURRENCE OF 1350—MILLION—YEAR—OLD GRANITIC ROCKS IN 
WESTERN UNITED STATES: GEOLOG. SOC. AMERICA BULL., V. 68, P. 655—656.
19) EXCELLENT BRIEF ACCOUNT OF THE GEOLOGY AND ORE DEPOSITS OF THE BAGDAD MINE.
20) DEMPSEY, W.J., AEROMAGNETIC MAP OF BAGDAD AREA, YAVAPAI COUNTY, ARIZONA: USGS OPEN—FILE REP. (1952)
21) DEMPSEY, W.J., AND FACKLER, W.D. AEROMAGNETIC MAP OF THE BAGDAD AREA, ARIZONA: USGS MAP 
23) DICKIE, E.R., GREEN, GEORGE, HONDRUM, OLF, 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 GIVES DICE RESERVES.
24) FLEISING, M.J., AND HEINEMAN, R.E.S., 1936, ARIZONA METAL PRODUCTION: ARIZ. BUR. MINES BULL. 140, 112 P.
25) FLEISINGER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE. 
ECON. GEOOL. 54: 1406—1413, P. 1408.
INDUSTRY IN ARIZONA IN 1975—1976, SPECIAL REPORT NO. 2, P. 83—87.
29) JACOBS, M.W.L., 1976, ENGINEERING PROPERTIES OF THE GILA CONGLOMERATE AT BAGDAD, ARIZONA: UNPUB. M.S.
12) FIALKO, R.G., 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030501
RECORD TYPE. XI
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

COMMENIS (DESCRIPT. OF WORKINGS):
ONE 75 FT AND 1 60 FT TUNNEL PLUS 2 OPEN CUTS

GEOLOGY AND MINERALOGY
HOST ROCK TYPES .......... QUARTZ PROPHYRY

GENERAL COMMENTS
OLD REPORT BY FARMER OWNER CLAIMS A 6 FT VEN WITH ORE WHICH "ASSAYED 0.15 GOLD, 7.0 OZ SILVER, 0.5% MOSS" EVIDENTLY A SELECTED SAMPLE.

GENERAL REFERENCES
1) DEPT. MIN RESOURCES, 1962, NO PROSPECTS-AZ
CRIP MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00411
RECORD TYPE II
COUNTRY/Organization USGS
INFORMATION SOURCE 2
MAP CODE NO. 00411

REPORTER
NAME WILT, JAN C.
DATE 80 02

NAME AND LOCATION
DEPOSIT NAME GUGUNG 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 (DESCRIPTION OF WORKINGS):
45 FT SHAFT WITH MODEST DRIFTING 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/POTENTIAL RESOURCES): DEPT. MIN. RES. (1962)

COMMENTS (RESERVES/POTENTIAL 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 DZ PER TON OF MINE RUN ORE. DRY MILLING IS SAID TO HAVE RECOVERED FROM 50-60% OF THIS WULFENITE. THREE SAMPLES IN 1936 RAN 0.04, 0.07, AND 0.12% MO DZ.

GENERAL REFERENCES
1) DEPT. MIN. RESOURCES, 1964, MO PROSPECTS AZ
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00412
RECORD TYPE XI
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 1: 0024000
QUAD NO OR NAME RED PICACHO, ARIZ.
LATITUDE 33-59-56N
LONGITUDE 112-35-59W

LOCATION COMMENTS: NW 1/4 OF 32, CORNER OF 29, 30, 31, 32

COMMODITY INFORMATION
COMMODITIES PRESENT PB AG NO
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 (DESCRIPT. 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 IDENTIFICATION
RECORD NO.................. 4002357
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. 3F CLEATOR

COMMODITY INFORMATION
COMMODITIES PRESENT........ NO AU AG PB BI

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3

PRODUCTION
NO PRODUCTION

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

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<th>ITEM</th>
<th>ORE</th>
<th>ACC</th>
<th>THOUS.</th>
<th>TONS</th>
<th>YEAR</th>
<th>GRADE</th>
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PRODUCTION COMMENTS.... NONE TO 1943. SURFACE

GEOL OGY AND MINERALOG Y

IMPORTANT ORE CONTROL/LOCUS.: PEGMATITE CUT BY QUARTZ VEINS

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
QUARTZ VEIN
RECORD IDENTIFICATION
RECORD NO. M003493
RECORD TYPE. X1
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1.2
MAP CODE NO. OF REC.

REPORER
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. 62500
QUAD NO OR NAME. MT. UNION
LATITUDE. 34-21-59N
LONITUDE. 112-24-30W
UTM NORTHING. 3803500
UTM EASTING. 370500
UTM ZONE N3. 12
TWP. 012N
RANGE. 001W
SECTION. 19
MERIDIAN. G & SR
ALTITUDE. 5750 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 7 1/2 MILES OF GR doom 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 MU
MAIN COMMOD. AU AG
MINOR COMMOD. MU
OCCURRENCE(S) OR POTENTIAL PRODUCI(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
STRIKE OF OREBODY.... 08
DIP OF OREBODY........ W

PRODUCTION
NO PRODUCTION

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............ PREC
HOST ROCK TYPES.............. CROOKS CANYON GRANODIORITE, NEAR GARABRO

AGE OF MINERALIZATION........ PREC

GENERAL REFERENCES
2) JAGGAR, T.A., AND PALACHE, CHARLES, 1905, DESCRIPTION OF BRADSHAW MOUNTAINS QUADRANGLE (ARIZONA): U.S. GEOL. SURVEY ATLAS, FOLIO 126, 11 P.
3) ARM FILE DATA, ARIZ. SUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
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 NORTING UTM EASTING UTM ZONE NO
3817445.0 354618 +12
TWP ........ 13N
RANGE ...... 03W
SECTION .. 21
MERIDIAN ........ GCSR

COMMODITY INFORMATION
COMMODITIES PRESENT........... CU MO

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
DESCRIPTION OF WORKINGS
UNDERGROUND

PRODUCTION
YES
RESERVES AND POTENTIAL RESOURCES

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<th>GRADE OR USE</th>
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<td>1</td>
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<td>1961</td>
<td>0.124% Mo AND 0.913% Cu</td>
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GEOLOGY AND MINERALOGY

IMPORTANT ORE CONTROL/LOCUS... ORE IS IN CRETACEOUS QUARTZ MONZONITE AND ASSOCIATED QUARTZ LADITE PORPHYRY DIES

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 LOMELL, 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 MINE BULL.
7) CHRISTIAN, 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.
   NO. 78-415, 51 P.
9) KRIEGER, MEDORA H., GEOLOGY OF THE PRESCOTT AND PAULDEN QUADRANGLES, ARIZONA: USGS PROF. PAPER 467, 127 P.
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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... M003464
RECORD TYPE ............. 11
COUNTRY/ORGANIZATION .... USGS
INFORMATION SOURCE ...... 1,2
MAP CODE NO. OF REC. ... 

REPORTE
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

TOWN ........ 014N
RANGE ........ 009W
MERIDIAN .................. GCS

POSITION FROM NEAREST PROMINENT LOCALITY: 3 MILES SSW OF BAGDAD

COMMODITY INFORMATION
COMMODITIES PRESENT ....... MO ZN PH 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 UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
2 SHAFTS, EACH ABOUT 45 FT DEEP

PRODUCTION
YES
SMALL PRODUCTION

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

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<th>ACC</th>
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</table>

SOURCE OF INFORMATION (PRODUCTION): ANDERSON ET AL., 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 FAULT

COMMENTS (GEOLOGY AND MINERALOGY):
THIN, YELLOW-ORANGE PLATES OF WULFENITE FOUND IN OXIDIZED ZONE
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 403050B
RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1
MAP CODE NO. OF REC.

REPORTER
DATE 02
UPDATED 02
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 0048000 PAULDEN, ARIZ.
LATITUDE 34-54-
LONGITUDE
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: 1472, 400 FT N; 396,000 FT E

COMMODITY INFORMATION
COMMODITIES PRESENT Pb Mo V

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

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

GEOLGY AND MINERALOGY
AGE OF HOST ROCKS............. MISS
HOST ROCK TYPES............... REDWALL LIMESTONE
PERTINENT MINERALOGY......... CALCITE VINES

LOCAL GEOLOGY

COMMENTS (GEOLGY AND MINERALOGY):
WULFENITE OCCURS AS THIN ORANGE WEDGES

GENERAL REFERENCES
P. ILLUSTRATED TABLES, GEOLOGICAL MAPS, P. 106
CRIR MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030493
RECORD TYPE. 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 1.2
MAP CODE NO. OF REC.

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

NAME AND LOCATION
DEPOSIT NAME. OUTPOST MINE
SYNONYM NAME. OUTPOST EXTENSION PROSPECT IS 1200 FT NNE OF OUTPOST MINE
MINING DISTRICT/AREA/SURFACE. WHITE PICACHO DIST./NICKENBERG MT.
STATE CODE. US
COUNTY. YAVAPAI

QUAD SCALE QUAD NO OR NAME
1: 0024000 RED PICACHO, ARIZ.

LATITUDE LONGITUDE
33°58'56"N 112°33'30"W

UTM NORTHING UTM EASTING UTM ZONE NO
3761100. 356040. 12

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 MO PB C C F AG

PRODUCER/PAST OR PRESENT):
MAJOR PRODUCTS. BI FLD

MAIN COMMOD. FLD BI
MINOR COMMOD. SN V MO PB CU CA F AG
OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL
OCCURRENCE SN V NO Pb Cu

MAIN ORE MINERALS:
BISMUTHITE, SEYERITE, NATIVE BISMUTH, BISMUTHNITRE, FELDSPAR

MINOR ORE MINERALS:
PYRILL, PYRRHOTITE, CASSITERITE, VANADINITE, WULFENITE, PYROMORPHITE, MIMETITE, ANGLESITE, CERUSSITE,
CHRYSOCOLLA, CUPRITE, FLUORITE, NATIVE SILVER, MOLYBDENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
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 (DESCRIPTION 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. F. F. MUCH OF THE MINE AREA HAS BEEN STRIPPED WITH BULLDOZER.

PRODUCTION

YES
SMALL PRODUCTION

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

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<th>ITEM</th>
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<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
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<td>TONS</td>
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<td>FELDSPAR</td>
<td>ORF</td>
<td>£5</td>
<td>1000 TONS</td>
<td>1947-1952</td>
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SOURCE OF INFORMATION (PRODUCTION):
JAHNS, 1952 P. 95
RESERVES AND POTENTIAL RESOURCES

ITEM ACC AMOUNT THOUS. UNITS YEAR GRADE OR USE
1 POLISH FELDSPAR BST 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 UARIZ HORNBLende BIOTITE GNEISS AND SCHIST;
CHLORITE AND EPIDOTE-RICH ROCKS

PERTINENT MINERALOGY........ SCHOOL ABUNDANT; PEGMATITE IS MAINLY QUARTZ, WITH ALBITE, PERTHITE, MUSCOVITE, BIOTITE; APATITE, BERYL, FLUORITE, GARNET MICROLITE, PYROCHLORITE

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 LOCALY ABUNDANT IN BRECIIATED 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, CERUSITE, CHRYSOCOLLA, CUPRITE, AND FLUORITE. MOST OF THESE MINERALS FORM SMALL, SHARPLY FACED CRYSTALS. TINY FLAKES OF NATIVE SILVER AND MOLODENITE ARE DISSEMINATED THROUGH SOME MASSES OF BISMUTITE AND BEYERITE. (JAHNS, 1952, P. 95-96).

GENERAL REFERENCES
2) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030499
RECORD TYPE A
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1,2
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 08 02

NAME AND LOCATION
DEPOSIT NAME PICACHO VIEW MINE
MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO DIST.
COUNTRY CODE AUS
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
3758970 355600 12
THP 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: 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 CORMMOD Fld
MAIN ORE MINERALS:
FELDSPAR

MINOR ORE MINERALS:
PYRITE, ALLANITE, COLUMBITE, MOLYBDENITE, SPHALERITE, ZINC, CERUSSITE, HEMIMORPHITE, WULFENITE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.:
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 STEEP 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 (DESCRIPTION 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 10-27 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 PRESENT.

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS:
PREC.

HOST ROCK TYPES:
QUARTZ-MICA SCHIST AND QUARTZ-MICA-AMPHIBOLE SCHIST WITH EPIDOTITE 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 PICACO 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00421
RECORD TYPE A
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 MT. UNION AZ.
QUAD NO OR NAME 0062500
LATITUDE 34-21-50N
LONGITUDE 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 COMMODITY CU MO
MINOR COMMODITY AU AG

MAIN ORE MINERALS:
CHALCOCITE PYRITE CHALCOPYRITE MOLYBDENITE

MINOR ORE MINERALS:
BARITE, ARSENCOPPYRITE, 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 GOSAN; 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 72 NW IN PRECAMBRIAN SPUD MOUNTAIN VOLCANICS. THE PINE FLAT INTRUSION WAS
APPEARENTLY A PASSIVE EMPLACEMENT. FRACTURES IN THE INTRUSION AND ADJACENT PRECAMBRIAN VOLCANICS TREND N-S, N80
E, N50 W WITH STEEP (75-80) DIPS. FRACTURE DENSITY INCREASES IN VICINITY OF SILICEOUS BRECCIA ZONES AND
INTRUSION CONTACTS. TWO PAST-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 PERVERSIVE EARLY-STAGE DEUTERIC, A NORMALLY ZONED FRACTURE-CONTROLLED MAIN-STAGE
POTASSIC, PHYLLIC, AND PROPYLITIC; AND LATE-STAGE, CROSSCUTTING PHYLLIC AND PROPYLITIC (SPATZ, 1974, P. XIII)

GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT:
- MINOR SUPERGENE ENRICHMENT (ON RIDGE THE ROCK IS SOFT AND DECOMPOSED AND CONTAINS CHALCOGLITE)

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 PHYLLIC ZONE COINCIDES WITH A ZONE OF HIGH FRACTURE DENSITY (SPATZ, 1974, P. XIX). 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 PHYLLIC ZONE AND THE PROPYLLITIC 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.


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., 69 P. SUPP.


3) LINDEGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEOL. SURV. BULL. 742, 192 P., P. 149-152.


5) BLACET, P.M., 1976, C.P., 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. P 1030506
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 SCHUBER MINE
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN DIST.
COUNTRY CODE US
STATE CODE A04
COUNTY YAVAPAI
QUAD SCALE 1: 0024000
QUAD NO OR NAME WILHOIT ARIZ.
LATITUDE 34-29-30N
LONGITUDE 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
CRIB MINERAL RESOURCES FILE 17

RECORD IDENTIFICATION
RECORD NO. 4001101
RECORD TYPE. A
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 MD

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 400 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 (DESCRIPT. OF WORKINGS):
UNDERGROUND WORKINGS

At the Squaw Peak Mine, underground workings 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, COMM. COND., CONC., OVERBUR.)

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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 DUNCE. PER TON OF SILVER, AND 0.015 DUNCE. 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, 0.28% MoS2, AND 0.177 oz Ag/t. 420 TONS MINED FROM THE STOPE RAN ABOUT 0.76% 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% COPPER WITH SUBSTANTIAL MOLYBDENUM. ORILL 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; LAMAMIDE QUARTZ MOLYBDENITE PORPHYRY

AGE OF ASSOC. IGNEOUS ROCKS. CRET.-TERT.

IGNEOUS ROCK TYPES. QUARTZ MOLYBDENITE PORPHYRY PLUG

AGE OF MINERALIZATION. CRET.-TERT

IMPORTANT ORE CONTROL/LOCUS. DISSEMINATED SULFIDE MINERALIZATION IS SPATIALLY RELATED TO MINERALIZED FRACKURES AND VEINS. THE INTENSITY OF SULFIDE MINERALIZATION IS DIRECTLY RELATED TO THE FRACKURE DENSITY OF THE HOST ROCK.

CHALCOPYRITE NORMALLY OCCURS IN QUARTZ VEINLETS, IN FRACKURE 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 UBQUITOUSLY WITH CHALCOPYRITE AND MOLYBDENITE IN QUARTZ VEINS, ALONG FRACKURES, AND DISSEMINATED IN MAFIC MASSES.

QUARTZ MOLYBDENITE PORPHYRY IS EXPOSED AS NORTH-WEST-TRENDING DIES NEAR THE CONTACT OF THE PRECAMBRIAN GRANODIORITE AND THE ASH CREEK METAVOLCANICS. LOCAL BRECCINATION, QUARTZ STONWORKS, AND COPPER-BEARING QUARTZ VEINS AND FRACKURES ARE SPATIALLY RELATED TO THESE DIES 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 persist 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 trend 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 trend 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 trend 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 Graham with possibly over 4000 ft of post-hickey basalt (Post 13.0.0.) movement according to seismic evidence (Cooksey, 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 silification, quartz and quartz-sulfide veins, moderate to strong sericitation 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 (GEOLGY 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 barren Squaw Peak intrusion. Weak quartz-epidote-k-feldspar-calcite alteration envelops the stronger 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 Squaw 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 Squaw 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 Squaw 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 Squaw 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 Squaw 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 Squaw Peak property.

General References

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 1001108
RECORD TYPE. 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE 1.2
MAP CODE NO. OF RECORD

REPORTER
UPDATED 02
BY A. WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME STARLIGHT
SYNONYM NAME BUENA VISTA
MINING DISTRICT/AREA/SUBDIST. WHITE PICACHO OIST.
COUNTRY CODE US
STATE CODE 04
COUNTY YAVAPAI

RMP 0235
RANGE 016E
SECTION 36
MERIDIAN GCSR

POSITION FROM NEAREST PROMINENT LOCALITY 3 W 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 COMM ORE MINERALS:
SCHEELITE, POWELLITE

MINOR ORE MINERALS:
PYRITE, HEMATITE, LIMONITE, CHALCOPYRTE, AZURITE, MALACHITE, GOLD

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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 BROADSH IESTH

AGE OF ASSOC. IGNEOUS ROCKS.. PREC (?)

IGNEOUS ROCK TYPES............. MEDIUM GRAINED, LIGHT GREY GRANITE AND FELDSPAR PEGMATITE 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

GEOLoGYIC 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., 116, 68 P.
2) WILSON, E.D., (1941) TUNGSTEN DEPOSITS OF ARIZONA, AKIZ. BUR. MINES BULL. 148, G00L. SERIES 14, 54 P., P. 24
7) ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
RECORD IDENTIFICATION
RECORD NO. .............. MO01169
RECORD TYPE .............. XI
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 ................. TUNGSTEN 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 CROSSECTION 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 HUNOVITE PHASE APLITE DIKES P. 21

IMPORTANT ORE CONTROL/LOCUS... QUARTZ VEINS IN GRANITE

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
WWW STRIKING TUNGSTEN-QUARTZ VEIN SWARM PARALLELS WWW TRENDING APLITE DIKES TO THE NW WHICH ARE RELATED TO LAWLER PEAK GRANITE

COMMENTS (GEOLOGY AND MINERALOGY):
VEINS CARRYING TUNGSTEN

GENERAL REFERENCES
3) WILSON, E.O. 1941, TUNGSTEN DEPOSITS OF ARIZONA: ARIZ. BUR. MINES BULL. 148 BULL. 168
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. M003374
RECORD TYPE .......... XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE .... 12
MAP CODE NO. OF REC. ..

REPORTER
UPDATED .......................... 80 02
BY .................................. WILLY, 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


4) LINDGREN, W., 1926, URE 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO. 00427
COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME. U.S. NAY NAVY MINE
MINING DISTRICT/AREA/SUBDIST. COPPER BASIN
COUNTRY CODE. US
STATE CODE. 34
COUNTY. YAVAPA1
QUAD SCALE. TWPI 13N RANGE 03W SECTION 18
MEIRIDIAN. GCSR

COMMODITY INFORMATION

COMMODITIES PRESENT. MO

GENERAL REFERENCES

2) CHRISTMAN, J.L., 1978, GEOLOGY, ALTERATION, AND MINERALIZATION OF THE COPPER BASIN PORPHYRY COPPER DEPOSIT, YAVAPA1 COUNTY, ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ., 78 P.
3) JOHNSTON, W.P., GEOLOGY AND ORE DEPOSITS OF THE COPPER BASIN MINING DISTRICT, YAVAPA1 COUNTY, ARIZONA: UNIV. UTAH. PHD THESIS (1955)
6) THOMSEN, B.W., AND STULIK, R.S., 1978, HYDROLOGIC DATA FOR THE COPPER BASIN AREA, A POTENTIAL MINING AREA IN YAVAPA1 COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT NO. 78-413, 51 P.
7) ANDERSON, C.A., 1946, LOMA PRIETA MINE, COPPER BASIN, YAVAPA1 COUNTY, ARIZONA: U.S. GEOL. SURV., OPEN-FILE REPORT.
9) ABM FILE DATA, ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
11) WIEGAND, MEDORA H. RECONNAISSANCE GEOLOGIC MAP OF THE IRON SPRINGS QUADRANGLE, YAVAPA1 COUNTY, ARIZONA:


CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M003376
RECORD TYPE. 41
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 2
MAP CODE NO. OF REC.

REPORter
UPDATED BY JAN C. WILT
WILT, JAN C.

NAME AND LOCATION
DEPOSIT NAME. WILLIAMS
SYNONYM NAME. SPRINGTIME LODE
MINING DISTRICT/AREA/SUBDIST. GROOM CREEK DIST./BRAUSHAW HTS.
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. GRSR

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):
QUARZ VEINS IN SCHIST

GENERAL REFERENCES
6) LINDGREN, W., 1926, ORE DEPOSITS OF THE JEROME AND BRADSHAW MOUNTAINS QUADRANGLES, ARIZONA: U.S. GEO. SURV. BULL. 782, 192 P.
7) ARIZ. BUR. MINES MISCELLANEOUS CLIPPINGS, UNPUBLISHED REPORTS, AND FILE RECORDS
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030509
RECORD TYPE X1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE I
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 01 01

NAME AND LOCATION
DEPOSIT NAME PRESCOTT AREA
COUNTRY CODE US
STATE CODE 04
COUNTY YAVAPAI CO
QUAD SCALE 1: 0040000
QUAD NO OR NAME PRESCOTT, ARIZ.
LATITUDE 34-30- N
LONGITUDE 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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... M030330
RECORD TYPE ............... X2
COUNTRY/ORGANIZATION ... USGS
INFORMATION SOURCE ......... 1
MAP CODE .................. M33 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 ............... 1: 00625000
QUAD No OR NAME ........... DOME ROCK MINS, ARIZ - CALIF.
LATITUDE .................. TWP... 02N 04N
LONGITUDE .................. 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 ... 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 (DESCRIPTION OF WORKINGS):
- MAINLY DRY PLACERS FROM 1860'S TO 1950'S; SEVERAL SMALL MINE & PROSPECTS FOR BASE & PRECIOUS METALS

PRODUCTION
- SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15</td>
<td>PLACER AU EST</td>
<td>9,464</td>
<td>OZ</td>
<td>1930-1950</td>
<td>690 OZ/T AU 10.6 OZ/T AG, 6.8% CU</td>
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<tr>
<td>17</td>
<td>AU REC</td>
<td>392</td>
<td>OZ</td>
<td>1930-1950</td>
<td>10.6 OZ/T AU</td>
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<tr>
<td>19</td>
<td>AG REC</td>
<td>3,127</td>
<td>OZ</td>
<td>1930-1950</td>
<td>6.8% CU</td>
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<tr>
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<td>CU REC</td>
<td>.02</td>
<td>TONS</td>
<td>1930-1950</td>
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<tr>
<td>21</td>
<td>HG REC</td>
<td>.116</td>
<td>FL</td>
<td>1908-1914</td>
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</tbody>
</table>

PRODUCTION COMMENTS:
- PLACERS PRODUCED (FROM 1860'S TO 1950'S) SOME 9,464 OZ AU CONTAINING ABOUT 690 OZ AG; IN 1930'S E 1940'S PRODUCED SOME 2,127 OZ 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, 102 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.
CABLE MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 003032
RECORD TYPE. AX2
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. EAGETAIL MTS, ARIZ.
QUAD NO OR NAME. 0067500
LATITUDE. 33°15'N
LONGITUDE. 113°2'
TWP. 02S
MERIDIAN. GILA & SALT R.

COMMODITY INFORMATION
COMMODITIES PRESENT. AU PB FE F CU MO

MAIN COMMOD. AU PB FE F CU MO
MINOR COMMOD. AU PB FE F CU MO

MAIN ORE MINERALS:
GALLEN, ERPUSITE 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 (DESCRIPTION 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

GEOLGY 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 CONTROLS/LOCUS: IN FRAGMMENTS IN A FAULT ZONE CUTTING PRECAMBRIAN SCHIST WITH CHERRY BAND SPOTTED 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 FRAGMENTS IN A FAULT ZONE

GENERAL REFERENCES
2) WILSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINE MINE BULL, 134, P. 146.
3) GENERAL AREA:
4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
5) SCARBOROUGH, R., AND WILL, 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: UNPUBL. THESIS, NORTHERN ARIZ. UNIV.
MINING DISTRICT/AREA/SUBDIST.  DOME (GILA CITY) DISTRICT/NORTHERN GILA MINS

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  PA  MD

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

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
PLACER. FISSURE VEINS
DESCRIPTION OF WORKINGS

SURFACE

COMMENTS (DESCRIPTION OF WORKINGS):

MOSTLY DRY PLACER OPERATIONS

PRODUCTION

SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>HOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 PLACER AU EST</td>
<td>26</td>
<td>OZ</td>
<td>1858-1950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 PLACER AG EST</td>
<td>1.2</td>
<td>OZ</td>
<td>1858-1950</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, P. 145

PRODUCTION COMMENTS: PLACER OPERATIONS WORKED MAINLY FROM 1938 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.


NEARBY AREAS:

R-SUPPLY PAPER 499


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: GEOG. 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,
SOUTHEASTERN CALIFORNIA: PH.D. DISSERT., SANTA BARBARA, UNIV. CALIFORNIA, SANTA BARBARA.

16) HAXEL, G.B., 1978, THE PELONA-OROCOPIA SCHIST AND VINCIENT-CHOCOLATE MOUNTAIN THRUST SYSTEM, SOUTHERN CALIFORNIA,
IN MESOZOOIC 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 MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA:
CALIF. JOUR. MINES & GEOLOGY, V. 38, P. 147-196.

18) MATTE, R.E., OLMSIDE, F.H., AND ZOHY, A.A.R., 1973, SEUPHYSICAL STUDIES IN THE YUMA AREA, ARIZONA AND CALIFORNIA:
U.S. GEOG. SURVEY PROF. PAPER 726-D, 36 P.

19) 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 NAPACK LABS., NATICK, MASS., TECH. REP. 71-14-ES,

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 RECONNA, MAPPING FOR STATE GEOLOGIC MAP (EL CENTRO SHEET).


22) OLMSIDE, F.H., 1972, GEOLOGY OF THE LAGUNA DAM 7 1/2 MINUTE QUADRANGLE, ARIZONA AND CALIFORNIA: U.S. GEOG.
SURVEY GEOG. QUAD. MAP GO-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) 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., 1950, GEOLOGIC MAP OF YUMA COUNTY, ARIZ.: ARIZ. BUR. MINES.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............. M030335
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
SYNONYM NAME............... ORO 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
TMP........ 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 A13 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 (DESCRIPTION OF WORKINGS):
NUMEROUS WEI & DRY PLACER OPERATIONS, MOSTLY FROM GRAVEL IN PIT, 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>PLACER AU EST</td>
<td>12</td>
<td>02</td>
<td>1860-1974</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>PLACER AG EST</td>
<td>05</td>
<td>02</td>
<td>1860-1974</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>ORE ACC</td>
<td>466</td>
<td>TONS</td>
<td>1860-1974</td>
<td>0.37 OZ/T AU 0.29 OZ/T AG, 7.04% PA, 1.04% ZN, CU</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION). KEITH, 1978, P. 161

GEOLGOGY AND MINERALOGY

AGE OF HOST ROCKS: MESOZOIC METAMORPHIC LM C MID JURASSIC MIDDLE CAMP QUARTZ MONZONITE

HOST ROCK TYPES: DOME ROCK METAMORPHIC

AGE OF ASSOC. IGNEOUS ROCKS: TERT

IGNEOUS ROCK TYPES: DIABLO QUARTZ MONZONITE

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.
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.
11) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

RELATED AREAS:
16) BISHOP, C.C., 1963, COMPILER, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION - NEEDLES SHEET: SAN FRANCISCO, CALIF. DIV. MINES & GEOLOGY.
21) ROBBINS, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.
MINING DISTRICT/AREA/SUBDIST. MOHAWK DISTRICT/43HAWK 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

THP.............. 08S 09S 10S
RANGE........... 15W 14W 13W
SECTION........ 01 02 03
MERIDIAN........ GILA & SALT R.

ALTITUDE........ 1400 FT

COMMODITY INFORMATION
COMMODITIES PRESENT........ AG PB BA AU CU MD F

MAIN COMMOD........ AG PB BA
MINOR COMMOD........ AU CU MD F

MAIN ORE MINERALS:
- GALENA, SILIC 04S SILVER, BARITE

MINOR ORE MINERALS:
- OXIDIZED COPPER, NKERITE, FLUORITE WULFENITE MALACHITE, CHRYSOISILA GOLD
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.: PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
QUARTZ VEINS

SIZE/DIRECTIONAL DATA
STRIKE OF OREBODY: N65W
DIP OF OREBODY: 80SW

DESCRIPTION OF WORKINGS

SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):
SMALL PROSPECTS & MINES WORKED INTERMITTENTLY SINCE EARLY 1900'S. (KEITH, 1979, P. 163)

PRODUCTION

SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>.061</td>
<td>TONS</td>
<td>1900-1974</td>
<td>350 OZ/T</td>
<td>AG 18% Pb, Cu, Au</td>
</tr>
<tr>
<td>16</td>
<td>BA EST</td>
<td>.018</td>
<td>TONS</td>
<td>1900-1974</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 Mines

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
2) WILSON, E.D. 1960, GEOLOGIC MAP OF YUMA COUNTY ARIZONA: ARIZ. BUR. MINES
6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00435
RECORD TYPE. 12
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1,2
MAP CODE NO. OF REC.

REPORTE
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. 62500
QUAD NO OR NAME. CASTLE DOME MT; RED BLUFF MT

LATITUDE. 33- N
LONGITUDE. 114-10- W

UTM NORTHING. 3656000.0
UTM EASTING. 764000.0
UTM ZONE NO. 11

TMP. 045 065
RANGE. 17W 20M
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, RA, MN, IN, CU, AU, V, MO, RE, SB, SE, AS, U

MAIN COMMOD. PB, AG, F, RA, MN, IN, CU, AU, V, MO, RE, SB, SE, AS, U
MINOR COMMOD. N, MO, RE, SB, SE, AS, U

MAIN DRE MINERALS:
ARGENTIFERUS, GALENA, CERUSSITE, & LEAD OXIDES,

MINOR DRE MINERALS:
DEPOSIT TYPES:
Fissure Vein/Shear Zone

FORM/SHAPE OF DEPOSIT:
Lensing Veins

SIZE/DIRECTIONAL DATA

| Depth to Top | 0 |
| Depth to Bottom | 225 ft |
| 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's 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.)

<table>
<thead>
<tr>
<th>Item</th>
<th>ACC</th>
<th>Amount</th>
<th>Thous Units</th>
<th>Year</th>
<th>Grade</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>121</td>
<td>TONS</td>
<td>1870-1974</td>
<td>6.8% Pb</td>
<td>4.1 oz/t Ag, 0.02 oz/t Au, 0.03% Zn, 0.03% Cu, F, Mn, Au</td>
<td></td>
</tr>
<tr>
<td>16 Pb EST</td>
<td>10.697</td>
<td>TONS</td>
<td>1870-1974</td>
<td>6.0% Pb</td>
<td></td>
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<tr>
<td>17 Ag EST</td>
<td>498</td>
<td>OZ</td>
<td>1870-1974</td>
<td>4.1 oz/t Ag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Au EST</td>
<td>2</td>
<td>OZ</td>
<td>1870-1974</td>
<td>0.02 oz/t Au</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Zn EST</td>
<td>0.036</td>
<td>TONS</td>
<td>1870-1974</td>
<td>0.03% Zn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Cu EST</td>
<td>0.036</td>
<td>TONS</td>
<td>1870-1974</td>
<td>0.03% Cu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 F EST</td>
<td>3.3</td>
<td>TONS</td>
<td>1870-1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Mn EST</td>
<td>4</td>
<td>LTU</td>
<td>1870-1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 Placer Au EST</td>
<td>7</td>
<td>OZ</td>
<td>1870-1900</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1974 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 of Ag, 2,000 oz Au, 30 t Zn, 36 t Cu. The production of byproduct dump & gravel diorite 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 7,000 oz

GEOLoGY AND MINERALOGY

AGE OF HOST ROCKS: MESOZaTE
HOST ROCK TYPES: Metamorphosed 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 Metamorphosed 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:
- Ores Shouts 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. 89).

GENERAL REFERENCES
2) WILSON, E.D., 1951B, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY): ARIZ. BUR. MINES BULL. 158, P. 98-115
4) BLAKE, W.P., 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.
7) NEVIEUS, J.H., 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
10) BURCHARD, E.F., 1934, FLUORSPAR DEPOSITS IN WESTERN UNITED STATES: A.I.M.E. TRANS., V. 109, P. 370-373.
RECORD IDENTIFICATION
RECORD NO. .............. 4030322
RECORD TYPE .............. X2
COUNTRY/ORGANIZATION .. USGS
INFORMATION SOURCE .... 1.2
MAP CODE NO. OF REC. ...

RECORD NO. .............. 4030322
RECORD IDENTIFICATION
RECORD TYPE .............. X2
COUNTRY/ORGANIZATION .. USGS
INFORMATION SOURCE .... 1.2
MAP CODE NO. OF REC. ...

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

NAME AND LOCATION
MINING DISTRICT/AREA/SUBDIST. WELLTON (LA POSA) DISTRICT/WELLTON HILLS
COUNTRY CODE ............. US
STATE CODE ............... 04
COUNTY .................... YUMA
QUAD SCALE .............. 1:0062500
QUAD NO OR NAME ......... WELLTON, ARIZ.
LATITUDE ................. 32-35- N
LONGITUDE ............... 114-09- W
TWP ...................... 09S
RANGE ................. 17W, 18S
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. .. PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
- FISSLURE VEINS, PLACER

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
- STRIKE OF OREBODY... W-NW
- DIP OF OREBODY... 60°N

DESCRIPTION OF WORKINGS:

COMMENTS (DESCRIPTION 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

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>15 TONS</td>
<td>1880-1974</td>
<td>1.9%</td>
<td>37 OZ/T AU</td>
<td>72 OZ/T AG</td>
</tr>
<tr>
<td>16</td>
<td>PLACER</td>
<td>AU EST.</td>
<td>0.020</td>
<td>02</td>
<td>1880-1974</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>PLACER</td>
<td>AG EST.</td>
<td>0.008</td>
<td>02</td>
<td>1880-1974</td>
<td></td>
</tr>
</tbody>
</table>

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 20 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
4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. DUR. MINES.
5) ARIZ. DUR. GEOL. & MINERAL TECHNOLOGY FILE DATA.
6) WALLABY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE.
RECORD IDENTIFICATION
RECORD NO............................................ 4030316
RECORD TYPE........................................... XI
COUNTRY/ORGANIZATION: USGS
INFORMATION SOURCE.................................. 1
MAP CODE NO. OF REC............................... 

REPORTER
NAME.................................................. WILT, JAN C.

NAME AND LOCATION
SYNONYM NAME............................. HARCUVAR DIST
MINING DISTRICT/AREA/SUBDIST. ELLSWORTH DISTRICT/WESTERN HARCUVAR & 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 40 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. PROPERTY IS INACTIVE
DEPOSITION OF DEPOSIT

DEPOSIT TYPES:
VEINS, CONTACT METAMORPHIC

FORM/SHAPE OF DEPOSIT: LENSING VEINS

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION 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, 1978, P. 146)

PRODUCTION

SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>14 TONS</td>
<td>1880-1974</td>
<td>2.75% Cu, 0.17 OZ/T Au, 1.05 OZ/T Ag, 0.086% Pb, 0.03% Zn, 0.07% 4 OZ, 8A, Au placer</td>
</tr>
<tr>
<td>16</td>
<td>PLACER AU</td>
<td>0.3 OZ</td>
<td>1880-1974</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, P. 146

PRODUCTION COMMENTS:
TOTAL ESTIMATED & RECORDED PRODUCTION OF MINED BASE & PRECIOUS METALS WOULD BE SOME 18000 TONS OF ORE CONTAINING ABOUT 385 IONS OF COPPER, 2350 OZ OF Au, 14700 OZ Ag, 12 TONS Pb, 4.5 TONS Zn, 10 TONS WO3;
SMALL SHIPMENTS OF BARITE ORE HAVE BEEN MADE; GOLD PLACER OPERATIONS PRODUCED SOME 300 OR MORE OZ Au

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: PALEOZOIC LIMESTONES
HOST ROCK TYPES: SCHIST & GNEISS
AGE OF ASSOC. IGNEOUS ROCKS: LATE CRET
IGNEOUS ROCK TYPES: GRANITE INTRUSION, DIKES OF DIORITE, ANDESITE, & RHYOLITE
PERTINENT MINERALOGY: QUARTZ, CALCITE-SCHCECLITE 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. GEO. SURVEY, BULL. 451, P. 23, 74, 95-104
4) MINES HANDBOOK AND COPPER HANDBOOK, 1918, BY H.H. WEADE
5) KEHRLIG, H., 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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. 4030314
RECORD TYPE .............. 42
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, CARMOTITE, TYUYA4UNITE, 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........ 01S 005
RANGE.... 19N 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 MOCLY

MAIN ORE MINERALS:
GOLD, URRANSPHANE, AUTUNITE

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
AU PLACER, QUARTZ-VEINS, BEDDED U.

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENT (DESCRIPTION OF WORKINGS):

PRODUCTION
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>YEARS</th>
<th>GRADE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15 Placer Au Est</td>
<td>1</td>
<td>OZ</td>
<td>1860-1974</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>16 Placer Ag Est</td>
<td>2</td>
<td>OZ</td>
<td>1860-1974</td>
<td>0.22</td>
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</tr>
<tr>
<td>17 ORE Est</td>
<td>1</td>
<td>TONS</td>
<td>1860-1974</td>
<td>0.22</td>
<td></td>
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</tbody>
</table>

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. MILL 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 COMMERCIALLY.

GEOLOGY AND MINERALOGY
IMPURITAN ORE CONTROL/LOCUS.
GOLD PLACERS IN WASHES & TERTIARY CEMENTED GRAVELS DERIVED FROM GOLD IN QUARTZ VEINS & PIGMINTITE NICKELS IN MEGOZOIC GREEN & SCHIST; BENTONITIC CLAY IN OLD UPPER LAKE BEDS; URANIUM IN VOLCANIC TUFF & LACUSTRINE SEDIMENTS

GENERAL REFERENCES
2) HONEA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
7) REYNER, M.L., AND ASHWILL, W.R., 1955, P.R.R. - A-P 302 (RED KNOB CLAIMS), 1 P.
20) MEIZGER, D.G., 1961, GEODYNAMIC INVESTIGATIONS OF THE LOWER COLORADO RIVER VALLEY: USGS OPEN-FILE REP., 8 P.
22) PETTERSON, DONALD L. (AND OTHERS) 1967, PRINCIPAL FACTS FOR GEODYNAMIC STATIONS IN THE YUMA AREA, ARIZONA, AND BLYTHE, CALIFORNIA: USGS OPEN-FILE REP.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NUMBER 0030311
RECORD TYPE P X2
INFORMATION SOURCE 1, 2
MAP CODE No. OF RECORD

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, TYUYAMUNIT, 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 MO CLY I

MAIN ORE MINERALS:
GOLD, URANSPHANE, AUTUNITE

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
AU PLACER, QUARTZ-VEINS, BEDDED U.

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND

COMMENTS (DESCRIPTION OF WORKINGS):

PRODUCTION
SMALL PRODUCTION

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

<table>
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<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>PLACER AU EST</td>
<td>1</td>
<td>OZ</td>
<td>1860-1974</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>PLACER AG EST</td>
<td>2</td>
<td>OZ</td>
<td>1860-1974</td>
<td></td>
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<tr>
<td>17</td>
<td>ORE EST</td>
<td>1</td>
<td>TONS</td>
<td>1860-1974</td>
<td></td>
</tr>
</tbody>
</table>

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. MINERAL PRODUCTION OF BASE & PRECIOUS METAL ORE WOULD NOT AMOUNT TO MORE THAN ABOUT 100 TONS CONTAINING SOME 20 OZ. OF AU AND A FEW OZ. OF AG & 22 OZ OF CU. NO BENTONITE 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 & PIGMENTATION IN MESOZOIC GNEISS & SCHIST; BENTONITE CLAY IN OLD UPPER LAKE BEDS; URANIUM IN VOLCANIC TUFF & LACUSIRINE SEDIMENTS

GENERAL REFERENCES
2) HONEA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
7) KEYNER, M.L. AND ASHWILL, W.R., 1955, P.P. - 302 (RED KNOB CLAIMS), 1 P.
CR10 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.............. US04059
RECORD TYPE........... KZ
COUNTRY/ORGANIZATION... USGS
INFORMATION SOURCE.... 1
MAP CODE NO. OF REC..

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

NAME AND LOCATION
SYNONYM NAME................ MINE & CLAIMS INCLUDE: SILVER CLIP OR BLAINE MINE, AMELIA OR GALLO CLAIM,
REVELATION CLAIM, HENDEVIL CLAIM, CHLORIDE, MANDARIN, & CASH ENTRY CLAIMS, DIVES OR SAXON MINE, PRINCESS MINE,
HAMBURG CLAIMS, SILVER KING CLAIM, GEKONINO CLAIMS, RED CLOUD MINE, BLACK ROCK MINE, PACIFIC & MANDAN CLAIMS,
SILVER CLANGE 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: 00240000 PICACCO ARIZ - CALIF.

LATITUDE........... 33-05-00N
LONGITUDE........... 114-335-00W

THP........... 035 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 MD V KYN SR FE W CA CO BD CR BE SE SB MN AS RD

MAIN COMMOD...... PB AN AG F BA V
MINOR COMMOD.... AU CU MD V

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA
MINOR ORE MINERALS:
DUMORTIERITE, KYANITE, SCHDELITE, AU, AG LIMONITE, HEMATITE, PYROLOUSITE, CERRUSITE ANGLESITE, SMITHSONITE
CALAMINE, WULFENITE, VANADINITE, YELLOW LEAD OXIDE, C CERARGYRITE. PRIOR TO OXIDATION, PYRITE AND SPHALERITE
WERE DUE TO LOCAL ABUNDANT & SOME HIGHER ONE HAS BEEN PROBABLY PRESENT (WILSON, 1933, P. 55).

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 9
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
FISSURE VEINS
FORM/SHAPE OF DEPOSIT: SPOTTED, IRREG. & LENSING ORE SHOOTS

SIZE/DIRECTIONAL DATA
MAX LENGTH............... 4000 FT
MAX WIDTH............... 30 FT
STRIKE OF OREBODY...... NNW

DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPTION OF WORKINGS):
NUMEROUS SMALL MINES WORKED SPORADICALLY FROM ABOUT 1865, BUT MOSTLY FROM 1879 THROUGH 1880'S (KEITH, 1978)

PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>ORE</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ORE EST</td>
<td>52.343</td>
<td>TONS</td>
<td>1979-1977</td>
<td>2.7% Pb</td>
<td>30.57 OZ/T</td>
<td>AG, 0.018 OZ/T</td>
</tr>
<tr>
<td>16 Pb EST</td>
<td>1,460</td>
<td>TONS</td>
<td>1879-1977</td>
<td>7.7% Pb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Ag EST</td>
<td>1,600</td>
<td>TONS</td>
<td>1879-1977</td>
<td>30.5% OZ/T</td>
<td>AG</td>
<td></td>
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</tbody>
</table>

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 AG & 100 OZ AG. POSSIBLY MINOR TUNGSTEN PRODUCED.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS........ MYS
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-TERIARY 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 TRENDS AFFECT FAULTS & SCHISTS.

SIGNIFICANT ALTERATION:
- PRONOUNCED CHLORITIZATION & CARBONITIZATION; 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


8) HIBLACK, H.P., 1881, VANADINITE IN ARIZONA: AMER. JOUR. SCI., 22, 3RD SERIES: 235.


11) FLEISCHER, M. (1959) THE GEOCHEMISTRY OF RHENIUM, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MOLYBDENITE.


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) SILLMAN, B. (1881), MINERALOGICAL NOTES. AMER. JOUR. SCI., 22, 3RD SERIES: 198-205.


19) DILLON, J., 1973, PH.D. DISSERTATION, SANTA BARBARA, UNIVERSITY OF CALIFORNIA, SANTA BARBARA. 117 P.

20) DILLON, J., 1976, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERN MOST CALIFORNIA: PH.D. DISSERTATION, UNIV. CALIFORNIA, SANTA BARBARA. 117 P.

21) EBERLY, L.D., AND L.R. STANLEY, 1976, CENOZOIC STRATIGRAPHY AND GEOLOGIC HISTORY OF SOUTHWESTERN ARIZONA:


25) Jennings, C.W., 1967, GEOLOGIC MAP OF CALIFORNIA, SALTON SEA SHEET: CALIF. DIV. MINES & GEOLOGY.


30) Silver District nearby areas


34) Butler, R.S., and Wilson, C.W., 1936, SOME ARIZONA ORE DEPOSITS: ARIZ. BUREAU OF MINES BULLETIN 146, 164 P.


37) King, J.B., 1940, OCCURRENCE OF HULFENITE IN ARIZONA: AMERICAN MINERALOGIST, V. 8, P. 261-262.

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 N3
3658300 76500 11

TWP........ 04S
RANGE..... 1RE
SECTION.. 31 SW
MERIDIAN. GILA & SALT R., AZ BASELINE
ALTITUDE.. 1440 FT

COMMODITY INFORMATION
COMMODITIES PRESENT........... PB MO 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.:
PROPERTY IS INACTIVE
PRESENT/LAST OWNER:
V MD 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:
523E
DIP OF OREBODY:
70NE

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE:
200 FT
LENGTH OF WORKINGS:
500 FT

COMMENTS (DESCRIPT. OF WORKINGS):
RELATIVELY SHALLOW SHAFTS WITH MINOR LEVEL WORKINGS. (KEITH, 1978); FOUR SHAFTS ABOUT 200 FEET DEEP; PUZZLER CLAIM ON 55 FT LEVEL IS OVER 100 FT OF DRIFT IN VEIN; ON 113 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, COMM, CONC., OVRFR.):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS.</th>
<th>UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE</td>
<td>240</td>
<td>TONS</td>
<td>1900*5-1952</td>
<td>49% Pb, 18 D2/T Ag, Au, Cu</td>
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<tr>
<td>36</td>
<td>LEAD ORE</td>
<td>125</td>
<td>TONS</td>
<td>1918-1930</td>
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</tr>
</tbody>
</table>

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 1900S THROUGH ABOUT 1952, PRODUCING SOME 240 TONS OF ORE AVERAGING ABOUT 49% Pb, 18 Oz/A, 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 DICHES & A FEW SMALL IRREGULAR MASSES OF QUARTZ PORPHYRY
PERTINENT MINERALOGY-------- GANGUE OF CRYSTALLINE FLUORITE & BROWN TO BLACK CALCITE

IMPORTANT ORECONTROL/LOCUS. IN LENSING FAULT ZONES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
BRECCiated WALL ROCK; FAULT ZONE STRIKES S23 E, DIPS 70 NE, G 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 & SPOITY MASSES OF COARSELY CRYSTALLINE GALENA; COATED WITH ANGLESITE, CERUSSITE, & LEAD OXIDES, VANADINITE & WULFENITE IN VUGS

GENERAL REFERENCES
1) KEITH, STANTON B., 1977, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA; STATE OF ARIZONA, BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, P. 117.
3) WILSON, E.J., 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.
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: 1:0024000
QUAD NO OR NAME: MOHAWK SW, ARIZ
LATITUDE: 32°30'28"N
LONGITUDE: 113°59'41"W
TWP: 11S
RANGE: 17W
SECTION: 2NW
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..... 52°E
DIP OF OREBODY........ 90°

DESCRIPTION OF WORKINGS
DEPTH OF WORKINGS BELOW SURFACE. 700 FT
LENGTH OF WORKINGS............ 2000 FT

COMMENTS (DESCRIPTION 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.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>EST</td>
<td>145</td>
<td>TONS</td>
<td></td>
<td>2% CU</td>
<td>0.3 OZ/T AU, 1.4 OZ/T AG</td>
</tr>
</tbody>
</table>

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............ MESA
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 MESOPHIC GRANITE

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
WALL ROCKS SILICIFIED & SERICITIZED

GENERAL REFERENCES
1) WALLABY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE.
4) NEARBY AREAS & REGIONAL GEOLOGY: BRYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEOLOGICAL SURVEY WATER SUPPLY
WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.................. M030342
RECORD TYPE................. XII
COUNTRY/ORGANIZATION........ USGS
INFORMATION SOURCE........... I
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
I: 0024000 PICACHO, ARIZ.-CALIF.

LATITUDE 33-05-28N
LONGITUDE 114-35-37W

THP....... 045
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 CARRONITE & PH CARBONITE OXIDE & SULFATE GALENA

MINOR ORE MINERALS:
LIMONITE PYRUSITIF, 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. %
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 (DESCRIPTION OF WORKINGS):
ONE OF THE EARLIEST DISCOVERIES & PATENTED IN 1850. SHAFT, ADIT AND PIT OPERATIONS (KEITH, 1978)

PRODUCTION
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMM. OF COMMOD., CONC., DREDGE, ETC.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>TONS</th>
<th>1941</th>
<th>5.3% Pb, 1.7 oz/t Ag, Cu, Au</th>
</tr>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
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, WULFENITE; 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 & HORNFELS, INTRUDED & METAMORPHOSED BY GRANODIORITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT

SIGNIFICANT ALTERATION:
SCHIST SHOWS PRONOUNCED SILICIFICATION, CHLORITIZATION, & CARBONATIZATION FOR SOME 50 FT FROM VEIN

COMMENTS (GEOLOGY AND MINERALOGY):
YELLOW WULFENITE REPORTED FROM THE THIRD LEVEL BY PETE, DOWNS OF NEW JERSEY ZINC

GENERAL REFERENCES
4) HAMILTON, P., 1994, 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.
BUCKEYE VEIN GROUP
CASTLE DOME, NEW CHANCE NO. 1, LADY EDITH & YUMA - NEW CHANCE NO. 4, AND BIG DOME-DUSTY NO. 4; FORMERLY PARTLY COVERED BY HOPKINS, NORMA, CALEDONIA, WILLIAM PENN, & MILLER; OWNERS MILLER & NAGLE, MILLER & HOPKINS, CASTLE DOME MG & SMLG CO., GONDOLO & 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 MTNS, AZ
LATITUDE 33-02-30N
LONGITUDE 114-10-30W
UTM NORTHING 3659250.
UTM EASTING 763850.
UTM ZONE NO +11
TWP........ 04S
RANGE.... 19W
SECTION.. 25 SC, 36 NC-SC
MERIDIAN. GILA & SALT R.
ALTITUDE.. 1340 FT

COMMODITY INFORMATION
COMMODITIES PRESENT PH AG F BA V MO ZN AU CU AS SE RE SB
MAIN COMMnds PB AG F BA
MINOR COMMOD... V MO ZN AU CU AS SB
MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, FLUORITE

MINOR ORE MINERALS:
WULFFNITF, 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 (DESIGN. OF WORKINGS):
EXTENSIVE STOPING OF ORE SHOOTS FROM 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 & FLUORSPAR. IN 1930, THE MINES IN 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 STORES 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 STORES CONNECTING THE NORTHERNMOST THREE ABOVE THE 200 FOOT LEVEL. ADDITIONAL CLAIM NAMES INCLUDE THE HOPKINS, NORMA, YUMA, RAILROAD, POCOHONTAS, CALEDONIA, WILLIAM PENN, AND MILLEK.

PRODUCTION
SMALL PRODUCTION

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

ITEM    ACC AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
1  ORF ACC .850 TONS 1871
SOURCE OF INFORMATION (PRODUCTION)... KEITH, 1970, 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 VARICOCOLORED FLUORITE, CALCITE, BARITE, & MINOR QUARTZ

IMPORTANT ORE CONTROL/LOCUS... VEINS BEST DEVELOPED NEAR OR ON CONTACT OF TWO TYPES OF DIKES; IRREGULAR & DISCONTINUOUS ORESHOOTS, POSSIBLY RELATED TO CROSS FRACURES

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
DISCONTINUOUS ORESHOOTS POSSIBLY RELATED TO CROSS FRACURES

SIGNIFICANT ALTERATION:
VEIN WALL ROCKS SHOW PRONOUNCED ALTERATION TO QUARTZ, CALCITE, & SERICITE; SMALL PYRITE METACRYSIS, MORE OR LESS ALTERED TO LIMONITE ARE PRESENT. THE SHALE SHOWS SOME CHLORITIZATION.

GENERAL REFERENCES
4) BLAKE, W.P., 1890, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
7) ARIZONA BUREAU OF GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
RECORD IDENTIFICATION
RECORD NO. 1030319
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 FLORENTINE TEMPLE, BUCKEYE VEIN GROUP, SENORA GROUP, LITTLE DOME, HULL OR RIALTO GROUP, CLEVELAND-CHICAGO GROUP, & LA COLORADO OR LINCOLN GROUP. MAJOR OWNERS OR OPERATORS INCLUDED POLHAMUS & CO., MILLER & NAGEL, MILLER & HOPKINS, CASTLE DOME MG. & SMig. CO., GONDOLDO & SANGNINETTI, DELUCE, MODESTI, CASTLE DOME MG. & MLSG. CO., VANWAGNER, DOME EXPLORATION CO., REORGANIZED UNITED MINES CO., HACK, 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 33-02-28N
LONGITUDE 114-10-30W

UTM NORTHING 369250
EASTING 761350
ZONE NO +11

WKT 04 06 055
RANGE 19N 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 NO ZN AU CU AS SE RE SB
MAIN COMMODITY: Pb, Ag, F, Ba
MINOR COMMODITY: V, Mo, Zn, Au, Cu

MAIN ORE MINERALS: ARGENTIFEROUS GALENA

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES: FISSURE VEIN
FORM/SHAPE OF DEPOSIT: LENSING VEINS; SHEETLIKE MASSS & IRREGULAR VEIN-LIKE BUNCHES

SIZE/DIRECTIONAL DATA
DEPTH TO BOTTOM: 200-350 FT

DESCRIPTION OF WORKINGS
SURFACE AND UNDERGROUND


PRODUCTION
SMALL PRODUCTION

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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE, REMARKS</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>106</td>
<td>TONS</td>
<td>1863-1974</td>
<td>10% Pb, 5 oz/t Ag, Au, Cu, Zn</td>
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<tr>
<td>16</td>
<td>F EST</td>
<td>3.3</td>
<td>TONS</td>
<td>1863-1974</td>
<td></td>
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</table>


PRODUCTION COMMENTS: TOTAL ESTIMATED & RECORDED PRODUCTION OF BASE & PRECIOUS METALS FROM PRIMARY MINING & REWORKING OF DUMPS & OLD STOE 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 SLATFS METAMORPHOSED TO MICA SCHISTS

AGE OF ASSOC. IGNEOUS ROCKS: PROBABLE LARAMIDE
IGNEOUS ROCK TYPES: DIORITE PORPHYRY; QUARZ PORPHYRY DIKES
PERTINENT MINERALOGY........ BANDED WITH VARICOLOURED CRISTALLINE FLUORITE, BARITE, CALCITE, OCCASIONAL GYPSUM & QUARTZ VEINS

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 DYES & MASSES OF PROBABLE LARAMIDE AGE, VEINS & MINERALIZATION DEVELOPED BEST WHERE CLOSELY ASSOCIATED WITH DIORITE PORPHYRY DYES

LOCAL GEOLOGY

SIGNIFICANT ALTERATION:
WALL ROCKS HAVE BEEN ALTERED TO QUARTZ & SERICITE WITH SOME CHLORITIZATION & WEAK PYRITIZATION OF THE SEDIMENTARY BODIES.

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
2) NELSON, E.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTH-YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, 296 P., P.
3) WILSON, E.D., 1951B, ARIZONA ZINC AND LEAD DEPOSITS--CASTLE DOME DISTRICT (YUMA COUNTY) ARIZ. BUR. MINES BULL. 159, P. 98-115, P.
5) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SHLETING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUFTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
6) BLAKE, W.P., 1881, VANADINITE IN ARIZONA. AMER. JOUR. SCI., 22, 3RD SERIES: 235.
8) BURCHARD, E.F., 1934, FLUORSPAR DEPOSITS IN WESTERN UNITED STATES, A.I.M.E. TRANS., V. 109, P. 370-373.
15) JANSEN, R.F., 1967, FILE PAGES FOR MINERALOGY OF ARIZONA, UNIV. OF ARIZ. PRESS, TUCSON.
18) ARIZONA BUREAU OF GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
RECORD IDENTIFICATION
RECORD N0.................. 0030320
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

LATITUDE 33-06-30N
LONGITUDE 114-01-30W
THP........ 045
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 IN 40 CU F BA MN AG V

MAIN ORE MINERALS:
BARITE, FLUORITE

MINOR ORE MINERALS:
GALENA, YELLOW LEAD OXIDE, WULFENITE, SMITHSONITE, CERUSITE, 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 (DESCRIPTION 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; LINITE STAINED

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
Extensively faulted & fractured; major faults strike NNEW, with minor faults in other directions. The principal jointing in the granite strikes 570W & dips steeply southeast.

GENERAL REFERENCES
2) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030333
RECORD TYPE. I
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., KGW MG. CO., CHILDRESS & WRIGHT
MINING DISTRICT/AREA/SUBDIST. CASTLE DOME
COUNTRY CODE. US
STATE CODE. 04
COUNTY. YUMA

QUAD SCALE. CASTLE DOME Mtns., ARIZ
QUAD NO OR NAME. 1: 0062500
LATITUDE. 33-02-45N
LONGITUDE. 114-04-50W
UTM NORTHING. 3659750.
UTM EASTING. 769800.
UTM ZONE NO. 11
THP. 045
RANGE. 19
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, LE, AB

MAIN COMMOD. PB, AG, F, BA

MAIN ORE MINERALS:
ARGENTIFFERUS GALENA

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 4
PROPERTY IS INACTIVE
PRESENT/LAST OWNER........ V MD 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...... 530E
DIP OF OREBODY......... 80SW

DESCRIPTION OF WORKINGS
UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 170 FT

COMMENTS(DESCRIP. OF WORKINGS):

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

<table>
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<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>2 TONS 20% PB, 5 OZ AG/T</td>
<td>ZN, CU, AU</td>
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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 FARHER SOUTHEAST, IT CUTS ON LIES NEAR A DIKE OF DIORITE PORPHYRY.
LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FISSURE THAT DIPS ABOUT NO SW

COMMENTS (GEOLOGY AND MINERALOGY):
MOST OF OUTCROP CONCEALED BY GRAVEL; BARITE LATER THAN FLUORITE

GENERAL REFERENCES
4) ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .............. 4030329
RECORD TYPE ............. C1
COUNTRY/ORGANIZATION . USGS
INFORMATION SOURCE .... I
MAP CODE NO. OF REC ..

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

NAME AND LOCATION
DEPOSIT NAME .............. COLORADO GROUP OR LINCOLN MINE GROUP
SYNONYM NAME ............. MODFISTI, 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 MNHS, ARIZ
LATITUDE LONITUDE
33-00-15N 114-10-07W
UTM NORTHING UTM EASTING UTM ZONE NO
3655200 764560 +19
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 RA V MO ZN AU CU AS SE BE SB
MAIN COMMOD .... PB AG F RA
MINOR COMMOD .... V MO ZN AU CU AS SE BE SB
MAIN ORE MINERAL51
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 (DESCRIPTION OF WORKINGS):
STOPPING OPERATIONS FROM SHAFTS IN LATE 1800'S INTO EARLY 1900'S AND FILL & DUMPS REROVED 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, COMM., CONC., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORF</td>
<td>EST</td>
<td>1.4 TON 18005-19505</td>
<td>43% Pb, 38 OZ. AG/T, F</td>
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</table>

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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- 0030317
RECORD TYPE---------- A1
COUNTRY/ORGANIZATION-- USGS
INFORMATION SOURCE-- I
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, HASEDOL, 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 MO FE

MAIN COMMOD.----- AU CU AG PB
MINOR COMMOD.----- MO FE

MAIN DRE MINERALS:
GOLD, OXIDIZED COPPER
MINOR ORE MINERALS:
LEAD-MOLYBDENUM (WULFENITE) LIMONITE, CHRYSOCOLLA, MALACHITE, CUPRITE, CHALCOCITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. ▲
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, COMM., CONC., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>9779</td>
<td>1900-1950</td>
<td>0.3 OZ/T Au; 2% Cu; 5 OZ/T Ag.</td>
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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
4) GENERAL AREA:
BRIGGS, P.C., 1969, GROUND-WATER CONDITIONS IN THE RANEGAS PLAIN, YUMA COUNTY, ARIZONA: ARIZ. STATE LAND DEPT. WATER RES. REP. 41, 28 P.
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.
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) REHRIG, W.A., AND REYNOLDS, S.J., 1979, GEOLOGIC AND GROCHRONOLOGIC RECONNAISSANCE OF A NORTHWEST-TRENDING ZONE OF METAMORPHIC COMPLEXES IN SOUTHERN ARIZONA, IN PRESS. GEOL. SOC. AMERICA MEMOR. METAMORPHIC CORE COMPLEX VOLUME.
15) 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.
16) TOVITTE, W.L.: 1968 CUNNINGHAM PASS DISTRICT, ARIZONA; MINING SCIENCE PRESS, V. 117, P. 19-20.w
17) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
18) DAMON, P.E., AND OTHERS, 1970, ATOMIC ENERGY COMMISSION GRANT REPORT.
19) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA
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: 0062900 CASTLE DOME MHS, ARIZ.

LATITUDE LONITUDE
33-02-25N 114-10-25W

UTM NORTHING UTM EASTING UTM ZONE NO
3659150 764000 +11

TNP....... 04S
RANGE..... 19W
SECTION... 36 NC
MERIDIAN. GILA & SALT R.

ALTITUDE... 1330 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 5, 30 W FROM CASTLE DOME PEAK

COMMODITY INFORMATION

COMMODITIES PRESENT.......... PB AG ZN NO V F BA BE AU CU AS SE SB

MAIN COMMOD........ PB AG F RA
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 & SHNOTS

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

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE: 225 FT

DESCRIPTION OF WORKINGS:
- IRREGULAR, PARTIALLY FILLED STOPES MINED FROM NUMEROUS OLD SHAATS. 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 SHAATS, 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., OVERRUD.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>1</td>
<td>ORE ACC</td>
<td>4 TONS</td>
<td>1871</td>
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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).
**AGE OF HOST ROCKS**
- **MESOZOIC**

**HOST ROCK TYPES**
- Dense gray slate in footwall

**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 ferromagnesian 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**
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030304
RECORD TYPE. AXI
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. 1: 24000
QUAD NO OR NAME. PICACHO, ARIZ \ CALIF.
LATITUDE. 33-70-00N
LONGITUDE. 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, NO, V, WM, AG, FE, F

MAIN ORE MINERALS:
ARGENTIKMOUS 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......... 65°NE

DESCRIPTION OF WORKINGS

UNDERGROUND
DEPTH OF WORKINGS BELOW SURFACE. 100 FT

COMMENTS (DESCRIPTION OF WORKINGS):
SHAFT & TUNNEL OPERATIONS; TWO VEINS, 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 TRENDS, 35° E DIPPERING 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............... RHODITE TUFFS & ANDESITE FLOWS
IGNEOUS ROCK TYPES............. FAULTED AGAINST GRANO-DIORITE

PERTINENT MINERALOGY........ GANDE IS VEN OXIDES, MANGANIFEROUS CALCITE, QUARTZ, & FLUORITE

IMPORTANT ORE CONTROL/LOCUS... IN IRREGULAR BUNCHES OR IS VUGS IN IRREGULAR LENSING VEINS ALONG FAULTS CUTTING TERTIARY-CRETACEOUS RHODITE TUFFS & ANDESITE FLOWS. NORTHERN PART OF DEPOSIT IS IN FAULT CONTACT WITH GRANO-DIORITE.

GENERAL REFERENCES

4) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
5) ATOMIC ENERGY COMMISSION MICROFILM.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030327
RECORD TYPE. 11
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 1
MAP CODE NO. OF REC. 41.

RECORD NO P 4030327
RECORD TYPE P 111
COUNTRY/ORGANIZATION PUSGS
INFORMATION SOURCE PI
MAP CODE NO. OF REC P 41.

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, S ABE
NO. 101 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. 9

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

LATITUDE. 33-02-55N
LONGITUDE. 114-10-13W

UTM NORTHING. 3660075.
UTM EASTING. 764275.
UTM ZONE NO. 11

TWP. 04S
RANGE. 19W
SECTION. 25 SF 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. Ag F Ba V Mo Zn Au Cu As Se Be Sb

MINOR COMMOD. V Mo Zn Au Cu As Se Be Sb

MAIN URN MINERALS. ARGENTIFEROUS GALENA, PARTLY OXIDIZED
MINOR ORE MINERALS:
OXIDIZED CU & ZN MINERALS

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.  
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 (DESCRIPTION OF WORKINGS):
PROSPECTED & MINED SPORADICALLY FROM LATE 1800'S BY MEANS OF SHALLOW SHAFTS, PI'S, & CUTS (KEITH, 1978 P. 119)

PRODUCTION
SMALL PRODUCTION

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

<table>
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<tr>
<th>ITEM</th>
<th>ACC. AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15</td>
<td>ORE EST</td>
<td>20 TONS</td>
<td>1940-1950</td>
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SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, P. 119

PRODUCTION COMMENTS: SOME 20,000 TONS OF CRYSTAL 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
3) ARIZONA BUR. MINES FILE DATA.
NAME AND LOCATION

DEPOSIT NAME............... HAMBURG CLAIM
SYNONYM NAME............... OWNERS - BLAKE IN 1860-1881; NORTON, CRAWFORD & LAMMIE, NEAL MG. CO.

MINING DISTRICT/AREA/SUBDIST. SILVER DIST/TRIGO M15
COUNTRY CODE............... US
STATE CODE............... 04
COUNTY...................... YUHA

QUAD SCALE QUAD NO OR NAME
1: 00240000 PICACHO, ARIZ.-CALIF.

LATITUDE LONGITUDE
33-06-30N 114-34-20W

THP........ 04S
RANGE.... 73E
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 NO V BA ZN F SR FE

MAIN ORE MINERALS:
ARGENTIFEROUS LEAD CARDA, SULFATE & OXIDE

MINOR ORE MINERALS:
WOLFEITE, GALENA, ARGENTITE & CENARGYRITE, 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 (DESCRIPTION OF WORKINGS):
SHAFT OPERATIONS WORKED DURING 1880'S (KEITH, 1978)


PRODUCTION COMMENTS: PRINCESS PRODUCED SUBSTANTIAL BUT UNRECORDED AMOUNT OF SILVER ORE. NO RECORD OF PRODUCTION FROM HAMBURG.

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............. MESOZOIC
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 GANDE 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 D ACITE FLOWS & PYROCLASTICS; ON THE HAMBURG 42 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 & WOLFENITE.

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:
FAULT ZONE, CURVING FAULT TRACEABLE FOR A MILE SOUTHWARD

GENERAL REFERENCES
2) WILSON, F.O., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 63-64.

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.
CRIR MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO: 4030325
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, & POCAHINTAS; 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: CASTLE DOME MTNS., ARIZ
LATITUDE: 33-03-37N
LONGITUDE: 114-10-40W
UTM NORTHING: 3661350.
UTM EASTING: 763550.
UTM ZONE NO: 11

TWP: 04S
RANGE: 19W
SECTION: 24 SW 25 NC
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 COMMODITY: PB AG F BA
MINOR COMMODITY: V MB ZN AU CU AS SE BE SB

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA PARTLY OXIDIZED

MINOR ORE MINERALS:
WULFENITE & VANADIITE & VANADIFEROUS MIMETITE

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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: 70°

COMMENTS (DESCRIPTION OF DEPOSIT):
PRINCIPAL VEIN, N30W, DIPS 55-75°

DESCRIPTION OF WORKINGS

DEPTH OF WORKINGS BELOW SURFACE: 300 FT
LENGTH OF WORKINGS: 1700 FT

COMMENTS (DESCRIPTION OF WORKINGS):
STOPED & FILLED FROM SERIES OF SHAFTS DOWN TO ABOUT 200 FT. (KEITH, 1978, P. 120) DIANA CLAIM PATENTED IN 1899 IS THE LOLA FOR WILLIAM DE LUCA UNDERGROUND WORKINGS HAVE EXPLORED VEIN FOR MORE THAN 2000 FEET LENGTH. FROM NORTHWEST TO SOUTHWEST IN 1933 THE PRINCIPAL SHAFTS WERE: 3D MILL SHAFT, 350 FT DEEP; 1933 SHAFT, 300 FEET DEEP; DIANA CLAIM - S 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.)

<table>
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<th>ITEM</th>
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</table>

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, P. 120

PRODUCTION COMMENTS:

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 GANGUE & 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.
4) BLAKE, W.P., 1880, 1881A, CASTLE DOME MINING AND SMELTING COMPANY: PRIVATE REPORT TO STOCKHOLDERS, TUTTLE, MOREHOUSE, AND TAYLOR, NEW HAVEN.
7) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
8) AFIGIC ENERGY COMMISSION MICROFILM DATA.
CRII MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ............... M030341
RECORD TYPE ............... XI
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 BY LUCE, HAAS, WALL
MINING DISTRICT/AREA/SUBDIST. ASTLE DOME
COUNTRY CODE ............. US
STATE CODE ................. 04
COUNTY ..................... YUMA
LAND CLASSIFICATION ...... 4

QUAD SCALE QUAD NO OR NAME 1: 0062500 CASTLE DOME MNS, AZ
LATITUDE LONGITUDE 33-02-00N 114-10-20W
UTM NORIHING UTM EASTING UTM ZONE NO
3658370. 760150. 11
THP ...... 04S
RANGE ....... 19N
SECTION .... 36 SC 36 SE NW
MERIDIAN ...... GILA & SALT R., ARI. 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 V Mo Zn Au Cu As Se Be Sb
MINOR COMMOD. ... V Mo Zn Au Cu As Se Be Sb

MAIN ORE MINERALS
ARGENTIFEROUS GALENA

MINOR ORE MINERALS:
ANGLESITE, CERUSSITE, YELLOW LEAD OXIDES

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
GALENA AVERAGED 28 02 AG/T; CARBONATES AVERAGED 4 OZ AG/T

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.:
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..... 550E
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 (DESCRIPTION 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, COMM, CONC., OVERBUR.)

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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: GANGLUE 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 FRACUTURES.

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.
4) ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY FILE DATA.
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:........... MCMAHAN 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 SC
MERIDIAN: GILA C 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 AO
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 (DESCRIPTION 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

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... M030340
RECORD TYPE ........... XI
COUNTRY/ORGANIZATION .. USGS
INFORMATION SOURCE ... 1
MAP CODE N3. 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 NORTING UTM EASTING UTM ZONE NO
3625305* 745160* +11
TWP........ OBS
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. ?
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 (DESCRIPTION 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.

GEOLGY 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 WULFFNITE OCCUR ASSOCIATED WITH THE COPPER MINERALS OR GROUPED WITHIN SMALL CAVITIES AND FISSURES.

GENERAL REFERENCES
4) NEARBY AREAS:
8) BICKOWE, 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. 196-216.


10) DILLON, J., 1979, GEOLOGY OF THE CHOCOLATE AND CARGO MUCHACHO MOUNTAINS, SOUTHEASTERN CALIFORNIA: PH.D. DISSERT., UNIV. CALIFORNIA, SANTA BARBARA, 397 P.


19) MORTON, P.K., 1962, RECONNAISSANCE GEOLOGIC MAP OF PARTS OF THE PICACHO PEAK, LAGUNA, OILBRY, GRAYS WELL NE, AND YUMA QUADRANGLES, CALIFORNIA: CALIF. DIV. MINES AND GEOLOGY RECONNA. MAPPING FOR STATE GEOLOGIC MAP (EL CENTRO SHEET).


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.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. .......... 0030343
RECORD TYPE .......... 41
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 ................. 1
QUAD NO OR NAME ............ MOHAWK MTS SE, ARIZ
LATITUDE ................... 32-34-140N
LONGITUDE .................. 113-37-35W
UTM NORTHING ............. 3607290
UTM EASTING .............. 253440
UTM ZONE NO ............... 12
UTM ZONE NO ............... 12
TWP ........... 10S
RANGE ...... 13W
SECTION .. 08 NE
MERIDIAN . GILA & SALT R
ALTITUDE .. 1400 FT

COMMODITY INFORMATION
COMMODITIES PRESENT ........ AG PB BA AU CU MD F

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

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES:
QUARTZ VEINS

DESCRIPTION OF WORKINGS

COMMENIS (DESCHRI. 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 PROPHPHY DIKES

GENERAL REFERENCES
11 ARIZ. BUR. GEOLOGY & MIN. TECH. FILE DATA
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030302
RECORD TYPE 11
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 2
MAP CODE 30302

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 1: 0062500
QUAD NO OR NAME GRANITE MOUNTAINS, ARIZ

LATITUDE 32-27-23N
LONGITUDE 114-26-01W

UTM NORTHING 3593500
UTM EASTING 268120
UTM ZONE ND 12

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 MD AG

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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
3) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
CRI0 MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ................. M030312
RECORD TYPE ............... 01
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

THP .................. 045
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, PYROUSITE

MINOR ORE MINERALS:
ANGLESITE WULFENITE, VANADINITE, VERY MINOR MALACHITE, ARGENTIEFERUS GALENA

MINERAL ECONOMICS FACTORS

ECONOMIC COMMENTS:
ASSAYED UP TO 8% Pb & 18112 Ag/T

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 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 STOPES OF CONSIDERABLE EXTENT. (WILSON, 1933, P. 70)

PRODUCTION
SMALL PRODUCTION

SOURCE OF INFORMATION (PRODUCTION): KEITH, 1979, 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, 1979). 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


2) NILSON, E.D., 1938, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINE BULL. 104, P. 70.

3) PARKER, F.2., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT, IRIGO 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. 150, P. 96.

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

6) ATOMIC ENERGY COMMISSION MICROFILM.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 00461
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, HINDMANN
MINING DISTRICT/AREA/SUBDIST. WILLTON (LA POSA) DIST/WILLTON HILLS
COUNTRY CODE US
STATE CODE 04
COUNTY YUMA

LATITUDE 33-35-27N
LONGITUDE 114-05-45W

PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT
DEPOSIT TYPES FISSURE VEIN
FORM/SHAPE OF DEPOSIT SPOTTY POCKETS

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV.

COMMODITY INFORMATION
COMMODITIES PRESENT
AU AG MO

MAIN ORE MINERALS:
GOLD

MINOR ORE MINERALS:
MO ANOMALY

PROPERTY IS INACTIVE
SIZE/DIRECTIONAL DATA
MAX WIDTH: 1.5 FT
STRIKE OF OREBODY: N56W
DIP OF OREBODY: 90

DESCRIPTION OF WORKINGS
UNDERGROUND

COMMENTS (DESCRIP. OF WORKINGS):

PRODUCTION
SMALL PRODUCTION

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

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<td>OZ/T</td>
<td>AU 0.1 OZ/T AG</td>
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SOURCE OF INFORMATION (PRODUCTION): KEITH, 1978, 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 W 56 W WITH VERTICAL DIP

GENERAL REFERENCES
1) WALLABY ENTERPRISES, TUCSON, ARIZ.; MINING DISTRICT DATA BASE FILE
5) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
6) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............. MD03030B
RECORD TYPE............ XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE... 
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

ALTITUDE.. 840 FT

POSITION FROM NEAREST PROMINENT LOCALITY: 1 MILE NE OF RED CLOUD MINE

COMMODITY INFORMATION
COMMODITIES PRESENT......... Pb Ag Mo V Na 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. •
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 (DESCRIPTION OF WORKINGS):
INCLINED SHAFT, ABOUT 100 FEET DEEP ON THE DIP OF THE VEIN, & OPEN STOPE 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 ASSOCIATED IGNEOUS ROCKS: TENT.
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 & VOLCANICS FROM SCHIST

GENERAL REFERENCES
ARIZONA: SAN DIEGO STATE COLLEGE, M.S. THESIS.
5) ARIZONA BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
6) ATOMIC ENERGY COMM. MICROFILM.
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

LATITUDE: 33-06-02N 114-35-57W
ALTITUDE: 1070 FT

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 URF 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.:
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: 50°E

COMMENTS (DESCRIPTION OF DEPOSIT):
The vein contained 2 major ore 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 (DESCRIPTION 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 Rfo Cloud Consolidated Mines Co. installed a small dry-concentrator which burned down after only a few test runs. Later E.R. Boericke & 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., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC. AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ORE EST</td>
<td>21</td>
<td>TONS</td>
<td>1880-1974</td>
<td>18 oz/t Ag, 5.5% Pb, Au, Zn.</td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION (PRODUCTION): Keith, 1978, p. 177
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.

**AGE OF HOST ROCKS**

- TERTIARY
- ANDESITE BRECCIA, DACITE PORPHYRY, RHYOLITIC TO DACITIC TUFFS, & LAPILLI TUFFS
- IGNEOUS ROCK TYPES
- FAULTED AGAINST GRANODIORITE TO QUARTZ DIORITE

**IGNEOUS ROCK TYPES**

- FAULTED AGAINST GRANODIORITE TO QUARTZ DIORITE

**GEOLgY AND MINERALOGY**

**PERTINENT MINERALOGY**

- GANGET OF IRON OXIDES, QUARTZ, FLUORITE, CALCITE, GAITE & BRECCIATED WALL ROCK

**GEOLOGY AND MINERALOGY**

**IMPORTANT ORE CONTROL/LOCUS**

- VEIN OCCURS IN AN IRREGULAR FAULT ZONE BETWEEN TERTIARY ANDESITE BRECCIA, DACITE PORPHYRY, RHYOLITIC 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

**GEOLOGICAL PROCESSES OF CONCENTRATION OR ENRICHMENT**

- Best Ore at intersections of fault & cross fractures

**EXPLANATION**

- 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**

13) Sillman, B., 1881, MINERALOGICAL NOTIFS: AMER. JOUR. SCI., V. 22, 3RD SER., P. 198-205.
RECORD IDENTIFICATION
RECORD NO................. M030319
RECORD TYPE.............. XI
COUNTRY/ORGANIZATION....... USGS
INFORMATION SOURCE........ I.Z
MAP CODE NO. OF RECORD...

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

NAME AND LOCATION
DEPOSIT NAME............... RED KNOB MINE
MINING DISTRICT/AREA/SUBDIST. MUGGINS DIST/MUGGINS MTS
COUNTRY CODE............... US
STATE CODE............... 04
COUNTY............... YUMA
LAND CLASSIFICATION..... 50
QUAD SCALE........ QUICK NO OR NAME
1: 0024000 WELLTON, ARIZ.
LATITUDE............ 32-44-30N
LONGITUDE............ 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-WEEKSITE V VANADINITE, CU CUPRITE

MINOR ORE MINERALS:
WULFENITE, CARNOTITE OR TYNYAMUNITE, URANOPHANF (?)

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:
DENUMED
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 (DESCRIPT. OF WORKINGS):
PROSPECTED & SOME URANIUM MINERALIZATION STOCKPILED (KEITH, 1970, P. 257)

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS............ TERT
HOST ROCK TYPES.............. OPALIZED MUDBSTONE, 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
2) HOMA, R.M. (1959) NEW DATA ON GASTUNITE, AN ALKALI URANYL SILICATE. AMER. MIN. 44: 1047-1056.
7) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.

NEARBY AREAS
110) METZGER, D.G., 1961, GEOHYDROLOGIC INVESTIGATIONS OF THE LOWER COLORADO RIVER VALLEY: USGS OPEN-FILE REP., 8 P.
112) PETERSON, DONALD L. (AND OTHERS) 1967, PRINCIPAL FACTS FOR GRAVITY STATIONS IN THE YUMA AREA, ARIZONA, AND BLYTHE, CALIFORNIA: USGS OPEN-FILE REP.
113) ROSS, C.P., 1972, ROUTES TO DESERT WATERING PLACES IN THE LOWER GILA REGION, ARIZONA: USGS WATER-SUPPLY PAPER 498-E, P. 1-6, 271-315, Maps
NAME AND LOCATION

DEPOSIT NAME: Sonora Mine Group
SYNONYM NAME: Linda Group; also erroneously reported as Somora Mine Group; OWNERS: De Luce, Haack, Essential Minerals Ltd., Cadwallar, Wall, Homestake Mfg. Co.

MINING DISTRICT/AREA/SURDIAM: Castle Dome

COUNTRY CODE: US
STATE CODE: 04
COUNTY: Yuma

QUAD SCALE: 0062500
QUAD No. OR NAME: Castle Dome Mtns, Ariz.

LATITUDE: 33°01'50"N
LONGITUDE: 114°10'25"W

UTM NORTHING: 3658150
UTM EASTING: 763950
UTM ZONE NO: 11

TWP: 04S 05S
RANGE: 19W 19W
SECTION: 36 SE 01 NC
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 Fe V Mo Zn Au Cu As Se Be Sb

MAIN COMMODITY: Cu
MINOR COMMODITY: As Se Be Sb

MAIN ORE MINERALS:
ARGENTIFEROUS GALENA, FLUORITE

MINOR ORE MINERALS:
HYDROZINCITE, LEAD AND ZINC CARBONATES, ANGLESITE, RED LEAD OXIDES, CIRUSSITE, 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 (DESCRIPTION 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 REMOVED FOR LEAD & SILVER AND GROUP WAS A MAJOR PRODUCER OF FLUORSPAR (KEITH, 1978, P. 121). WORKINGS IN 1933 ON THE SENORA 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 FOR 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, COMM., CONC., OVERBUR.)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACC</th>
<th>AMOUNT</th>
<th>THOUS. UNITS</th>
<th>YEAR</th>
<th>GRADE</th>
<th>REMARKS</th>
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<tr>
<td>15</td>
<td>ORE</td>
<td>UNKNOWN</td>
<td>29 OZ/T</td>
<td>AG</td>
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</table>

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

PAGE 1412
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 DIKES. 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 3F SURFACE GRAVELS OVER THE VEINS JUST ABOVE THE ROCK PEDIMENT SHOWING HIGH SILVER VALUES.

GENERAL REFERENCES
4) BUNCHARD, 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.
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
I: 0024000 PICACHO, ARIZ. - CALIF.
LATITUDE L LATITUDE
33-05-45N 114-35-40W

PROPERTY FROM NEAREST PROMINENT LOCALITY: NORTH OF BLACK ROCK, EAST OF PACIFIC CLAIMS

COMMODITY INFORMATION

COMMODITIES PRESENT............. Pb Mo Ag Mn Fe

MAIN ORE MINERALS:
PARTLY OXIDIZED GALENA, ANGLESITE, CERUSSITE

MINOR ORE MINERALS:
LIMONITE, WOLFFENITE, YELLOW LEAD OXIDE

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE
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 (DESCRIPTION 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)

GEOLGY AND MINERALOGY

AGE OF HOST ROCKS: Miocene
HOST ROCK TYPES: QUARTZ, SERICITIZED SCHIST

AGE OF ASSOCIATED IGNEOUS ROCKS: LAVAS & TUFFS

PERTINENT MINERALOGY: QUARTZ, IRON OXIDE, MANGANIFEROUS CALCITE

IMPORTANT OR 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 GEOLGY

SIGNIFICANT LOCAL STRUCTURES: BROAD, BRECCIATED FAULT ZONE SLIGHTLY OFFSET BY SEVERAL TRANSVERSE FAULTS, STRIKES 515 W & DIPS 45 SE, BUT SLOPE SOMEWHAT IN DEPTH

GENERAL REFERENCES
2) WILSON, F.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, P. 68-70.
4) ARIZ. BUR. GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
RECORD IDENTIFICATION
RECORD NO. .................. 0030310
RECORD TYPE ................. XI
COUNTRY/ORGANIZATION ....... USGS
INFORMATION SOURCE ......... I
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 I: 0024000 PICACHO, ARIZ. - CALIF.
TWP........ 04S
RANGE.... 23W
SECTION ... 01 NC
MERIDIAN  GILA & SALT R., ARIZ BASELINE

POSITION FROM NEAREST PROMINENT LOCALITY: JOINS PRINCESS & HAMBURG CLAIMS ON EAST

COMMODITY INFORMATION
COMMODITIES PRESENT .......... PR AG F N0 MN CU Fe V Ba Sr Cu

MAIN COMMODITY ............ CU
MINOR COMMODITY ............

MAIN ORE MINERALS:
GALLENA, 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 (DESCRIPTION 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, COMM., CONC., OVERBUR.)
ITEM ACC. AMOUNT THOUS. UNITS YEAR GRADE, REMARKS
15 ORE EST 0.05 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 & 1949 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 & URE

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
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. ..............  M030321
RECORD TYPE ............. II
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 PEDSTEL & EVERMARDY, 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 MD AU

MAIN ORE MINERALS:
CHRYSOCCOLA, COPPER PITCH, HEMATITE

MINOR ORE MINERALS:
GOLD
EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV.: 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 MINERALOGY

HOST ROCK TYPES: GRANITE

IGNEOUS ROCK TYPES: PIGMATITE DIKES & GRANITE INTERMINGLED WITH COARSE SERICI

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., 1976, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P., P. 160.
4) NEARBY AREAS & REGIONAL GEOLOGY:
   a) RYAN, K., 1925, THE PAPAGO COUNTRY, ARIZONA: U.S. GEO. SURVEY WATER-SUPPLY PAPER 499
   b) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
   c) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
   d) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
   e) WILSON, E.D., 1960, GEOLOGY & MINERAL TECHNOLOGY FILE DATA.
CRI.M MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. 4030331
RECORD TYPE A1
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE I
MAP CODE NO. OF REC.

REPORTEE
NAME WILT, JAN C.
DATE 79 06

NAME AND LOCATION
DEPOSIT NAME SUGARLOAF PEAK AREA
MINING DISTRICT/AREA/SUBDISTRICT MIDDLE CAMP (ORD FINU) DIST./DOME ROCK MTS.
COUNTRY CODE US
STATE CODE 04
COUNTY YUMA

QUAD SCALE 1: 0062500 QUAD NO OR NAME DOME ROCK MTS, ARIZ. - CALIF
LATITUDE 33-39-00N LONGITUDE 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 81 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. PROPERTY IS INACTIVE
DESCRIPTION OF WORKINGS

COMMENTS (DESCRIPT. 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

IMPROTANT 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-muscovite schist present at the top of Sugarloaf Peak.

GENERAL REFERENCES


RELATED AREAS:

21) ROBISON, B.A., 1979, STRATIGRAPHY AND ORIGIN OF SOME MESOZOIC (?) ROCKS IN WESTERN ARIZONA: UNPUB. M.S. THESIS, UNIV. ARIZ.
22) HOENEN, J.R., 1941, ALUNITE RESOURCES OF THE UNITED STATES: U.S. BUR. MINES R.I. 3561, 48 P.
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO............. MD30338
RECORD TYPE............ XI
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.......... LOFTGRENN, I.E. FILLING
MINING DISTRICT/AREA/SUBDIST. DOME FIND, 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
I: 0062500 DOME ROCK MINS, ARIZ-CALIF.

LATITUDE LONGITUDE
33-40-ION 114-18-30W

 alt. 1200 FT

POSITION FROM NEAREST PROMINENT LOCALITY: NEAR MARQUETIA 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 DRE MINERALS:
GOLD IN QUARTZ

ANALYTICAL DATA(GENERAL)
.055 EU308; 2EU308; E308 SELECT SAMPLES
EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 2
PROPERTY IS INACTIVE

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:
VEINS

FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
MAX WIDTH............... 3 FT
STRIKE OF OREBODY.... N25W

DESCRIPTION OF WORKINGS
SURFACE

COMMEN(S.DESCRIPT. OF WORKINGS):
A FEW GOLD PROSPECT PITS IN 1955. MAP SHOWS 3 SHAFTS & PROSPECTS.

GEOLGY 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.......... DIAPHRAGM 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, H.J., 1979, GEOLOGY OF THE CENITAL DOME ROCK MOUNTAINS, YUMA COUNTY, ARIZONA: UNPUB. M.S. THESIS UNIV.
   ARIZ., 76 P.
5) KEITH, STANTON B., 1975, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: ARIZ. BUR. GEOLOGY & MINERAL
   TECHNOLOGY, PULL. 192, 165 P., P. 163-164.
6) BANCROFT, H., 1911, RECONNAISSANCE OF THE ORE DEPOSITS IN NORTHERN YUMA COUNTY, ARIZONA: U.S. GEOLOG. SURVEY
   BULL. 451, 130 P., P. 85-86.
   6706.
9) WILSON, E.D., 1961, GOLD PLACERS AND PLACERING IN ARIZONA, 6TH ED., REVISED: ARIZ. BUR. MINES BULL. 160, P.
   30-31.
11) HEIKES, V.C., AND YALE, C.C., 1913, DRY PLACERS IN ARIZONA, NEVADA, NEW MEXICO, AND CALIFORNIA: U.S. GEOLOG.
   SURVEY MINERAL RESOURCES (1912), PT. 1, P. 254-263.

Related Areas:
CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO. M030301
RECORD TYPE. XI
COUNTRY/ORGANIZATION. USGS
INFORMATION SOURCE. 2
MAP CODE NO. OF RECORD.

REPORTER
NAME. WILT, JAN C
DATE. 79 06

NAME AND LOCATION
DEPOSIT NAME. UNKNOWN PROSPECT
MINING DISTRICT/AREA/SUBDIST. WELTON (LA POSA)/WELTON MILLS
COUNTRY CODE. US
STATE CODE. 04
COUNTY. YUMA
QUAD SCALE. 1:0062500
QUAD NO OR NAME. WELLTON ARIZ
LATITUDE. 32°32'40"N
LONGITUDE. 114°06'10"W
TWP. 10S
RANGE. 18W
SECTION. 22 NS
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 (DESCRIPTION OF WORKINGS):
SHAFT
GENERAL REFERENCES
1) WALLABY ENTERPRISES, TUCSON, ARIZ., MINING DISTRICT DATA BASE FILE
RECORD IDENTIFICATION
RECORD NO. M03032B
RECORD TYPE XI
COUNTRY/ORGANIZATION USGS
INFORMATION SOURCE 1
MAP CODE NO. OF REC.

REPORTER
NAME WILT, JAN C.
DATE 79 08

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 1: 0062500 0024000 EAGLETAIL MTS., ARIZ. EAGLETAIL MTS., SW, ARIZ.
LATITUDE 33-15-15 N
LONGITUDE 113-22-48 W
TWP 025
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. 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 (DESCRIPTION OF WORKINGS):

TWO VERTICAL SHAFTS ABOUT 45 FT DEEP (WILSON, 1933, P. 45)

GEOLGY AND MINERALOGY

HOST ROCK TYPE............ CALCAREOUS SCHIST

PERTINENT MINERALOGY...... GANGUE OF PALE-GREEN CRYSTALLINE FLUORITE

IMPORTANT ORE CONTROL/LOCUS.. VF IN 5 FT. WIDE, DF BRECCIATED, IRON STAINED, DULL BROWN QUARTZ

LOCAL GEOLOGY

SIGNIFICANT LOCAL STRUCTURES:

FAULT ZONE STRIKES & DIP WITH SCHIST (S30W, ABOUT 90 DIP

COMMENTS (GEOLGY AND MINERALOGY):

GRAVEL MANTLED PEDIMENT

GENERAL REFERENCES

2) WILSON, E.D., 1933. GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES BULL., 134, P. 140.
4) WILSON, E.D., 1960, GEOLOGIC MAP OF YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES.
5) SCARBOROUGH, P., 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) AKIZ, 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.
CRIA MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO.---------- M030303
RECORD TYPE-------- XI
COUNTRY/ORGANIZATION- USGS
INFORMATION SOURCE-- 1
MAP CODE NO. OF RECORD--

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

NAME AND LOCATION
DEPOSIT NAME........... MELISSA MINE
MINING DISTRICT/AREA/SUBDISTRICT. 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 EXHIBITING UNUSUAL FORMS - (U.A. 54281)

GENERAL REFERENCES
2) NEARBY AREAS & REGIONAL GEOLOGY: KEITH, STANTON B., 1976, INDEX OF MINING PROPERTIES IN YUMA COUNTY, ARIZONA: STATE OF ARIZONA, BUR. GEOLOGY AND MINERAL TECHNOLOGY, BULL. 192, 185 P.
3) WILSON, F.D., 1933, GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY, ARIZONA: ARIZ. BUR. MINES, BULL. 134, 236 P.
4) PARKER, F.J., 1966, THE GEOLOGY AND MINERAL DEPOSITS OF THE SILVER DISTRICT; TRIGO MOUNTAINS, YUMA COUNTY, ARIZONA: SAN DIEGO STATE COLLEGE, MSC THESIS
5) THOMPSON, A.P., 1925, THE SILVER MINING DISTRICT IN YUMA COUNTY: ARIZ. MIN. JOUR., VI. NO. 16, P. 3-4