FORM 9-1
MARCH 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

Stage II

OPERATOR'S MONTHLY VOUCHER For Month of Sept. & Oct., 1973

Operator's Name Hicks Dome Account c/o Gilbert Kerlin, Esq.

Address Shearman and Sterling, 53 Wall St. New York, NY 10005

Docket No. OME- 6873
Contract 14-08-0001 2306
Contract Amount $56,480
Gov't. Participation %35 $19,768

COST ITEMS (FROM EXHIBIT A)	FOR OPERATOR'S USE: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS	FOR GOVERNMENT USE ONLY: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS
Category (1)		$		$		$		$
Dozing, hours	32	150.00	80	750.00	--	--	48	600.00
Rotary Drill, Mobil.	-	-	½	175.00	--	--	0.5	175.00
Drilling, feet	785	3,140.00	1821	7,284.00	785	3,140.00	1821	7,284.00
Casing	73	109.50	341.5	485.40	73	102.20	341.5	478.10
Service Time	-	-	3.75	150.00	--	--	3.75	150.00
Core Drilling, Mobil.	-	-	½	500.00	--	--	0.5	500.00
Coring NX 0-500	-	-	175	700.00	--	--	175	700.00
(2) 500-1000	215	1,257.75	996	5,826.60	215	1,257.75	996	5,826.60
(2) 1000-1500	500	3,175.00	1500	9,525.00	500	3,175.00	1500	9,525.00
(2) 1500-2000	519	3,581.10	1500	10,350.00	519	3,581.10	1500	10,350.00
(2) 2000-2500	904	6,780.00	1425	10,687.50	789	5,917.50	1310	9,825.00
(2) 2500-3000	45	378.00	45	378.00	--	--	--	--
Set-up/casing	71	1,384.50	187	3,198.00	25	487.50	118	2,301.00
Reaming	-	-	51	1,147.50	--	--	51	1,147.50
Reaming bits	-	-	526	526.00	--	--	526	526.00
Survey (Standby) Time	10	193.00	23	380.50	--	--	10	187.50
Casing	280	812.00	280	812.00	--	--	--	--
Excess Bits	781	329.61	1179	588.31	781	331.48	1179	590.18
Mud	9	35.75	72.5	317.50	4	22.00	63.5	303.75
Category (2)								
Geologist-Supervisor	1	1,400.00	4	5,950.00	1	1,400.00	4.25	5,950.00
Sampler-Assistant	1	333.17	4	852.44	1	333.17	3.25	852.44
Category (3)								
Core Boxes	239	298.75	614	767.50	239	298.75	614	767.50
Sample Bags	21	10.50	58	29.00	21	10.50	58	29.00
Category (7)								
Office Expense	1	159.30	4	579.20	1	159.30	4	579.20
Assay CaF_2 (wet)	75	300.00	113	452.00	75	300.00	113	452.00
$BaSO_4$ (wet)	75	225.00	113	339.00	75	225.00	113	339.00
Spectrographic	45	342.00	45	342.00	38	342.00	38	342.00
CaF_2 Specific Ion	77	163.00	77	163.00	77	163.00	77	163.00
Other Assays	165	453.50	165	453.50	165	453.50	165	453.50
						21,699.75		60,397.27
Stage I totals (allowable at 50% of cost)								73,385.59
TOTALS		$25,011.43		$63,708.95		$		$133,782.86

I certify that the above bill is correct and just and that payment therefor has not been received.

Date Jan. 31, 1974 *Payee Hicks Dome Account

Per Joseph A. Porter Title Geologist

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U. S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Approved as noted, subject to field examination and audit.

Signature Harold Kirbens Chief, OME ~~Field Officer~~ Date 3/27/74

Approved for: $7,594.91 (SUBJECT TO AUDIT)

Signature "BMF"

Date 3/5/74 Vou. No. R4175A

(SEE OTHER SIDE)

FOR OPERATOR'S USE	FOR GOVERNMENT USE
REMARKS	REMARKS
	See attached sheets

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of two parts.

FIRST, the Operator's Monthly Voucher on Form 9-1648 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and three copies of each of the two sections of this report to the OME regional Field Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, FORM 9-1648

In the left hand column list the items for which costs were incurred during the month, and also the items for which costs were previously reported. For items previously reported, show only UNITS TO DATE and COSTS TO DATE. Items listed should conform to Exhibit A of the contract (Estimated Costs of the Work). The total of COSTS THIS MONTH followed by the Operator's signature constitutes a claim for payment of the Government's share of the costs. The Operator or his agent must sign the certification in the lower left corner.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as unemployment taxes, employee's liability insurance, and depreciation of Operator-owned equipment. The certification may be stated thus, "Certified True Copy", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Field Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

FOR GOVERNMENT USE

REMARKS

1/

Claimed	$ 150,00	
Allow	0	
Disallow	$ 150.00	$150.00

May be reclaimed upon receipt of copy of invoice for bulldozing.

2/

Claimed	$ 109.50	
Allow (73' x 1.40)	102.20	
Disallow		7.30

Contract allows casing at $1.40/ft. not $1.50 as billed by contractor.
Use of 7-inch casing is approved. HK.

3/

Claimed	$6,780.00	
Allow	5,917.50	
Disallow		862.50

Invoices total $5,917.50 for 789 ft. at $7.50/ft. of Nx drilling in range from 2,000 to 2,500 feet.

4/

Claimed	$378.00	
Allow	0	
Disallow		378.00

Although Section 5c in Amendment No. 1 allows extension of existing holes, there are no supporting documents to show that any hole was drilled below a depth of 2,404 feet.

5/

Claimed	$1,384.50	
Allow (25 hr. x $19.50)	487.50	
Disallow		897.00

Contractor's invoices total 25 hours to set up rig and install casing.

FOR GOVERNMENT USE

REMARKS (continued)

6/	Claimed	$ 193.00	
	Allow	0	
	Disallow		$193.00

May be reclaimed upon receipt of copy of invoice for surveying. (standby time @ $18.75/hr.)

7/	Claimed	$ 812.00	
	Allow	0	
	Disallow		812.00

Assume this is lost casing. May be reclaimed upon receipt of copy of invoice for lost casing.

8/	Claimed	$ 329.61	
	Allow	331.48	
			(1.87)

Arithemetical errors in compiling claim. See corrections on Invoice No. 5, page 3 and 5.

9/	Claimed	$ 35.75	
	Allow	22.00	
	Disallow		13.75

No invoice submitted for excess claim. May be reclaimed upon receipt of copy of missing invoices.

10/ Allow as claimed. Total of office expenses does not exceed the allowable total of $600.00.

11/ Invoices indicate 45 samples but amount claimed includes charges for only 38. Balance of $70.00 for 7 analysis may be claimed.

TOTAL DISALLOWANCES	$3,311.68

Total costs approved for Stages I and II do not exceed costs allowed by contract.

Telephone Area Code 618
Office [illegible]

P. O. Box 369
Carmi, Illinois 62821

In Account With

Di Kan

a division of scru-kor, inc.

TO

Heiks Dome Project
P.O. Box 506
Rosiclare, Illinois 62982

Date 9/21/73

Invoice Number 30-211-5

Delivery Ticket

Lease #FSB-2
(OMC-7)

TERMS: 30 Days Net.

Quan.	Part No.	Description	Unit Price	Amount
	DRILLED:		785' @ $4.00/ft	$ 3140.00
	MATERIAL:	7" casing left in hole	73' @ $1.50/ft	109.50
		5% Ill. R.O. tax on $109.50		5.47
			Total Invoice	$ 3254.97
			Illinois Delivery	

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DIAMOND CORE DRILLING
ROTARY DRILLING
GROUTING
FOUNDATION TESTING
DIAMOND DRILLING EQUIPMENT
DRILLING ADDITIVES

Boyles Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
SALT LAKE CITY, UTAH 84110
Cable: BOYLESCO
Telex: 388-321

BRANCH OFFICES
PHOENIX, ARIZONA
GOLDEN, COLORADO
SPARKS, NEVADA
SPOKANE, WASHINGTON
MURFREESBORO, TENNESSEE
IRONWOOD, MICHIGAN
SANTIAGO, CHILE cable: BOYLESBROS
LIMA, PERU cable: BOYLESCOP
MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: October 9, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: Correction on 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, ILL.

HICKS DOME ACCOUNT
c/o Mr. Joseph Porter
P.O. Box 447
Rosiclare, Ill. 62982

Hole No.	From	To	Footage	Rate	Total
FSB-2 CORRECTION	785	1000	215	$ 5.85	$ 1,844.70
(OME-7)	785	1000	215	5.85	1,257.75
				Difference	$ 586.95 CR.
		NEW SEPTEMBER INVOICE TOTAL			$15,795.07

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9

DRILLING
CUTING
FOUNDATION TESTING
DIAMOND DRILLING EQUIPMENT
DRILLING ADDITIVES

Boyles Bros.
DRILLING COMPANY
CONTRACTORS-ENGINEERS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
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Cable: BOYLESCO
Telex: 388-321

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MURFREESBORO, TENNESSEE
IRONWOOD, MICHIGAN
SANTIAGO, CHILE
cable: BOYLESBROS
LIMA, PERU
cable: BOYLESCOP
MEXICO CITY, MEXICO
telex: 001774545

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill.

HICKS DOME ACCOUNT
c/o Mr. Joseph Porter
Post Office Box 447
Rosiclare, Illinois 62982

Hole No.	From	To	Footage	Rate	Total
					1,257.75
FSB-2	785	1000	215	$ 5.85	~~$ 1,844.70~~
(OME-7)	1000	1500	500	6.35	3,175.00
	1500	2000	500	6.90	3,450.00
	2000	2385	385	7.50	2,887.50
	Running Magnet		1 hr	19.50/hr	19.50
	Setting up over hole		6 hrs.	19.50/hr	117.00
	Delay - Waiting for Dikor drill to get off hole		3 hrs.	18.75	56.25
	Casing		10 hrs.	19.50	195.00
	Mud		4 sks.	5.50	22.00
					$11,766.95
					11,180.00

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DRILLING ADDITIVES

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MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill.

HICKS DOME ACCOUNT
c/o Mr. Joseph Porter
Post Office Box 447
Rosiclare, Illinois 62982

Page 2

Hole No.	From	To	Footage	Rate	Total
H-7	1981	2000	19	$ 6.90	$ 131.10
(OME-6)	2000	2404	404	7.50	3,030.00
	Casing		6 hrs	19.50/hr	117.00
					$ 3,278.10
	Core Boxes		300	1.50 ea	450.00
Bit Cut-Out #12809					
	1 NXC3 Serial #3S-9965		71'	1.38	106.22
	Less		71'	.85	-60.35
					45.87

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Bit cut claimed
3S-99657 @ 1.38/ft
-.85
×0.53 × 71' = 71'@ 37.63

CORE DRILLING
DRILLING
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FOUNDATION TESTING
DIAMOND DRILLING EQUIPMENT
DRILLING ADDITIVES

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LIMA, PERU cable: BOYLESCOP
MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: Hicks Dome Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill

HICKS DOME ACCOUNT
Page 3

Hole No.	From	To	Footage	Rate	Total
	2 NXC3 Serial # 3S-18483 & 3S28839				
	Total Footage		161'	$ 1.12	$ 179.57
		Less OMEG	161'	.85	- 136.85
				.27	42.72
	1 NXC3 Serial # 3S-2884		49'	2.42	118.79
		Less OMEG	49'	.85	- 41.65
				1.57	77.14
	1 NXC3 Serial # 3S-18480		70'	3.50	244.99
		Less OMEG	70'	.85	- 59.50
				2.65	185.49

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#35-18483 & 28839 —
1.12
- .85
.27/ft × 161' = 161 ft @ 42.72
(.265)

43.47

35-2884 2.42
- .85
1.57/ft
Claimed 49' @ 0.65 = 31.85

35-18480
3.50
.85
2.65
Claimed 70' @ 0.65 45.50

CORE DRILLING
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RILLING ADDITIVES

Boyles Bros.
DRILLING COMPANY
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LIMA, PERU cable: BOYLESCOP
MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill

HICKS DOME ACCOUNT
Page 4

Hole No.	From	To	Footage	Rate	Total
Cut-Out #12664					
	1 NXC Serial # 3S-28843		116'	$ .76	$ 87.76
		Less	116'	.85	- 98.60
					10.84 CR.
	1 NXC Serial # 3S-18481		243'	.48	116.64
		Less	243'	.85	- 206.55
		OME-5			89.91 CR.
	1 NXC3 Serial # 3S-28838		10' ✓	8.47	84.75
		Less	10'	.85	- 8.50
		OME-5			76.25
	CERTIFIED TRUE COPY				

9

3S-28838 -
8.47
.85
7.62
Claimed - 10 ft @ 0.65 = 6.50

CORE DRILLING
DRILLING
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DRILLING ADDITIVES

Boyles Bros.
DRILLING COMPANY
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General Offices and Plant
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cable: BOYLESBROS
LIMA, PERU
cable: BOYLESCOP
MEXICO CITY, MEXICO
telex: 001774566

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill.

HICKS DOME ACCOUNT
Page 5

Hole No.	From	To	Footage	Rate	Total
	1 NCX3 Serial #3S-28835		172'	$ .94	$ 160.89
		Less OME-5	172'	.85	- 146.20
					14.69
	1 NXC Serial #3S-9968		145'	1.43	207.02
		Less OME-5	145'	.85	- 123.25
					83.77
Cut-Out #19254					
	4 NXC3 Serial #3S-13620, 3S-18473, 3S-18476, 3S-18477				
		Total Footage	498'	.72	359.28
		Less	498'	.85	- 423.30
					65.98 CR.

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35 28835 .94
.85
$0.09 17'
Claimed $0.09 x 172' = $14.69

35-9968 1.43
-.85
0.58
Claimed 0.58 x 145' = 83.77

DIAMOND CORE DRILLING
ROTARY DRILLING
GROUTING
FOUNDATION TESTING
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MEXICO CITY, MEXICO telex: 001774346

INVOICE DATE: September 29, 1973
ORDER NUMBER: 33-3
INVOICE NUMBER: 5
CONTRACT: HICKS DOME Rosiclare
TERMS: As per contract
LOCATION: Rosiclare, Ill.

HICKS DOME ACCOUNT
Page 6

Hole No.	From	To	Footage	Rate	Total
	1 NXC3 #3S-18475		103'	$ 1.95	$ 201.07
		Less	103'	.85	87.55
				1.10	113.52
					113.30
CUT-Out #19256					
	1 NX Casing Shoe Serial #3S-14393				186.07
	1 NX Concave bit (Drilling by wedge) Serial #1S-51933				228.18
					414.25
			Corrected To SEPTEMBER INVOICE TOTAL		$15,795.07 ~~$16,382.02~~

9

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3S-18475 1.95
.85
1.10
claimed 103' @ 0.65 = 66.95

Box 447

Phone (618) 285-6685

Joseph A. Porter

Geologist

Rosiclare, Illinois
62982

September 28, 1973

Mr. Roy A. Stacey
Elizabethtown
Illinois

Dear Roy:

Enclosed find a check in the amount of $155.25 representing wages earned for the month of September 1973. Amount due was calculated as follows:

73 hrs. x $2.25 =		$ 164.25
State Tax	$0.00	
Income Tax	0.00	
Social S.	9.61	- 9.61
		$ 155.25 #154.64

Sincerely,

Joseph A. Porter

CERTIFIED TRUE COPY

JAP:kt
Encl. 1

overpaid 61¢

Total Earned 164.25
Social Sec. + 9.61
Total $173.86

RECORD OF TIME WORKED

Roy A. Stacey — Sept

Name, S. S. No., Dependents — Month

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
9-1-73			2 hrs	with Bulldozer	
9-3-73			2 hrs	"	"
9-5-73			4 hrs	cases to Pavilare	
9-5-73			2 hrs	lay pipes	
9-7-73			8 hrs	had cases medical history	Carte to Pavilare
9-10-73			9 hrs	water line, Survey hole	
9-12-73			2 hrs	cases to house	
9-13-73			2 hrs	case to house	
9-14-73			2 hrs	" "	"
9-15-73			2 hrs	" "	"
9-17-73			8 hrs	with Bulldozer 2 trips to Pavilare	
9-18-73			6 hrs	pipe line, Case to house	with case
9-19-73			2 hrs	cases to house	
9-20-73			3 hrs	cases from 2 drill rigs	
9-21-73			4 hrs	cases to Pavilare	
9-22-73			3 hrs	Cases to house	
9-24-73			2 hrs	cases to house	
9-25-73			2 hrs	cases to house	
9-26-73			4 hrs	Cases to Pavilare	
9-28-73			4 hrs	" "	"
			73		

September 14, 1973

Mrs. Kay Thornberry
Rosiclare
Illinois

Dear Kay:

Enclosed find a check in the amount of $108.79 representing wages earned September 1 thru 15, 1973. Amount due was calculated as follows:

56 hrs. x $2.00 =		$ 122.00
I.T.	$5.10	
S.S.	7.14	
S.T.	.97	- 13.21
		$ 108.79

Sincerely,

Joseph A. Porter

CERTIFIED TRUE COPY

Total 122.00
Social Sec 7.14
129.14
1/2 office $64.57
1/2 Sampler $64.57

September 28, 1973

Mrs. Kay Thornberry
Rosiclare
Illinois

Dear Kay:

Enclosed find a check in the amount of $152.58 representing wages earned September 16 thru 30, 1973. Amount due was calculated as follows:

79 hrs. x $2.00 =		$ 158.00
7 hrs. x $3.00 =		21.00
		$ 179.00
S.T.	$ 2.35	
I.T.	13.60	
S.S.	10.47	- 26.42
		$ 152.58

Sincerely,

Joseph A. Porter

Total Earned 179.00
Social Sec. 10.47
Total — $189.47
1/2 office — 94.73
1/2 Saylor — $94.74

RECORD OF TIME WORKED

Kay Thornburg 330-44-2025 2 — September 1973

Name, S. S. No., Dependents — Month

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
9-4	8:00	4:30	8		HDA
9-5	8:00	4:30	8		HDA
9-6	8:00	4:30	8		HDA
9-7	8:00	4:30	8		HDA
9-10	8:00	4:30	8		HDA
9-13	8:00	4:30	8		HDA
9-14	8:00	4:30	8		
			56		
9-17	8:00	4:30	8		HDA
9-18	8:00	4:30	8		HDA
9-19	8:00	4:30	8		HDA
9-20	8:00	4:30	8		HDA
9-21	8:00	4:00	7½		HDA
9-24	8:00	4:30	8		"
9-25	8:00	4:30	8		"
9-26	8:00	4:30	8		"
9-27	8:00	4:00	7½		"
9-28	8:00	4:30	8		"
			79		
9-13	8 bags				
9-15	22 bags	7 hrs. (time ½)			

EARNINGS	HOURS	AMOUNT	DEDUCTIONS			
REGULAR		75000	FED. TAX	11267	STATE TX	1458
			GRP INS	1057		
TOTAL EARNINGS		75000	TOTAL DEDUCTIONS			13782

YEAR TO DATE	
GROSS PAY	1235000
F.I.C.A.	63180
FED. TAX	181939
STATE TAX	23786

FOR PERIOD ENDING 09-15-73

NET PAY 612.18

JOSEPH A PORTER 501 1 020 00044 NON-NEGOTIABLE

5755
1.5MM 2-73

STATEMENT OF EARNINGS AND DEDUCTIONS

TRAIN CABOT INC 000290476

EARNINGS	HOURS	AMOUNT	DEDUCTIONS			
REGULAR		75000	FED. TAX	11267	STATE TX	1458
			GRP INS	1057		
TOTAL EARNINGS		75000	TOTAL DEDUCTIONS			13782

YEAR TO DATE	
GROSS PAY	1310000
F.I.C.A.	63180
FED. TAX	193206
STATE TAX	25244

FOR PERIOD ENDING 09-30-73

NET PAY 612.18

CERTIFIED TRUE COPY

JOSEPH A PORTER 501 1 020 00044 NON-NEGOTIABLE

5755
1.5MM 2-73

STATEMENT OF EARNINGS AND DEDUCTIONS

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 0749
JOB NO.: M-2070
P.O. NO.:

DATE: September 7, 1973

TERMS: NET 30 DAYS

SOLD TO: Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

OME-5 (FSB-1)

Analysis of 22 Pulp Samples

1	Copper @ $1.00	$ 1.00
12	Lead @ $1.00	$ 12.00
10	Zinc @ $1.00	$ 10.00
20	Semi-quant spectrographic analysis @ $9.00	$180.00
9	Fluorine (<10%) @ $2.00	$ 18.00
9	Fluorine (>10%) @ $3.00	$ 27.00
20	Beryllium @ $2.00	$ 40.00
20	Niobium @ $5.00	$100.00
20	Thorium (X-Ray Fluorescence) @ $1.00	$ 20.00
11	Barium @ $2.00	$ 22.00

Total $430.00

CERTIFIED TRUE COPY

INVOICE COPY

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 1361
JOB NO.: M-2207
P. O. NO.:

DATE: November 14, 1973

TERMS: NET 30 DAYS

SOLD TO: Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

OME-6 (Hamp 7)

Analysis of 37 Pulp Samples

1	Zinc (Assay) @ $1.50	$ 1.50
18	Semi-quant spectrographic analysis @ $9.00	162.00
37	Fluorine @ $2.00	74.00
37	Barium @ $4.00	148.00
11	Niobium @ $5.00	55.00
	TOTAL	$ 440.50

162
278.50

CERTIFIED TRUE COPY

ORIGINAL INVOICE

GrayLine GrayLine GrayLine GrayLine GrayLine

STATEMENT

To: Joseph A. Porter
P.O. Box 447
Rosiclare, IL 62982

DATE 9-30-73

From: V.C. McDonald
P.O. Box 592
Rosiclare, IL 62982

For assays done during September, 1973.

Please detach and return upper portion with your remittance. $ 147.00

DATE	CHARGES AND CREDITS	BALANCE
	Hamp 7 H-301 - H-323 (excluding 312 &315)	
"Wet assays"	21 CaF_2 assays @ $4.00 each	84.00
	21 $BaSO_4$ assays @ $3.00 each	63.00
	CERTIFIED TRUE COPY	
	Respectfully submitted,	
	V.C. McDonald V.C. McDonald	
		$ 147.00

GrayLine "SNAP-A-WAY" FORM 44-501 2-PARTS

Your Check Is Your Receipt

WILSON JONES COMPANY © 1961 PRINTED IN U.S.A.

STATEMENT

To: Hicks Dome Account
c/o Joseph A. Porter
P.O. Box 447
Rosiclare, IL 62982

DATE 11-30-73

From: V.C. McDonald
P.O. Box 592
Rosiclare, IL 62982

Assay work done October thru November

Please detach and return upper portion with your remittance. $ 378.00

DATE	CHARGES AND CREDITS	BALANCE
	Hamp 7 (OME-6)	
	#s H-324 - H-337	
	14 CaF_2 assays @ $4.00	56.00
	14 $BaSO_4$ assays @ $3.00	42.00
	FSB-2 (OME-7)	
	40 CaF_2 assays @ $4.00	160.00
	40 $BaSO_4$ assays @ $3.00	120.00
		$ 378.00

"wet assays"

CERTIFIED TRUE COPY

Respectfully submitted,

V.C. McDonald

V.C. McDonald

Greyline "SNAP-A-WAY" FORM 44-501 2-PARTS

Your Check is Your Receipt

WILSON JONES COMPANY © 1972 PRINTED IN U.S.A.

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 0911
JOB NO.: M-2120
P.O. NO.:

DATE: September 25, 1973

TERMS: NET 30 DAYS

SOLD TO: Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

Hole OME 5 (FSB-1)

Samples # SB 009-023
SB 036-042

Analysis of 22 Pulp Samples

7 Semi-quant spectrographic analysis @ $10.00	$ 70.00
22 Fluorine @ $2.00	$ 44.00
22 Barium @ $2.00	$ 44.00
Total	$158.00

CERTIFIED TRUE COPY

INVOICE COPY

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

Stage II

Submitted to supplement

OPERATOR'S MONTHLY VOUCHER

For Month of Sept. - Oct., 1973

Docket No. OME- 6873
Contract 14-08-0001 2306
Contract Amount $ 56,480
Gov't. Participation % 35 $ 19,768

Operator's Name Hicks Dome Account
Address c/o Gilbert Kerlin, Esq.
Shearman and Sterling, 53 Wall St.
New York, NY 10005

COST ITEMS (FROM EXHIBIT A)	FOR OPERATOR'S USE: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS	FOR GOVERNMENT USE ONLY: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS
Category (1)		$		$		$		$
Dozing, hours	32	150.00	80	750.00	32	150.00	80	750.00
Rotary drilling	-	-	½	175.00	—	—	0.5	175.00
Drilling feet	-	-	1821	7,284.00	—	—	1821	7,284.00
Casing	-	-	341.5	478.10	—	—	341.5	478.10
Service time	-	-	3.75	150.00	—	—	3.75	150.00
Core drilling, Mobil	-	-	½	500.00	—	—	0.5	500.00
Coring NX 0-500	-	-	175	700.00	—	—	175	700.00
500-1000	-	-	996	5,826.60	—	—	996	5826.60
1000-1500	-	-	1500	9,525.00	—	—	1500	9525.00
1500-2000	-	-	1500	10,350.00	—	—	1500	10,350.00
2000-2500	115	862.50	1425	10,687.50	115	862.50	1425	10,687.50
2500-3000	45	378.00	45	378.00	45	337.50	45	337.50
Set-up/casing, hrs	46	897.00	187	3,198.00	46	897.00	164	3198.00
Reaming	-	-	51	1,147.50	—	—	51	1147.50
Reaming bits	-	-	526	526.00			526	526.00
Survey time	10	193.00	23	380.50	17	136.50	17	324.00
Casing, Lost	280	812.00	280	812.00	280	812.00	280	812.00
Excess bits	-	1.87	1179	590.18	—	—	1179	590.18
Mud	5	13.75	72.5	317.50	5	13.75	68.5	317.50
Category (2)								
Geologist-Supervisor	-	-	4	5,950.00	—	—	4.25	5950.00
Sampler-Assistant	-	-	4	852.44	—	—	3.25	852.44
Category (3)								
Core boxes	-	-	614	767.50	—	—	614	767.50
Sample bags	-	-	58	29.00	—	—	58	29.00
Category (7)								
Office Expense	-	-	4	579.20	—	—	4	579.20
Assay CaF2 (wet)	-	-	113	452.00	—	—	113	452.00
BaSO4 (wet)	-	-	113	339.00	—	—	113	339.00
Spectrographic	7	70.00	45	412.00	7	70.00	45	412.00
CaF2 Spec. Ion	-	-	77	163.00	—	—	77	163.00
Other assays	-	-	165	453.50	—	—	165	453.50
Stage II total (allowable at 35%)						3,279.25		63,676.52
Stage I total (allowable at 50%)								73,385.59
TOTALS		$3,378.12		$63,773.52		$		$137,062.1

I certify that the above bill is correct and just and that payment therefor has not been received.

Date June 11, 1974 Payee Hicks Dome Account

Joseph A. Porter

Per [signature] Title Geologist

"Where voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U. S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Approved as noted, subject to field examination and audit.

Signature _____ OME Field Officer Date

Approved for: $ _____
(SUBJECT TO AUDIT)

Signature _____

Date _____ Vou. No. _____
(SEE OTHER SIDE)

FOR OPERATOR'S USE

FOR GOVERNMENT USE

REMARKS

1) Claimed $378.00
Allow 337.50 ($7.50 x 45)
Disallow $40.50

No price established for depth below 2500 feet. Allow footage claimed at $7.50 per foot. Additional depth allowed by Article 5 c, par. 1, Amendment No. 1.

2) Claimed $193.00
Allow 136.50 ($19.50 x 7)
Disallow 56.50

Invoice shows only 7 hours survey time, Hole FSB-2.

3) Claimed $1.87
Allow 0.
Disallow 1.87

Paid on previous voucher.

TOTAL DISALLOWANCES $98.87

Total costs approved for stages I and II do not exceed funds available. Amendment No. 1, page 2, Article 5 b, last paragraph, permits excess funds from stage I to be used in stage II.

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of two parts.

FIRST, the Operator's Monthly Voucher on Form 9-1648 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and three copies of each of the two sections of this report to the OME regional Field Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, FORM 9-1648

In the left hand column list the items for which costs were incurred during the month, and also the items for which costs were previously reported. For items previously reported, show only UNITS TO DATE and COSTS TO DATE. Items listed should conform to Exhibit A of the contract (Estimated Costs of the Work). The total of COSTS THIS MONTH followed by the Operator's signature constitutes a claim for payment of the Government's share of the costs. The Operator or his agent must sign the certification in the lower left corner.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as unemployment taxes, employee's liability insurance, and depreciation of Operator-owned equipment. The certification may be stated thus, "Certified True Copy", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Field Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

DUPLICATE INVOICE

SPRAGUE & HENWOOD, Inc.

SCRANTON 2, PA., U. S. A.

C 16626

ADDRESS ALL COMMUNICATIONS
TO MAIN OFFICE
BOX 446
SCRANTON 2, PA.

CONTRACTORS FOR
DIAMOND DRILLING
SHOT DRILLING - SOIL SAMPLING - PRESSURE GROUTING
WATER WELLS & CHURN DRILLING

CH-077-002

Hicks Dome Account
Hicks Dome, Illinois

LOCATION

Hicks Dome, Illinois
PARTIAL BILLING

VIA.

CE DATE	INVOICE NO.	YOUR ORDER NO.	ORDER DATE	TERMS:	CONT. NO.	ENTERED BY:
1/74	99905			NET CASH 10 days NO DISCOUNT ALLOWED	15,884	

DESCRIPTION

o charge account for NX-BXW/L drilling at the above mentioned site in the period arch 1, 1974 to March 29, 1974 -

OLE NO. F-2 - Completed 3/13/74, depth 2,467'
(OME-10) Previously billed 1,980'
487'

TEM 2 - Core drilling -

NXW/L - 1,980' to 2,000' - 20' @ $6.25/L.F.....$ 125.00
2,000' to 2,022' - 22' @ $6.95/L.F.....$ 152.90
BXW/L - 2,022' to 2,467' - 445' @ $6.65/L.F.....$2,959.25

TEM 4 - Moving between sites, setting casing, cleaning out holes, surveying holes -

DATE	REMARKS	HOURS
3/13/74	Surveying	9
3/15/74	Moving	9
3/18/74	Setting up	7

25 Hrs. @ $25.00/hr.....$ 625.00

TEM 5 - Standby time -
3/14/74 - 4½ hrs. @ $19.00/hr.....$ 85.50

OLE NO. F-3 - Not completed - Depth 619'
(OME-12)

CERTIFIED TRUE COPY

(CONTINUED)

..GUE & HENWOOD, INC. SECOND SHEET DUPLICATE INVOICE

icks Dome Account
ontract No. 15,884
nvoice No. 99905

rilling surface materials and bedrock to depths of 500' -

DATE	DRILLER'S NAME	HOURS
3/18/74	Sam Grathler	2
3/19/74	Sam Grathler	8
3/20/74	Sam Grathler	10
3/21/74	Sam Grathler	9
3/22/74	Sam Grathler	9
3/25/74	Sam Grathler	4½
3/25/74	Robert Grathler	4½
3/26/74	Sam Grathler	5
3/26/74	Robert Grathler	9
3/27/74	Sam Grathler	6

67 hrs. @ $25.00/hr.....$1,675.00

Core drilling below 500' -
NXW/L - 500' to 619' - 119' @ $5.80/L.F.....$ 690.20

TOTAL AMOUNT DUE THIS INVOICE.....$6,312.85

ote: Diamond bits and reamer shells used for depths from 0' to 500' to be billed at a later date.

CERTIFIED TRUE COPY

INVOICE

SPRAGUE & HENWOOD, Inc.

SCRANTON 2. PA., U. S. A.

C 16667

ADDRESS ALL COMMUNICATIONS
TO MAIN OFFICE
BOX 446
SCRANTON 2. PA.

CONTRACTORS FOR
DIAMOND DRILLING
SHOT DRILLING · SOIL SAMPLING · PRESSURE GROUTING
WATER WELLS & CHURN DRILLING

CH-077-002

Hicks Dome Account
Hicks Dome, Illinois

LOCATION Hicks Dome, Illinois
Partial Billing

VIA.

INVOICE DATE	INVOICE NO.	YOUR ORDER NO.	ORDER DATE	TERMS:	CONT. NO.	ENTERED BY:
5/9/74	99933			NET CASH 10 days NO DISCOUNT ALLOWED	15,884	

DESCRIPTION

To charge account for NX-BXW/L drilling at the above mentioned site in the period April 1, 1974 to April 30, 1974 -

HOLE NO. F-3 - Not completed, depth 2,299'
(OME-12) Previously billed 619'
1,680'

Core drilling below 500' depth -

NXW/L - 619' to 1,000' - 381' @ $5.80/L.F.....$ 2,209.80
1,000' to 1,500' - 500' @ $6.35/L.F.....$ 3,175.00
1,500' to 1,897' - 397' @ $6.95/L.F.....$ 2,759.15

BXW/L - 1,897' to 2,000' - 103' @ $6.65/L.F.....$ 684.95
2,000' to 2,299' - 299' @ $7.45/L.F.....$ 2,227.55

HOLE NO. ROSE I -

Mobilization and demobilization 2nd drill rig -
LUMP SUM $800.00 @ 50% .....$ 400.00

Drilling surface materials and bedrock to depths of 500' -

DATE	DRILLER'S NAME	HOURS
4/24/74	A. Trapasso	9
4/25/74	A. Trapasso	9
4/26/74	A. Trapasso	9
4/29/74	A. Trapasso	9
4/30/74	A. Trapasso	9

45 hrs. @ $25.00/hr.....$ 1,125.00

CERTIFIED TRUE COPY

(CONTINUED)

HENWOOD, INC. SECOND SHEET INVOICE

s Dome Account
ontract No. 15,884
nvoice No. 99933

OLE NO. F-2 - (OME-10)

Use of diamond bits and reamer shells for depth from 0' to 500' -

BIT UMBER	DIA. SIZE	BIT SIZE	VALUE OF NEW DIAMONDS	VALUE OF SALVAGE	DIA. LOSS	BLANK AND SETTING	TOTAL COST
71442	30-40	3½"	195.00	100.90	94.10	35.00	$129.10
71859	40-50	NXWL	275.42	156.92	118.50	44.50	$163.00
72594	40-50	NXWL	301.04	267.18	33.86	44.50	$ 78.36
73568	40-50	NXWL	307.90	241.71	66.19	44.50	$110.69
73569	40-50	NXWL	296.31	277.86	18.45	44.50	$ 62.95
73576	40-50	NXWL	295.09	190.47	104.62	44.50	$149.12
T6854	40-50	NXWL	39.60	25.00	14.60	42.00	$ 56.60

$ 749.82

0 bags cement (per xerox).....$ 29.93

TOTAL AMOUNT DUE THIS INVOICE.....$13,361.20

ote: Diamond bits and reamer shells used for depths from 0' to 500', for Holes F-3 and Rose I, to be billed at a later date.

CERTIFIED TRUE COPY

TRIPLICATE INVOICE

SPRAGUE & HENWOOD, Inc.

SCRANTON 2, PA., U. S. A.

C 16705

ADDRESS ALL COMMUNICATIONS
TO MAIN OFFICE
BOX 446
SCRANTON 2, PA.

CONTRACTORS FOR
DIAMOND DRILLING
SHOT DRILLING · SOIL SAMPLING · PRESSURE GROUTING
WATER WELLS & CHURN DRILLING

CH-077-002

Hicks Dome Account
Hicks Dome, Illinois

LOCATION

Hicks Dome, Illinois
(PARTIAL BILLING)

VIA.

ICE DATE	INVOICE NO.	YOUR ORDER NO.	ORDER DATE	TERMS:	CONT. NO.	ENTERED BY:
/06/74	99962			NET CASH 10 Days NO DISCOUNT ALLOWED	15884	

DESCRIPTION

o charge account for NX-BXW/L drilling at the above mentioned site in the period ayl, 1974 to May 31, 1974:

OLE NO. F-3 - Completed 5/03/74 - Depth 2,509'
(OME-12) Previously billed - 2,299'
210'

ore drilling below 500' depth (BXW/L)
2,299' to 2,509' - 210' @ $ 7.45/l.f.....$ 1,564.50

urveying hole -

DATE	DRILLER'S NAME	HOURS
5/03/74	Sam Grathler	2
5/07/74	Sam Grathler	6½

8½ @ $ 25.00/hr.....$ 212.50

OLE NO. H-9 - Not completed, depth 310'
Drilling surface materials and bedrock to depths of 500'

DATE	DRILLER'S NAME	HOURS
5/10/74	Sam Grathler	9
5/13/74	Sam Grathler	9
5/14/74	Sam Grathler	9
5/15/74	Sam Grathler	9
5/16/74	Sam Grathler	9
5/17/74	Sam Grathler	9
5/20/74	Sam Grathler	9
5/21/74	Sam Grathler	9
5/22/74	Sam Grathler	5
5/23/74	Sam Grathler	9
5/24/74	Sam Grathler	9
5/25/74	Sam Grathler	-
5/28/74	Sam Grathler	5
5/29/74	Sam Grathler	6
5/30/74	Sam Grathler	5½
5/31/74	Sam Grathler	9

120½ hrs @ $ 25.00/hr $ 3,012.50

CERTIFIED TRUE COPY

HENWOOD, INC. SECOND SHEET TRIPLICATE INVOICE

Home Account
Contract No. 15884
Invoice No. 99962

Moving between sites and setting up on hole -

DATE	DRILLER'S NAME	HOURS
5/08/74	Sam Grathler	9
5/09/74	Sam Grathler	8

17 hrs. @ $ 25.00/hr.....$ 425.00

LE ROSE I - Not completed, Depth 1,618'
Drilling surface materials and bedrock to depths of 500'

DATE	DRILLER'S NAME	HOURS
5/01/74	A. Trapasso	9
5/02/74	A. Trapasso	9
5/03/74	A. Trapasso	9
5/06/74	A. Trapasso	9
5/06/74	Robert Grathler	9
5/07/74	A. Trapasso	9
5/07/74	Robert Grathler	9
5/08/74	A. Trapasso	2

65 hrs. @ $ 25.00/hr.....$ 1,625.00

re drilling below 500' depth (NXW/L)

500' to 1,000' - 500' @ $ 5.80/l.f.....$ 2,900.00
1,000' to 1,500' - 500' @ $ 6.35/l.f.....$ 3,175.00
1,500' to 1,618' - 118' @ $ 6.95/l.f.....$ 820.10

Total Amount Due This Invoice.....$13,734.60

TE: Diamond bits and reamer shells used for depths from 0' to 500' for holes F-3, Rose I and H-9 to be billed at a later date.

CERTIFIED TRUE COPY

TRAIN CABOT INC

EARNINGS	HOURS	AMOUNT	DEDUCTIONS			YEAR TO DATE
REGULAR		75000	FICA TAX	4388 FED. TAX	11267	GROSS PAY
			STATE TX	1458 GRP INS	1120	FICA
						FED TAX
						STATE TAX

FOR PERIOD ENDING
04-15-74

NET PAY
567.67

TOTAL EARNINGS 75000 TOTAL DEDUCTIONS 18233

JOSEPH A PORTER 501 1 020 00044 **NON-NEGOTIABLE**

5755
1.5MM 2-73

STATEMENT OF EARNINGS AND DEDUCTIONS

TRAIN CABOT INC

EARNINGS	HOURS	AMOUNT	DEDUCTIONS			YEAR TO DATE
REGULAR		75000	FICA TAX	4388 FED. TAX	11267	GROSS PAY
			STATE TX	1458 GRP INS	1120	FICA
						FED TAX
						STATE TAX

FOR PERIOD ENDING

NET PAY

TOTAL EARNINGS 75000 TOTAL DEDUCTIONS

JOSEPH A PORTER 501 1 020 00044 **NON-NEGOTIABLE**

5755
1.5MM 2-73

STATEMENT OF EARNINGS AND DEDUCTIONS

TRAIN CABOT INC 005685250

EARNINGS	HOURS	AMOUNT	DEDUCTIONS			YEAR TO DATE
REGULAR		75000	FICA TAX	4388 FED. TAX	11267	GROSS PAY 6750
			STATE TX	1458 GRP INS	1120	FICA 384
						FED TAX 1014
						STATE TAX 131

CERTIFIED TRUE COPY

FOR PERIOD ENDING
05-15-74

NET PAY

TOTAL EARNINGS 75000 TOTAL DEDUCTIONS 18233 567.6

April 16, 1974

Mr. Douglas Andersen
P.O. Box 57
Elizabethtown, IL 62931

Dear Doug:

Enclosed find a check in the amount of $435.07 representing wages, earned April 1 thru 15, 1974. Amount due was calculated as follows:

		$ 550.00
State Tax	$ 10.56	
Income Tax	72.20	
Social Security	32.17	- 114.93
		$ 435.07

Sincerely yours,

Joseph A. Porter

CERTIFIED TRUE COPY

JAP:kt
Enc. 1

May 1, 1974

Mr. Douglas Andersen
P.O. Box 57
Elizabethtown, IL 62931

Dear Doug:

Enclosed find a check in the amount of $435.07 representing wages earned April 16 thru 30, 1974. Also enclosed is $146.64 for expenses. Amount due was calculated as follows:

		$ 550.00
State Tax	$ 10.56	
Income Tax	72.20	
Social Security	32.17	- 114.93
		$ 435.07

Sincerely yours,

Joseph A. Porter

JAP:kt
Enc. 2

CERTIFIED TRUE COPY

May 16, 1974

Mr. Douglas Andersen
P.O. Box 57
Elizabethtown, IL 62931

Dear Doug:

Enclosed find a check in the amount of $435.07 representing wages earned May 1 thru May 15, 1974. Amount due was calculated as follows:

		$ 550.00
State Tax	$ 10.56	
Income Tax	72.20	
Social Security	32.17	- 114.93
		$ 435.07

Sincerely yours,

Joseph A. Porter

JAP:kt
Enc. 1

CERTIFIED TRUE COPY

June 3, 1974

Mr. Douglas Anderson
P.O. Box 57
Elizabethtown, IL 62931

Dear Doug:

Enclosed find two checks in the amount of $435.07 and $170.80 representing wages earned and expenses incurred May 16 thru 31, 1974. Amount due was calculated as follows:

		$ 550.00
State Tax	$ 10.56	
Income Tax	72.20	
Social Security	32.17	114.93
		$ 435.07
Mileage on personal car - 1220 mi.		$ 170.80

Sincerely yours,

Joseph A. Porter

JAP:kt
Enc. 2

CERTIFIED TRUE COPY

June 15, 1974

Mr. Douglas Andersen
P.O. Box 57
Elizabethtown, IL 62931

Dear Doug:

Enclosed find a check in the amount of $435.07 representing wages earned June 1 thru 15, 1974. Amount due was calculated as follows:

		$ 550.00
State Tax	10.56	
Income Tax	72.20	
Social S.	32.17	- 114.93
		$ 435.07

Sincerely yours,

Joseph A. Porter

JAP:rt
Enc. 1

CERTIFIED TRUE COPY

April 15, 1974

Mrs. Kay Thornberry
P.O. Box 444
Rosiclare, IL 62982

Dear Kay:

Enclosed find a check in the amount of $155.98 representing wages earned April 1 thru 15, 1974. Amount due was calculated as follows:

81½ hrs. x $2.25 =		$ 183.38
S.T.	$ 2.47	
I.T.	14.20	
S.S.	10.73	- 27.40
		$ 155.98

Sincerely yours,

Joseph A. Porter

CERTIFIED TRUE COPY

JAP: kt
Encl. 1

April 30, 1974

Kay Thornberry
Rosiclare
Illinois

Dear Kay:

Enclosed find a check in the amount of $138.15 representing wages earned April 16 thru 30, 1974. Amount due was calculated as follows:

71 hrs. x $2.25 =		$ 159.75
S.T.	$ 1.85	
I.T.	10.40	
S.S.	9.35	21.60
		$ 138.15

Sincerely,

Joseph A. Porter

CERTIFIED TRUE COPY

STATEMENT

April 3, 1974

TO: Joseph A. Porter
P.O. Box 447
Rosiclare, IL 62982

FROM: Ruth McClendon
P.O. Box 444
Rosiclare, IL 62982

50 sample bags @ $0.50 each = $ 25.00

Ruth McClendon

Ruth McClendon

CERTIFIED TRUE COPY

STATEMENT

TO: Joseph A. Porter
P.O. Box 447
Rosiclare, IL 62982

DATE

June 1974

FROM: V. C. McDonald
P.O. Box 592
Rosiclare, IL 62982

FSB-4 (OME-11)

Please detach and return upper portion with your remittance. $ 329.00

DATE	CHARGES AND CREDITS	BALANCE
	47 CaF_2 samples @ $4.00 each	188.00
	47 $BaSO_4$ samples @ $3.00 each	141.00
		$ 329.00

CERTIFIED TRUE COPY

V.C. McDonald

V.C. McDonald, Chemist

Your Check is Your Receipt

STATEMENT

TO: Joseph A. Porter
P.O. Box 147
Rosiclare, IL 62982

DATE
August 1974

FROM: V. C. McDonald
P.O. Box 592
Rosiclare, IL 62982

Fredricks 2 (OME-10)

Please detach and return upper portion with your remittance. $ 119.00

DATE	CHARGES AND CREDITS	BALANCE
	17 CaF_2 samples @ $4.00 each	68.00
	17 $BaSO_4$ samples @ $3.00 each	51.00
		$119.00

V.C. McDonald

V.C. McDonald, Chemist

Graytine "SNAP-A-WAY" FORM 41-981 2 PARTS

Your Check is Your Receipt

CERTIFIED TRUE COPY

STATEMENT

TO: Joseph A. Porter
P.O. Box 447
Rosiclare, IL 62982

DATE
September 1974

FROM: V.C. McDonald
P.O. Box 592
Rosiclare, IL 62982

Fredricks 3 (OME-12)

Please detach and return upper portion with your remittance. $ 126.00

DATE	CHARGES AND CREDITS	BALANCE
	18 CaF_2 samples @ $4.00 each	72.00
	18 $BaSO_4$ samples @ $3.00 each	54.00
		$126.00

CERTIFIED TRUE COPY

V.C. McDonald

V.C. McDonald, Chemist

SKYLINE LABS, INC.

SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 3211
JOB NO.: 138002
P.O. NO.:

DATE: July 11, 1974

TERMS: NET 30 DAYS

SOLD TO: Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

Fredricks 3 (OME-12)

Analysis of 18 Pulp Samples

6	Zinc (Assay) @ $2.00	$ 12.00
14	Fluorine @ $2.00	28.00
10	Semi-quant spectrographic analysis @ $9.00	90.00
6	Barium @ $4.50	27.00
4	Niobium @ $5.00	20.00
6	Niobium @ $2.00	12.00
13	Thorium @ $1.00	13.00
	TOTAL	$ 202.00

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SKYLINE LABS, INC.

SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 3324
JOB NO.: 138003
P. O. NO.:

DATE: July 19, 1974

TERMS: NET 30 DAYS

SOLD TO: Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

FSB-4 (OME-11)

Analysis of 44 Pulp Samples

5	Lead (Assay) @ $2.00	$ 10.00
28	Zinc (Assay) @ $2.00	56.00
29	Fluorine @ $2.00	58.00
1	Fluorine (>10%)@ $3.00	3.00
25	Barium @ $4.50	112.50
38	Niobium @ $5.00	190.00
36	Thorium @ $1.00	36.00
33	Yttrium @ $2.00	66.00
5	Beryllium @ $2.00	10.00
	TOTAL	$ 541.50

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SKYLINE LABS, INC.

SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033
TEL.: (303) 424-7718

INVOICE

INVOICE NO.: 2954
JOB NO.: 138001
P. O. NO.:

DATE: June 18, 1974

TERMS: NET 30 DAYS

SOLD TO: Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

Fred 2 (OME-10)

Analysis of 17 Pulp Samples

2	Lead (Assay @ $2.00)	$ 4.00
5	Zinc (Assay @ $2.00)	10.00
6	Fluorine @ $2.00	12.00
17	Thorium @ $1.00	17.00
17	Niobium @ $5.00	85.00
7	Yttrium @ $2.00	14.00
	TOTAL	$ 142.00

CERTIFIED TRUE COPY

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

RECEIVED
JUN 17 1955

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 3855
Metal or Mineral Uranium
Date Received 6/17/55
Estimated Cost $39,800
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: William G. Reynolds
Stonegate Road
Anchorage, Kentucky

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

See copy of lease enclosed herewith

(*b*) State any mine name by which the property is known Hick's Dome, Hardin County, Illinois

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise

Lessee

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

See enclosed brochure

RECEIVED
JUN 15 1955
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

16—66051-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore see enclosed brochure

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

(*c*) The work will start within 14 days and be completed within 10 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. see enclosed brochure

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[X] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. see enclosed brochure

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated June 14, 1955

W. T. Reynolds
(Applicant)

By

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

RECEIVED
JUN 17 1955

APPLICATION FOR AID IN MINERAL EXPLORATION
PURSUANT TO DMEA ORDER #1
FOR
HICK'S DOME, HARDIN COUNTY, ILLINOIS

APPLICANT: W. G. Reynolds
Anchorage, Kentucky

DATE: April 27, 1955

RECEIVED
JUN 17 1955

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PROPOSED MINERAL EXPLORATION PROJECT FOR HICK'S DOME

General Introduction

Subject applicant, Mr. W. G. Reynolds, Anchorage, Kentucky, desires to make application for aid in mineral exploration of certain acreage which he holds as lessee on Hick's Dome, Hardin County, Illinois.

The acreage upon which exploration is desired covers 51.8 acres, known as the Henry Hamp Lease, Section 25 and 30, Township 11S, Range 7E and 8E, as shown in Figures 2 and 3, and as described in recorded Lease No. 9422, filed for record in the Recorder's Office of Hardin County, February 19, 1955. This property is approximately 8 miles north of Elizabethtown, Illinois. The applicant owns several additional leases in this area, other than the one mentioned above, total in excess of 500 acres, but desires to explore the Hamp Lease only at this time. The Henry Hamp Lease is in the center of Hick's Dome and it is felt that this is the key lease for this area. Anomalous radioactivity is widespread on the ground surface at and near the apex of this dome, which is on this lease.

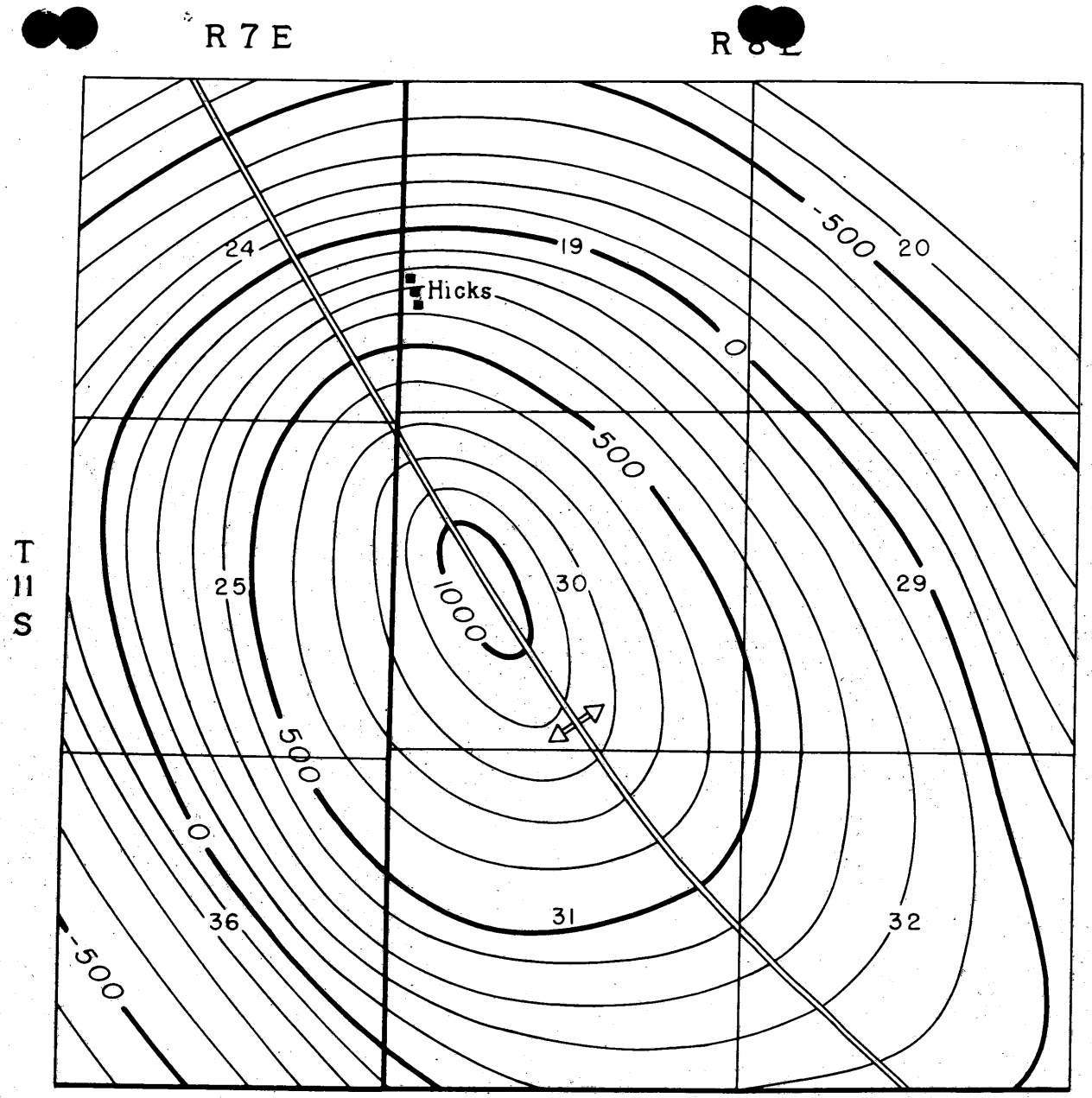
Hick's Dome is also located in the heart of the fluorspar mineral area of south eastern Illinois. Lead and zinc mines are also numerous in this area. Unusually high radioactive scintillometer readings and other indications of mineralization, as subsequently described in detail, are the basis for this project application.

Regional Geology

As shown in Figure 3, Hick's Dome is regarded as a crypto-volcanic structure, known as a quaquaversal dip. A broken system of ring faults surrounds the Dome and intrusive dikes dot the area, as shown in Figure 1. A layer of New Albany shale, generally considered as a potential source of Uranium, surrounds the area, as shown in the Block Diagram of Figure 3. It has been postulated that the doming is of explsoive volcanic origin, the result of sudden liberation of pent-up volcanic gases that had accumulated relatively near the surface.

The Hick's Dome faulting is mostly of two sets, one striking about N 20° W and the other about N 65° E. Some of the dikes are of a very deep-seated origin, generally confined to the northwest striking faults. The flourspar mineralization, which is abundant in this region, largely is emplaced in the northeast striking set of faults. In addition to these faults, there are a few curved ones around the flanks of the Dome that appear to be concentric with it. These ring-like faults are probably related in origin to the doming process.

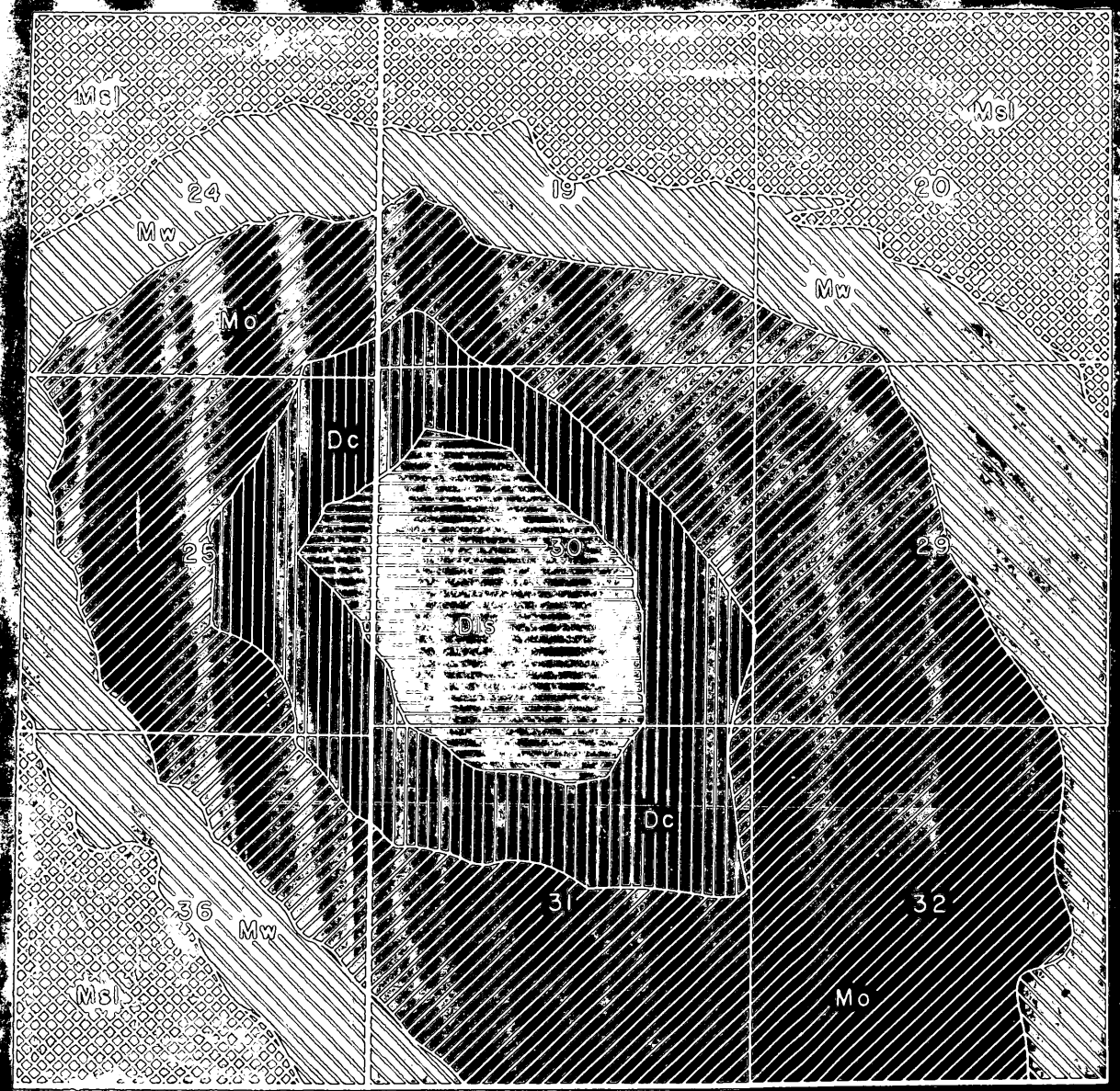
FIG. 1. Geologic map of Hicks Dome area (after Illinois Geological Survey).



STRUCTURAL CONTOURS ON THE TOP OF THE CHATTANOOGA SHALE
-HICKS DOME-
HARDIN COUNTY, ILLINOIS

Contour Interval: 100'

Scale: 2" = 1 Mi.



MISSISSIPPIAN

MERAMEC

Msl 350' St. Louis limestone

Mw 250' Warsaw limestone

OSAGE

Mo 550' Osage formation

DEVONIAN

Dc 400' Chattanooga shale

Dls 200' Devonian limestone

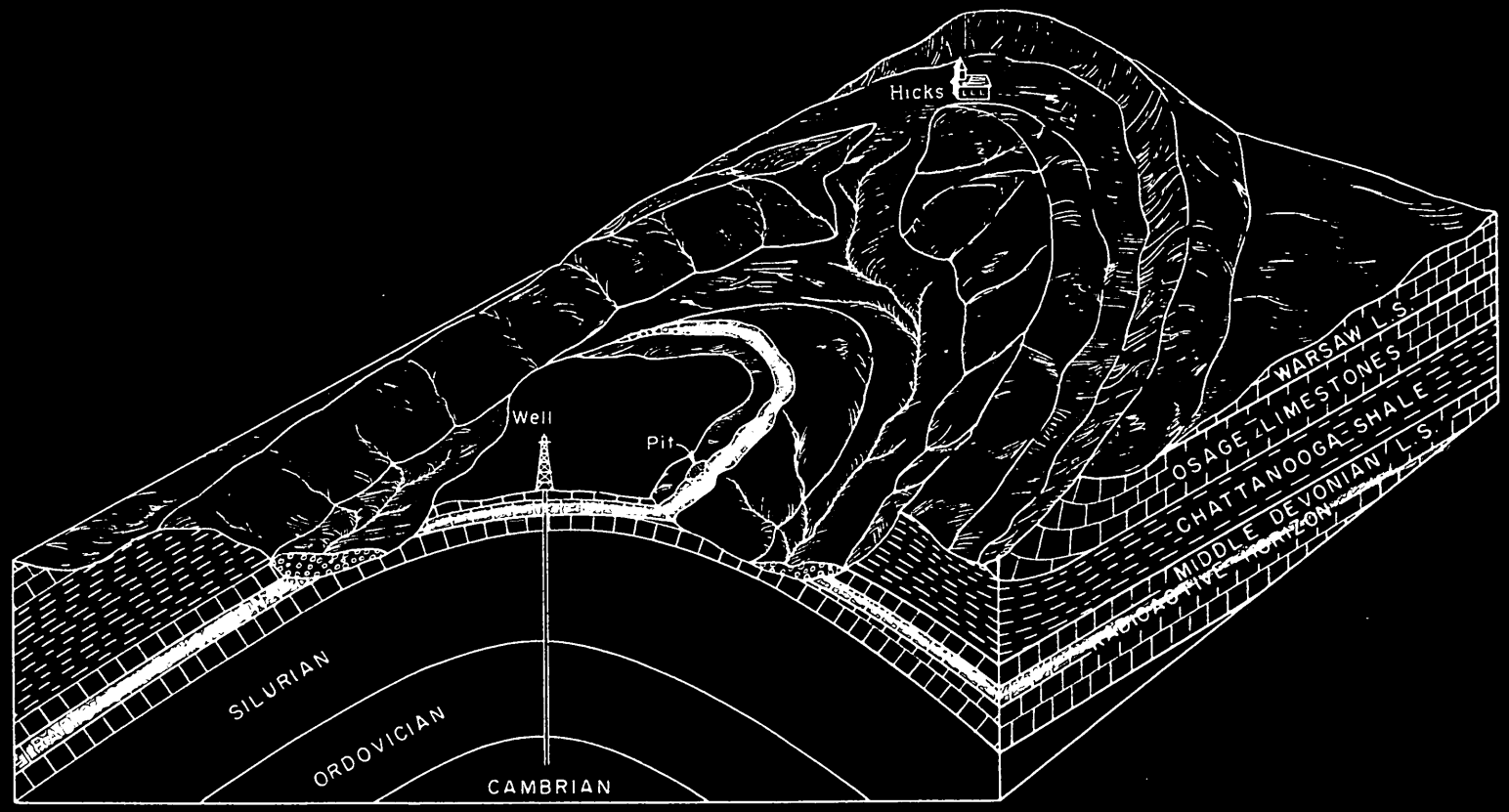
LEGEND

GEOLOGIC MAP OF HICKS DOME

HARDIN COUNTY, ILLINOIS

Scale: 2" = 1 Mi.

Figure 2



BLOCK DIAGRAM OF THE NORTHERN END OF HICKS DOME
HARDIN COUNTY, ILLINOIS

SHOWING THE RELATION OF THE RADIOACTIVE ZONE TO THE TOPOGRAPHY, STRUCTURE, AND STRATIGRAPHY

Not to Scale

Figure 3

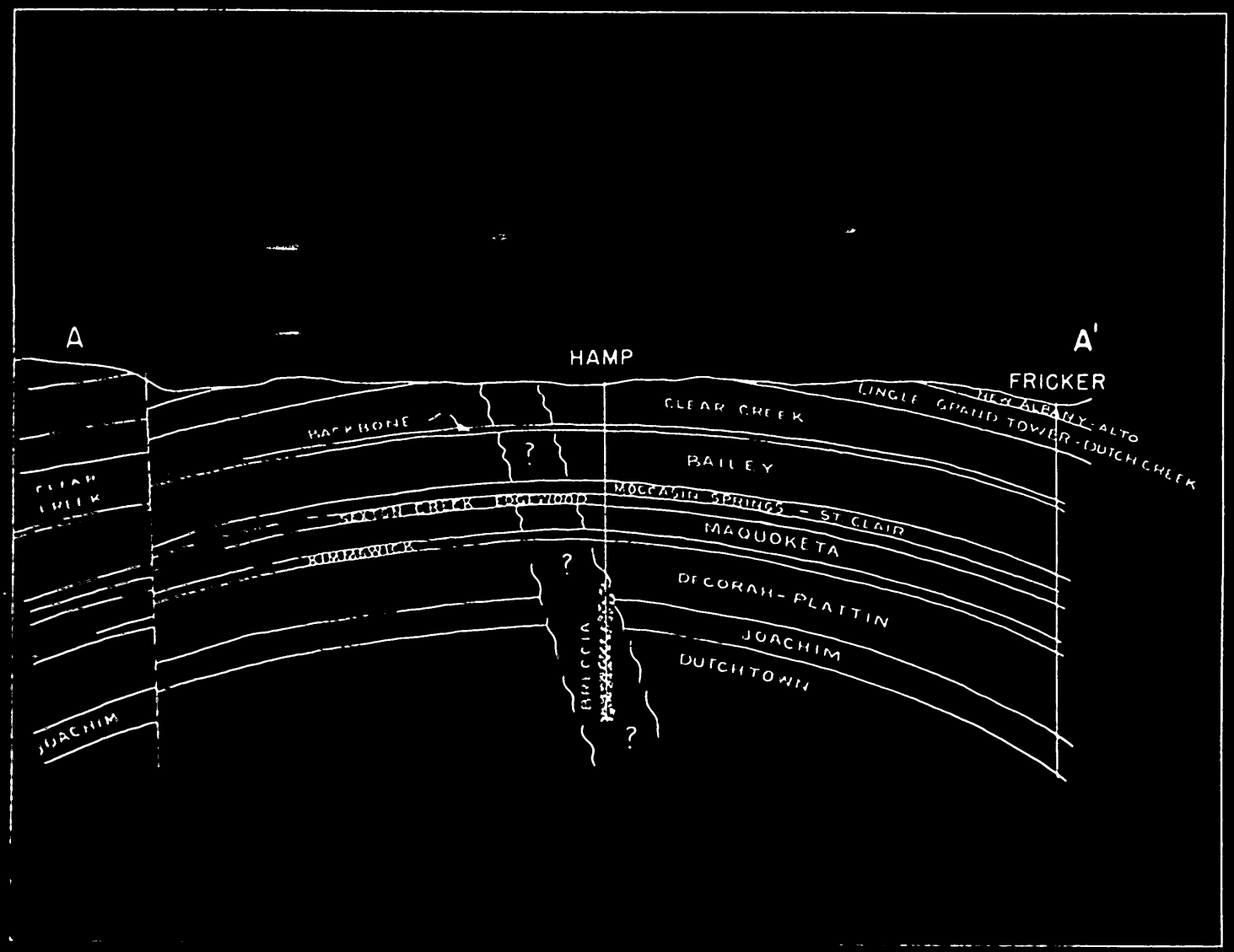


FIG. 4. Cross section showing correlation of Hamp and Fricker wells.

The Uranium Mineralization of Hick's Dome

The lease is underlain by light gray chert with lesser amounts of light gray limestone. The overburden averages about ten feet thick, and apparently is thicker on the lower parts of the slopes of the gently rounded hills, than on and near their crests. A dark red residual clay has formed just beneath the grass roots, grading into a yellowish sandy clay zone that extends into the weathered bed rock. It is known that sporadic anomalous radioactivity has been found in these clays, particulary the yellow one, throughout much of Hick's Dome. Two such zones are known on the Reynolds' lease, and undoubtedly many more exist, but have escaped detection as they are masked by the upper part of the red clay and a foot or so of soil. These two zones are exposed by bull dozer cuts. These excavations are on and near the crest of a hill, and some bed rock is exposed in them.

While most of the clay exposed in the lower portions of the cuts contains anomalous radioactivity, restricted zones of the material are many times more radioactive. In the cut on top of the hill, the highly radioactive material is within relict small shear zones in the residual clay. The other cut near the crest of the hill reveals two parallel zones of high radioactivity striking north 15° west. One is a highly kaolinized breccia zone about two feet wide. The breccia appears of explosive origin, and probably was formed by the doming processes. A foot or more of sedimentary chert separates the breccia from a parallel shear or fault zone. This fault zone, about a foot wide, consists of high radioactive yellow clayey and sandy material. The chert or highly siliceous limestone enclosing the breccia and fault zone is not appreciably radioactive. The cut exposes these two structures for a vertical distance of over ten feet and a horizontal distance of about fifteen feet. They appear fairly consistent in width and intensity of radiation throughout their exposed entent.

The Uranium Mineralization of Hick's Dome (Continued)

The two areas of anomalous radioactivity exposed by the excavations initially were found by activation of scintillometer instruments carried over the ground surface. The overburden is usually thin in those areas, and detection was facilitated in one instance by shallow dozing done in preparation of a drilling site for oil exploration.

Using a Precision Radiation Model 111B Scintillator, readings as high as 3000 microroentgens per hour were obtained in the bull dozed cuts. There are six scales on this Scintillator instrument graded from most sensitive to least sensitive. This reading of 3000 MRH represented a reading on the sixth, or least sensitive scale of the Scintillator. If higher readings had been obtained, such readings would have been beyond the scope of the Scintillator. Undoubtedly, many similar zones of radioactive clays exist on the lease and would be revealed by surface excavations.

Uraniferous Chalcedonic Silica

Another type of uraniferous material consists of chalcedonic silica or quartz very similar in composition and appearance to the sedimentary chert, although usually darker in color. This material has been found in a vein about two feet wide and as small veinlets in brecciated chert boulders in the bottom and sides of a gully east of the oil well drilling site. Some of the tiny veinlets in the boulders are highly radioactive, and very select portions might assay as high as one per cent uranium oxide. The two foot wide vein of this material is exposed in an old flourspar exploration pit a hundred yards or so southeast of the oil test hole. The vein is only weakly radioactive, but is much more than the surrounding clays. It trends north 65° east, and may be filling one of the regional faults of the northeast striking set.

The Uranium Mineralization of Hick's Dome (Continued)

Inspection of the geologic report of the oil test hole in the Hamp lease indicates a breccia zone was entered at about a thousand feet, as shown in Figure 4, and the hole did not emerge from it although it was drilled nearly two thousand additional feet. The breccia zone was reported to be radioactive, and to contain small amounts of sulfides as well. The reported uranium content of several samples indicate sub-commercial mineralization, but the thoroughness of the investigation for radioactive material and the freedom of reporting allowed by St. Joseph Lead, who drilled the well, is not known.

The Area Southwest of the Lease

The fault a mile or more southwest of the lease was visited in company with the lessees of ground in that area. It is a highly silicified fault zone of the northeast striking set, and is readily traceable along the hill. It disappears beneath the alluvium in the low areas, but its projection would pass through or just north of the Reynolds' lease. Its outcrop is said to be weakly radioactive, but this was not readily apparent due to the high background caused by the fallout from atomic bomb tests. Boulders of brecciated sedimentary chert said to be weakly radioactive were sporadically distributed in the area. Even though well down on the flank of the dome, an explosive breccia zone may have reached the present surface in this locality.

Genesis of the Mineralization

The Chattanooga Shale of Tennessee and Kentucky is known to contain very unusual amounts of uranium. Its equivalent (New Albany shale) crops out as a ring around the flanks of Hick's Dome and once was present about five hundred feet above the present ground surface at the apex of the dome. It would have contained enough uranium to account for the radioactivity found in the clays of the present surface.

Due to indications of igneous intrusions and other volcanic materials, it has also been postulated the uranium mineralization is of hydrothermal origin. Should that be the case, there would be a possibility of mineable concentrations of uranium mineralization in the area in the opinion of one recognized expert uranium geologist, Kirby C. Coryell, Grand Junction, Colorado. X

Furthermore, the ore bearing rocks of three of the richest pitchblende producing mines in the world are a very old Precambrian series. These mines are Shinkolobwe, Belgian Congo; Joachimsthal, Czechosolovakia; and Eldorado Mine, Great Bear Lake in Canada. The good evidence of igneous action in the form of several basic dikes in the Hick's Dome area and the existence of breccia containing granitic fragments are easily ascribable to the sources in the Precambrian basement.

The Urgeirica Mine in Portugal ranked after Joachimsthal during the early period of uranium production. This Portuguese mine initially produced secondary uranium minerals that were not recognized as of primary origin until substantial pitchblende was recently discovered in the deeper mine workings at Urgeirica. These uranium deposits are found in veins, some of which have been traced for several thousand feet in the white coarse-grained granite of medium age surrounded by folded Precambrian schists. On the surface the veins are marked by zones of kaolin and limonite and the vein material itself usually

Genesis of the Mineralization (Continued)

has the distinctive dark red Jasper, common to most primary uranium deposits, criscrossed with white quartz veinlets. This surface description of the Urgeirica Mine in Portugal appears to be similar to the kaolinized veinlets of Hick's Dome and the dark red Jasper is similar to the dark reddish brown radioactive rock of Hick's Dome. It is felt that due to the Precambrian origin of some of the Hick's Dome minerals that there may be a possibility of a pitchblende lode at depths under the crest of the Dome on the Hamp lease. This is one of the main purposes for requesting this exploration project to determine if there are indications of a pitchblende deposit or indications of a uranium deposit of any type in commercial quantities.

The Portuguese deposits described above are the first of four groups of such deposits (Portugal; Marysvale, Utah; Central France; and Boulder area, Montana), all originally believed to be of secondary uranium minerals because of complete oxidation of the primary minerals to considerable depth, thus preventing the early detection of these primary deposits.

The vein of chalcedonic silica exposed in the old pit, and the same material in veinlets in the brecciated chert boulders, suggest the possibility that such a vein, or a zone of numerous, closely spaced small veinlets, may in some places constitute mineralization of commercial grade and volume. The uranium in this material probably is very close to being in equilibrium with its disintegration products, so such a deposit would not necessarily be found at depth only, but may be close to the surface. The possibility that such ore bodies exist, or that they would repay the exploration expense is unpredictable at this stage. It is felt that possible ore bodies within the large zones of explosive breccia would constitute local filling of interstices of the breccia by the uraniferous chalcedonic silica. Their shape and attitude probably would be considerably more irregular than the other possible types

Genesis of the Mineralization (Continued)

of ore bodies.

Samples taken at random from the surface cores indicate the presence of uranium in less than commercial quantities range chemically from as high as .074% with radiometric equivalent U_3O_8 as high as 0.91%. Indications are that the uranium is out of equilibrium, since the radiometric analysis does not agree with the chemical analysis. It is felt that this may be due to leaching out of the uranium or its daughter elements. However, it is further felt that if a primary host rock can be found, or if a primary pitchblende lode source can be located, then the uranium could reasonably be expected to be in equilibrium and with chemical assays substantially above the minimum acceptable of 0.1%. Samples assayed for columbium and rare earths by the Dow Chemical Company, Midland, Michigan show a content of .43% Columbium (metal oxide content); .82% rare earths. The United States Government has a program to purchase columbium and it is desired that this exploration project encompass the search for columbium to ascertain its availability in commercial quantities. Flourspar mineralization was evidenced in virtually every sample core in the Henry Hamp oil hole, either as breccia filling, vein incipient, veinlets or replacement. Some zones indicate flourspar continuing for 150 feet, one assay yielding 12.8% calcium flouride. It is conceivable, according to Illinois geoligists, that any zone within this structure could contain mineable deposits of flourspar or active sphalerite or galena.

Qualifications of Personnel

Subject applicant, Mr. W. G. Reynolds, is Vice President of Reynolds Metals Company. He is active in a number of private business ventures, including oil exploration. He owns major interests in several oil leases in the State of Kentucky. He is also engaged in exploring for uranium and other minerals. This proposed exploration is a personal business enterprise of Mr. Reynolds and has no connection with the Reynolds Metals Company. Mr. Reynolds owns the controlling leases in the Hick's Dome area. He is in a position to furnish his share of the cost of the proposed project in accordance with the regulations on Government participation. His share of the cost can be furnished either in the form of cash or payment of his proportion of actual operating costs as they accrue. He is thoroughly qualified and capable to manage and supervise a group of associates consisting of competent expert technical personnel to handle this project. This personnel consists of geogolists, mining engineers and other technical consultants now working on a consulting basis for Mr. Reynolds in connection with his various oil and mineral enterprises. Some of the personnel operate on a full time basis, being paid directly by Mr. Reynolds and others operating on a part time consulting basis. Other personnel associated with Mr. Reynolds are as follows:

Kirby C. Coryell, Consulting Geogolist and Mining Engineer, Grand Junction, Colorado. Mr. Coryell has made a preliminary survey of Mr. Reynolds' Hick's Dome lease and some of his observations are included in the foregoing description of the geogolical structures. Mr. Coryell is recognized on the Colorado plateau as a top expert on uranium exploration, having served with the Atomic Energy Commission for two years in field exploration work. He was Chief Geogolist for Mr. Vernon Pick during the time of Mr. Pick' major uranium

Qualifications of Personnel (Continued)

discoveries. He is now a Consulting Geogolist and Mining Engineer, residing in Grand Junction, Colorado, and would be available to set up and supervise this exploration project.

C. C. O'Boyle, Consulting Geogolist, Denver, Colorado. Mr. O'Boyle is a qualified consulting geogolist, who is also an employee of Mr. W. G. Reynolds in a consulting capacity for evaluating the Hick's Dome area. He would also be available, if required.

Methods and Cost of Proposed Exploration

Drilling normally would be the initial stage of exploration, preceeded by limited stripping by bull dozer to define the faults and zones to be drilled. The cost of diamond drilling in this area of blocky chert is approximately $10.00 a foot or more, extremely high and core recovery is poor. The less usual procedure of initial exploration by driving tunnels or drifts into the hill sides would cost $30.00 per foot, but would be many times more informative than drilling. Should exploration be undertaken, it is suggested that strips along the crests of the hills be removed to bed rock by a bull dozer. This essential crest stripping would be started at a point about 400 feet directly northeast of the Henry Hamp oil well drilled on the Henry Hamp lease, as shown in Figure 1. Some of the rock on part of this crest has already been dynamited to study the inside of the radioactive rock formations.

Should numerous zones of promise be disclosed by this method they should be explored by drifts and crosscuts. The drifts would consist of two horizontal tunnels, each 4 feet wide x 5 feet high x 400 feet in length. One drift would start at the bottom of the crest of the hill at the location mentioned above and run in a southeasterly direction toward the Fricker well. The second drift would start 20 feet from the above drift on the opposite side of the same ravine and run 400 feet in a southwesterly direction toward the Hamp well. There are a large number of qualified unemployed miners in this area due to the shutdown of the flourspar mines. It is proposed that three miners be employed, under the supervision of Mr. Coryell and a sub-contract entered into with these miners for a flat rate per foot of drift on the basis of the miners furnishing their own explosives, digging tools and other small equipment for removal of rock and debris. It is estimated that such a contract can be made for $30.00 per foot of drift. 800 feet of drift would, therefore, cost $24,000.00.

Methods and Cost of Proposed Exploration (Continued)

Bull dozing operations can be performed on a rental basis in this area for $13.00 per hour. It is estimated that 200 hours of bull dozing would be required, or a total cost of $2600.00. Fuel, operators time, equipment, haulage to and from site and all other costs are included in this $13.00 per hour rate. In connection with the drift mining and bull dozer operations, it is estimated that at least 3 core holes should be diamond drilled to depths of 80 feet at $10.00 per foot, or $800.00 per hole. Thus, a total cost of $2400.00 would cover the diamond drilling operations.

Services of Mr. Coryell at the rate of $100.00 per day, plus travel cost and services of Mr. O'Boyle at the same rate, are estimated to amount to a total of $7200.00. This would cover a period of 50 total working days at $100.00, plus $2200.00 travelling and miscellaneous allowable costs. These 50 days will not necessarily be consecutive days, but will be intermittent as required.

Contingencies, in the amount of 10%, are included to cover miscellaneous items of cost, not mentioned above, but excluding general overhead management, interest, taxes, or any other unrecorded costs or work performed, or cost incurred before the date of the contract.

Cost Summary

1)	Drift Mining - 800 lineal ft. @ $30.00 per ft. (labor and material)	$24,000.
2)	Bull dozing - 200 hrs. @ $13.00 per hr.	2,600.
3)	Diamond drilling - 3 holes of 80 ft. each @ $10.00 per ft.	2,400.
4)	Supervision, Consultants - 50 days at $100.00 per day	5,000.
	Travel and other allowable expenses	2,200.
		$36,200.
5)	Contingencies - 10%	3,600.
	TOTAL	$39,800.

Methods and Cost of Proposed Exploration (Continued)

It is estimated that the work will start within two weeks and be completed within ten months from the date of the exploration contract. If at the end of this exploration contract, commercial minerals in mineable quantities are found, then the applicant may apply for additional funds to cover exploration of applicant's other leases in the Hick's Dome area.

Access roads are readily accesible and are in good condition right up to the crest of the Dome where the exploration operations will take place. Hick's Dome is located approximately 8 road miles from Elizabethtown, Illinois, most of which is over Illinois State Highway #34, which is in excellent condition. Elizabethtown is located directly on the Ohio River, approximately 50 miles north of Paducah. Ore and/or ore concentrates could be readily transported by truck from the site to be loaded on Ohio River barges for shipment to any designated shipping point for further processing.

Local water sources for drilling operations are available from small ponds near the crest of the Dome.

Electricity, if required, can be provided by rental of small portable generator equipment, the cost of which is provided under contingencies. However, it is anticipated that small mining tools will be pneumatic operated from rented air compressors, the cost of which can be covered under contingencies.

Summary

In conclusion, it is strongly felt that the efforts to be expended under this proposed exploration contract have every possibility of uncovering uranium, columbium, flourspar, rare earths and other valuable minerals in commercial quantities.

Chemical assays on a few random samples taken to date have not been up to the necessary minimum of 0.1%. However, some chemical assays have come close to this minimum percentage and radiometric assays have substantially exceeded this percentage for equivalent U_3O_8. If uranium bearing ore can be found in equilibrium in a host rock (rather than in the clay), it is felt that such ore has every possibility of chemical assaying in commercial percentages.

The geological structural mechanics of the Hick's Dome area, whether of hydrothermal origin or sedimentary origin, or both, are favorable for the formation of uranium bearing strata.

Columbium has been found in sufficient quantities in a few samples checked to warrant further exploration.

The entire area is already a known flourspar producing area and flourspar has been found on the crest of Hick's Dome in sufficient percentages to indicate the justification for further exploration.

By the expenditure of the above proposed funds, covering a thoroughly established plan for exploration under the guidance of well qualified and experienced personnel, it is felt that if minerals do exist in Hick's Dome in commercial quantities, they will be uncovered and their scope determined by this proposed work.

B. L. Baxter

B. L. Baxter
R.R.-6, Box 574
Louisville, Kentucky

April 27, 1955

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JUN 17 1955

AGREEMENT OF ASSIGNMENT

This agreement of assignment made this 24th day of March, 1955, by and between William A. Chenault and Louise Ryan Chenault, his wife, hereinafter referred to as the Assignors; and William G. Reynolds, hereinafter referred to as the Assignee

W I T N E S S E T H:

For and in consideration of $1.00 in hand paid and the undertaking of Assignee to pay to William A. Chenault 10% of the net proceeds to Assignee (or to the partnership consisting of W. G., R. S., and Louise Parham Reynolds) from operation or sale of the leases hereinafter mentioned (Net proceeds as used herein shall mean the gross income from either sale or operation of the leases less any costs properly attributable to the procurement, exploration, operation or sale of the said leases, including without limitation the expenditures made to reimburse William A. Chenault for expenses, the rental, sales commissions, if any, operation and exploration costs, accounting costs, geological and other technical costs, and all other proper costs. Payments shall be made to William A. Chenault monthly as soon after the end of each month as the amount of net proceeds for the foregoing month can be accurately computed) Assignors hereby assign all their right, title, and interest in and to the below mentioned leases unto the Assignee, his heirs, and assigns. In consideration of such assignment, the Assignee hereby assumes and agrees to make all the payments and perform all the covenants and conditions of the below mentioned leases. The leases which are assigned herein are as follows:

1. That certain lease dated February 18, 1955 by and between Hal Stacey and Anna Stacey, his wife, lessors, and William A. Chenault and William G. Reynolds, lessees, granting certain mineral rights on twenty-five acres of land situated in Hardin County, Illinois and described as follows:

Section 25, Township 11, Range 7. N.5/8

N.E.1/4 S.E.1/4.

2. That certain lease dated March 18, 1955 by and between E. F. Wall, Jr., a widower, lessor and William A. Chenault and William G. Reynolds, lessees granting certain mineral rights on the hereinafter described real estate situated in the County of Hardin, State of Illinois, to wit:

The East Half of the Southwest Quarter of Section 29, Township 11 South, Range 8 East of the Third Principal Meridian, and also the Northeast Quarter of the Southwest Quarter of Section 26, Township 11 South, Range 7East of the Third Principal Meridian.

3. That certain lease agreement dated the 18th day of March, 1955 between the First State Bank of Elizabethtown, a corporation, lessor, and William A. Chenault and William G. Reynolds, lessees granting certain mineral rights on the hereinafter described real estate, situated in the County of Hardin and State of Illinois, to wit:

The Southwest Quarter of the Southwest Quarter of Section 19, the South 17 1/2 acres of the Northwest Quarter of the Southwest Quarter of Section 19, the West half of the Northwest Quarter of Section 30, all in Township 11 South, Range 8 East of the Third Principal Meridian; also the Southeast Quarter of the Southeast Quarter of Section 24. Also the East half of the Northeast Quarter; the Southwest Quarter of the Northeast Quarter; and a parcel of land lying in the North part of the Northeast Quarter of the Southeast Quarter described by metes and bounds as follows:

Beginning at the Southeast corner of the Southeast Quarter of the Northeast Quarter, thence running West 50 rods, thence South 2 1/2 rods, thence East 50 rods to the township line, thence North 2 1/2 rods to the place of beginning, containing 3/4 of an acre, all lying and being in Section 25, Township 11 South, Range 7 East of the Third Principal Meridian.

4. That certain agreement dated March 7, 1955 between Carrie Schutt, a widow; Robert Deneen Schutt and Corena Schutt, his wife, and Ruth Schutt, a single woman, lessors and William A. Chenault and William G. Reynolds, lessees granting certain mineral rights on the following described land situated in the County of Hardin, State of Illinois, to wit:

Southeast Quarter of the Southwest Quarter of Section 24, Township 11 South, Range 7 East of the Third Principal Meridian, containing 40 acres more or less.

5. That certain lease agreement dated February 18, 1955 between Wiley Robinson and Voley Robinson, his wife, lessors to William A. Chenault and William G. Reynolds, lessees granting certain mineral rights in the following described land in Hardin County, Illinois, and bounded as follows, to wit:

Section 25, Township 11, Range 7. N.5/8 N.E.1/4 S.E.1/4, containing 25 acres.

6. That certain lease agreement dated February 14, 1955 between Henry Hamp, Jr. and Goldie Dee Hamp, his wife, lessors and William A. Chenault and William G. Reynolds, lessees, granting certain mineral rights on the following described land situated in the County of Hardin, State of Illinois, to wit:

All that part of the Northeast Quarter of the Southeast Quarter of Section 25, Township 11 South of Range 7E, lying Northeast of public road containing 1 1/2 acres more or less and also the North half of the Northwest Quarter of the Southwest Quarter and a part of the East half of the Southwest Quarter described by metes as follows: Beginning at the Northwest corner of the said E/2 SW., thence running South with the West Line thereof to the center point of the West line of the SE 1/4 of the SW 1/4, being the NW corner of the Silas Stacey tract, thence East 40 rods, thence North to a point 30 rods North of the North line of the SE 1/4 of the SW 1/4, thence East 33 rods to the west line of the Pleas Rose tract, thence, North to the N. line of the said E/2 SW., thence West to the Place of beginning in Section 30, Township 11 S, Range 8E, containing 51.80 acres.

In witness whereof, the parties have hereunto set their hands and seals on the date first above written.

W G Reynolds

Louise Ryan Chenault

STATE OF ~~Jefferson~~ Kentucky)
) ss.
COUNTY OF Jefferson)

I, Lucille Walston, a Notary Public, do certify that the foregoing instrument of writing from William A. Chenault and Louise Ryan Chenault, his wife, was this day produced to me in my

county by the parties and acknowledged before me by the said William A. C. Chenault and Louise Ryan C. Chenault his wife, respectively, to be their act and deed for the uses and purposes therein set forth.

GIVEN under my hand and seal of office this 24th day of March, 1955

My commission expires _____. Lucille Walston
Notary Public

STATE OF Kentucky)
) ss.
COUNTY OF Jefferson)

I, Lucille Walston, a Notary Public, do certify that the foregoing instrument of writing from W. G. Reynolds ~~and~~ _____, ~~his wife,~~ was this day produced to me in my county by the parties and acknowledged before me by the said W. G. Reynolds ~~and~~ _____, ~~his wife, respectively~~, to be ~~their~~ its act and deed for the uses and purposes therein set forth.

GIVEN under my hand and seal of office this 24th day of March, 1955

My commission expires _____. Lucille Walston.
Notary Public

OIL, GAS AND MINERAL LEASE

THIS AGREEMENT, made this 14th day of FEBRUARY, 1955 between Lessors

HENRY HAMP, JR., and GOLDIE DEE HAMP, his wife

whose address is 3728 Marconi Avenue, Sacramento, Calif

and Wm. A. Chenault and W. G. Reynolds LESSEE whose address is Louisville, Kentucky.

WITNESSETH:

1. LESSOR in consideration of ONE DOLLAR ($1.00) in hand paid, and of the agreements of Lessee herein contained, hereby grants, leases and lets exclusively unto Lessee, for the purpose of testing by any method for formations or structures and prospecting and drilling for, mining, and producing oil, gas distillate, sulphur and other minerals, injecting salt water, other fluids, and gas, into subsurface strata, storing minerals and fluids, laying pipe lines, dredging canals, building roads, bridges, docks, tanks, powers, stations, telephone and electric transmission lines, and other structures and facilities including houses for employees, necessary for producing, saving, caring for, treating, processing, and transporting minerals and conducting said operations, the following described land - situated in the County of Marion, State of Illinois to wit:

All that part of the Northeast (NE) Quarter of the Southeast (SE) Quarter of Section Twenty-five (25) Township 11 South of Range 7E, lying Northeast of public road containing 1½ acres more or less and also the North half of the Northwest Quarter of the Southwest Quarter and a part of the East half of the Southwest quarter described by metes as follows: Beginning at the Northwest corner of the said E/2 SW., thence running South with the West Line thereof to the center point of the West line of the SE 1/4 of the SW 1/4, being the NW corner of the Silas Stacey tract, thence East 40 rods, thence North to a point 30 rods North of the North line of the SE 1/4 of the SW 1/4, thence East 33 rods to the west line of the Pleas Rose tract, thence, North to the N. line of the said E/2 SW., thence West to the Place of beginning in Sec. 30 T. 11 S, R 8E. containing 51.80 acres.

2. Subject to the other provisions herein contained, this lease shall remain in force for a term of 60 days from this date, (hereinafter called "primaryterm") and as long thereafter as oil, gas distillate sulphur or other mineral is produced hereunder, or any operation is conducted, any payment is made, or any condition exists, which as hereinafter provided continues this lease in force.

3. The royalties reserved by Lessor, and which shall be paid by Lessee are (a) on oil (including but notlimited to distillate and condensate) one-eighth (1/8th) of that produced and saved from the leased premises, the same to be delivered at the wells or to the credit of Lessor in the pipe line to which the wells may be connected; provided, however, Lessee may from time to time purchase

Section 25 and 30 Township 11S Range 7E and 8E containing 51.
acres, more or less, and being the same land conveyed to lessor, together with all land or interests owned by Lessor adjoining or contiguous to the land above described, whether in the same or different surveys. For determining the amount of any money payment hereunder the leases premises shall be treated as comprising 51.50 acres, whether there be more or less. The word "mineral" as used in this lease includes oil, gas, distillate, sulphur and any other minerals whether similar or dissimilar, unless the context clearly requires a different meaning.

(b) on gas (including casinghead gas and other vapors) produced from said land and sold or used off the leased premises or in the manufacture of gasoline or other product, the current market price at the wells of one-eighth (1/8th) of the gas so sold or used; (c) on sulphur mined and marketed, One Dollar ($1.00) per long ton (2240 lbs); (d) on all other minerals mined and marketed, one-tenth (1/10th) of the current market price at the wells or mine. During any period (whether before or after expiration of the primary term hereof) when gas is not being so sold or used due to lack of market and the well or wells are shut in and there is no current production of oil or operations on said leased premises sufficient to keep this lease in force. Lessee may pay or tender as royalty an amount (which shall be the same regardless of the number of the shut in wells) per half year, equal to one-half the annual rental hereafter provided, and it will be considered that gas is being produced, for all purposes of this lease during any period for which such payment is made; such amount for the first half year to e payable within ninety (90) days following shutting in of the first well and for subsequent periods semi-annually in advance thereafter. The amount of each royalty payment or tender may be made by check or draft of Lessee in the same manner as provided for "rental" payments under Paragraph Four (4) hereof. Lessee shall have free use of oil, distillate, condensate, gas and water from the leased premises, except water from Lessor's wells and tanks, for all operations hereunder. Lessor shallhave the privilege at his risk and expense of using gas from any well, producing gas only, on the leased premises for stoves and inside lights in the principal dwelling thereon out of any surplus gas not needed for operations hereunder.

4. If drilling operations or mining operations are not commenced on the leased premises on or before 60 days from this date, this lease shall then terminate as to both parties.

5. If during the primary term and before there has been a discovery of any mineral on the leased premises Lessee should drill a dry hole or fail in an exploratory attempt to establish production hereunder, this lease shall not be terminated thereby if Lessee commences further drilling operations, or mining operations, or commences or resumes the payment or tender of rentals on or before the rental paying date, if any, next ensuing after thirty days following completion of the dry hole or failure of such exploratory attempt, or, if there be no such rental paying date, commences such further operations before the expiration of the primary term. If after the discovery of any mineral the production thereof and also of the other discovered mineral of minerals. If any, should cease from any cause this lease shall not be terminated thereby if within sixty days thereafter production of any mineral or minerals is restored or Lessee commences drilling operations, reworking operations, or mining operations, or if it be within the primary term. Lessee commences or resumes the payment or tender of rentals on or before the rental paying date, if any, next ensuing after thirty days following such cessation of production. If at the expiration of the primary term no mineral is being produced on the leased premises but Lessee is then engaged in drilling operations, reworking operations, or mining operations thereon, this lease shall remain in force so long as such operation (whether on the same well or mine or on different wells or mines successively) are continuously prosecuted and, if they result in the production of a mineral so long thereafter as any mineral is produced hereunder from the leased premises. Such operations, after the expiration of the primary term, shall be deemed to be continuously prosecuted if not more than sixty days shall elapse between the

completion of drilling operations, reworking operations, or mining operations, on one well or mine and the commencement of such operations on another well or mine.

6. Lessee shall have the right at any time until one year after the expiration of this lease to remove all fistures and other property placed by Lessee on the leased premises, including the right to draw and remove all casing. When required by Lessor, Lessee will bury all pipe lines below ordinary plow depth in cultivated land. Lessee shall pay Lessor for damages to Lessor's growing crops caused by Lessee's operations. Any structures and facilities placed on the leased premises by Lessee for operations thereon and any well or wells on the leased premises drilled or used for the injection of sale water, other fluids, or gas may also be used for Lessee's operations on other lands in the field.

7. Lessee is hereby granted the right at any time and from time to time to unitize the leased premises or any portion or portions thereof, as to all strata or any stratum or strata, with any other lands as to all strata or any stratum or strata, for the production primarily of oil or primarily of gas with or without distillate. However, no unit for the production primarily of oil shall embrace more than 40 acres, or for the production primarily of gas with or without distillate more than 640 acres; provided that if any governmental regulation shall prescribe a spacing pattern for the development of the field or allocate a producing allowa le based on acreage per well, then any such unit may embrace as much additional acreage as may be so prescribed or as may be used in such allocation of allowable. Lessee shall file written unit designation in the county in which the leased premises are located. Operations upon and production from the unit shall be treated as if such operations were upon or such production were from the leased premises whether or not the well or wells are located thereon. The entire acreage within a unit shall be treated for all purposes as if it were covered by and included in this lease except that the royalty on production from the unit shall be as below provided, and except that in calculating the amount of any rentals or shut in gas royalties, only that part of the acreage originally leased and then actually embraced by this lease shall be counted. In respect to production from the unit. Lessee shall pay Lessor, in lieu of other royalties thereon, only such proportion of the royalties stipulated in paragraph 3 as the amount of his acreage placed in the unit, or his royalty interest therein on an acreage basis, bears to the total acreage in the unit.

8. The rights of either party hereunder may be assigned or subleased in whole or in part and the provisions hereof whall extend to their heirs, successors, sublessees, and assigns. However, no change or division in ownership of the lands, rentals, or royalties, shall enlarge the obligations or siminish the rights of Lessee. No change or division in such ownership shall be binding on Lessee until thirty days after the Lessee shall have been furnished by registered mail at its above stated address with the original or a certified copy of the recorded instrument or instruments evidencing same. In the event of assignment or sublease hereof in whole or in part liability for breach of any obligation hereunder shall rest exclusively upon the owner of this lease or of a portion thereof or of an interest therein who commits such breach. In the event of the death of any person entitled to rentals hereunder

Lessee may pay or tender such rentals to the authorized depository bank to the credit of the estate of the deceased until such time as Lessee is furnished proper evidence of the appointment and qualifications of an executor or administrator of the estate or, if there be none, then until Lessee is furnished evidence satisfactory to it as to the heirs or devisees of the deceased. In the event of assignment or sublease of this lease as to a segregated protion of said land, the rentals payable hereunder shall be apportionable among the several leasehold owners (including subleasees) ratably according to the surface area of each, and default in rental payment by one shall not affect the rights of other leasehold owners (including su lessees).

9. Lessee may at any time, and from time to time, execute and deliver to Lessor or place of record a release covering all or any portion of the leased premises, and thereupon shall be relieved of all obligations as to the acreage surrendered. After a rebase of this lease as to only part of the acreage the rentals payable hereunder shall be reduced in the proportion that the acreage covered hereby is reduced by each such release.

10. In the event Lessor considers that Lessee has failed to comply with any obligation hereunder, express or implied. Lessor shall notify Lessee in writing specifying in what respects Lessor claims Lessee has breached this lease. The service of such notice and the lapse of sixty days without Lessee's meeting or commencing to meet the alleged breaches shall be a condition precedent to any action by Lessor for any cause. If within sixty days after receipt of such notice Lessee shall meet or commence to meet the breaches alleged by Lessor, Lessee shall be deemed in default hereunder. The breach by Lessee of any obligation hereunder shall not work a forfeiture or termination in whole or in part, of this lease.

11. When drilling, production, or other operations are delayed or interrupted by lack of water, labor or material, or by fire, storm, flood, war, rebellion, insurrection, riot, strike, differences, with workmen, or failure of carriers to transport or furnish facilities for transportation or lack of market for the minerals produced, or as a result of some order, requisition or necessity of the government, or as the result of any cause whatsoever beyond the control of Lessee, the time of such delay or interruption shall not be counted against Lessee and this lease shall remain in force during such delay or interruption and ninety days thereafter, anything in this lease to the contrary notwithstanding.

12. Lessor hereby warrants and agrees to defend the title to said land. If Lessor owns less interest than the entire fee or mineral estate (even though this lease purports to cover only such lesser interest) the rentals and royalties to be paid Lessor shall be reduced proportionately. Lesee at its option may discharge any tax, mortgage, or other lien upon said land either in whole or in part, and thereby be subrogated to such lien with the right to enforce same ane apply rentals and royalties toward satisfying same.

13. Should any one or more of the parties above named as Lessor fail to execute this lease, it shall nevertheless be binding upon all such parties who do execute it as Lessor. The word "Lessor" as used in this lease means the party or parties who execute this lease as Lessor, although not named above The Lessor hereby wai es and releases all right of dower and homestead in the premises herein described.

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14. It is understood and agreed by the Lessor and Lessee, that after a period of 30 days from date of this Agreement, if no royalty payment from any oil, gas or other mineral whatsoever has been paid to Lessor, then and in that event, the Lessee agrees to pay the Lessor, in lieu of such royalty payment the sum of ~~Seventy Five~~ ONE HUNDRED ($~~75.00~~100.00) per month until such Royalty payment from oil, gas or other minerals is paid to the Lessor. The payment in lieu of a Royalty payment will continue for the term of this Agreement.

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2 100
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IN WITNESS WHEREOF, this instrument is executed on the date first above written.

WITNESSES;

Henry Hamp
Goldie Dee Hamp

LESSOR

STATE OF CALIFORNIA }
COUNTY OF SACRAMENTO } SS

On this 14th day of February in the year one thousand nine hundred and fifty-five before me RUTH M. SUTTON, a NOTARY PUBLIC in and for the County of Sacramento, personally appeared

HENRY HAMP and GOLDIE DEE HAMP, his wife

known to me to be the persons whose names are subscribed to the within instrument, and they duly acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my OFFICIAL SEAL the day and year in this certificate first above written.

Ruth M Sutton
NOTARY PUBLIC IN AND FOR THE COUNTY OF SACRAMENTO, STATE OF CALIFORNIA

MY COMMISSION EXPIRES
AUGUST 20th, 1955

OIL AND MINERAL LEASE

FROM

WM. A. CHEVALIER

TO

W. C. REYNOLDS

DATED [illegible]

.....

STATE OF ILLINOIS, } ss. No. 4922
Hardin County

This instrument was filed for record in Recorder's Office of Hardin County aforesaid, on 19th day of February A. D. 1955 at 11:30 o'clock A M., recorded in Book 5 of Misc. on page 219

L. H. Henry Recorder

Recording Fee .....

AGREEMENT

between

HICKS DOME ACCOUNT

and

ANTAEUS RESOURCES CORPORATION

Dated: May 10, 1971

GASPERINI, KOCH & SAVAGE
277 PARK AVENUE
NEW YORK, N. Y. 10017

THIS AGREEMENT, made this 10th day of May, 1971, between HICKS DOME ACCOUNT, a partnership organized under the laws of the State of New York with offices at 53 Wall Street, New York, New York 10005 ("HDA") and ANTAEUS RESOURCES CORPORATION, a Delaware corporation with offices at 345 Park Avenue, New York, New York 10022 ("Antaeus").

WITNESSETH:

WHEREAS, Antaeus holds under mining leases certain leasehold interests in properties located in Hardin County, Illinois (the "Properties"), as more particularly set forth in Schedule "A" attached hereto and made a part hereof; and

WHEREAS, the parties wish to have HDA conduct further exploration and development of the Properties under the terms and conditions hereinafter set forth;

NOW, THEREFORE, in consideration of the mutual covenants herein contained, it is agreed by and between the parties as follows:

1. Interests of Antaeus. Antaeus represents that it holds under mining leases the Properties listed in Schedule "A" hereto, located in the Hicks Dome area of Hardin County, Illinois, and that such leases are in full force and effect according to their

terms. A copy of each of the leases and related assignments has been delivered separately to HDA.

2. Lease from Antaeus to HDA. Antaeus hereby leases its interest in the Properties to HDA for a period of ten (10) years from the date of this Agreement, and for so long thereafter as mining operations are being conducted on the Properties by HDA or any successor in interest thereto. During the period of such lease, Antaeus hereby grants to HDA the exclusive right to examine, explore, develop, mine and extract from the Properties the ores and minerals contained therein. HDA may remove from the Properties such sample of ore and minerals as are in its opinion necessary or desirable to enable it to evaluate the Properties to determine whether it is suitable for a commercial mining operation.

3. Obligations of HDA. During the period of this Agreement, HDA hereby assumes all of the obligations of Antaeus with respect to the Properties, including royalty or rental payments to the landowners of the Properties as provided in each of said leases.

4. Expenditures by HDA. HDA agrees to expend at least $50,000 in the exploration and development of the Properties. Although HDA is not required to expend any monies in excess of $50,000, it is contemplated that HDA will expend a cumulative total

of $250,000 in the exploration and development of the Properties by the end of a period of five years from the date of this Agreement, and a cumulative total of $750,000 in the exploration and development of the Properties by the end of a period of ten years from the date of this Agreement. It is understood that the provisions of this Paragraph 4 shall no longer apply at such time as HDA has elected to place the Properties into production.

5. Reconveyance. At any time during the period of this Agreement after HDA has expended at least $50,000 but less than $150,000, HDA may notify Antaeus in writing that it does not wish to proceed with further exploration and development of the Property. In such event, HDA will reconvey its interests in the Properties to Antaeus, and the parties will have no further obligation to each other under this Agreement. In any event HDA will reconvey its interests in the Properties to Antaeus if it has not expended $250,000 in exploration and development on the Properties by the end of a period of five years from the date of this Agreement; provided, however, that if at least $150,000 has been expended by HDA in exploration and development, HDA shall retain a one-third (1/3) net profits interest in the Properties being reconveyed.

6. Reconveyance Subject to Net Profits Interest. At such time as HDA has spent $150,000 pursuant to the provisions of

Paragraph 4, it shall have the right:

(a) to reconvey its interest in the Properties to Antaeus, retaining a one-third (1/3) net profits interest in the Properties in recognition of the expenditures which HDA has made; or

(b) to proceed to go forward with the exploration and development of the Properties.

7. Options of HDA. If HDA proceeds to go forward with the exploration and development of the Properties, as provided in Paragraph 6(b), it shall have the right:

(a) to place the Properties into production and pay Antaeus a royalty of either (i) 10% of gross receipts from the Properties ("gross receipts" for the purpose of this clause to mean the amount of money received from purchasers, net of royalty payments to landowners, from the sale of ores, minerals, concentrates or any other form in which the minerals or materials, whether metallic or non-metallic, produced from the Properties are sold, after deduction of all transportation costs paid by the seller in delivering the products from the Properties to the purchaser, sampling and assaying costs paid by the seller), or at the option of HDA (ii) twenty-four (24%) percent of the net profits from the Properties; or

(b) to elect to spend additional monies in exploration and development of the Properties.

8. If HDA elects to expend additional monies in exploration

and development of the Properties as provided in Paragraph 7(b), at any time after HDA has spent at least $300,000, it shall have the right:

(a) to elect to place the Properties into production and pay Antaeus royalties therefrom according to the following schedule:

10% of the net profits from the production of the Properties, if the production is 1,000 tons or more of ore per day;

14% of the net profits from the production of the Properties if the production is from 400 to 999 tons of ore per day; and

18% of the net profits from the production of the Properties if the production is less than 400 tons per day; or

(b) place the Properties into a corporation or joint venture with Antaeus, in which the percentage ownership of HDA will be that percentage obtained by dividing the expenditures of HDA to date by the sum of (1) the expenditures of HDA to date, plus (2) $200,000.

9. Exchange of Information. It is understood and agreed that the parties will prepare and deliver and exchange such additional or more detailed documents which may be necessary or

desirable to carry out the purposes of this agreement, including the mutual exchange of all reports, data, essays and other information relating to the research, exploration, drilling and sampling of the Properties.

10. Notices. All notices required to be given pursuant to this Agreement to Antaeus shall be sent c/o John L. Carroll, 345 Park Avenue, New York, New York 10022, or to such other person and address as may be designated in writing by Antaeus. Any notices to HDA shall be sent to HDA, c/o Gilbert Kerlin, Esq., 53 Wall Street, New York, New York 10005, or to such other person and address as HDA may designate in writing.

11. Assignment. The rights and obligations under this Agreement may be assigned by either party hereto, but it is understood that the assignment of any rights of either party hereunder shall not be assigned without the assignment to and assumption by the same third party of all of the obligations of the assigning party.

12. Governing Law. This Agreement shall be construed and enforced according to the laws of the State of New York.

IN WITNESS WHEREOF, the parties have hereunto set their

hands as of the date and year above written.

HICKS DOME ACCOUNT

By Gilbert Heckler
A Partner

ANTAEUS RESOURCES CORPORATION

By John T. Carroll
Vice President

SCHEDULE "A"

1. MINING LEASE entered into on March 20, 1970 by and between FIRST STATE BANK OF ELIZABETHTOWN, Hardin County, Illinois ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor and containing in the aggregate 160 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

2. MINING LEASE AND OPTION TO PURCHASE entered into on March 9, 1970 by and between EMMA D. JENKINS, EULALA WUNDERLICH and FRED WUNDERLICH, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor and containing 20 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

3. MINING LEASE entered into on April 14, 1970 by and between LOLA EWELL FREDRICKS, JACK L. FREDRICKS and SOPHIA COY, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY, ("Lessee") of certain mineral properties belonging to Lessor and containing in the aggregate 40 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

4. MINING LEASE entered into on March 12, 1970 by and between FLORENCE F. LOYD, FLUORINE LOYD, S. D. LOYD, BEULAH LOYD, MARYBELLE L. McLIN and W. R. McLIN, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY, ("Lessee") of certain mineral properties belonging to Lessor, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

5. LEASE AND AGREEMENT entered into on May 14, 1971, by and between EDWIN E. ROSE, GLADYS ROSE, THOMAS ROSE, VIVIAN ROSE, VELOISE ZELLER, WILLIAM ZELLER, MAUDE E. WILLIAMS and

VIRGIL H. WILLIAMS ("Lessor") and ANTAEUS RESOURCES CORPORATION ("Lessee") of certain mining properties containing in the aggregate 90 acres, more or less, situated in Hardin County, Illinois, recorded April 5, 1971 in Book 8 of Miscellaneous, Page 558.

6. MINING LEASE AND OPTION TO PURCHASE entered into on July 17, 1963, by and between MABEL PANKEY, ETTA IRBY, and AGNES PANKEY ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor containing 79 acres, more or less, situated in Hardin County, Illinois, and amendment thereto dated October 17, 1963, the 17/21 interest of the Lessor owned by MABEL PANKEY having been purchased by INDUSTRIAL MINERALS EXPLORATION COMPANY on March 13, 1971, recorded March 15, 1971, in Book 8 of Miscellaneous, Page 550, and assigned to ANTAEUS RESOURCES CORPORATION on April 1, 1971; and the remaining 4/21 interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

7. OIL,GAS AND MINERAL LEASE, entered into on April 1, 1963,by and between JAMES E. HAMP ("Lessor") and TRAIN, CABOT & ASSOCIATES ("Lessee") of certain mining properties belonging to Lessor containing 61 1/2 acres, more or less, situated in Hardin County, Illinois,the interest of TRAIN, CABOT & ASSOCIATES as Lessee having been assigned to INDUSTRIAL MINERALS EXPLORATION COMPANY on May 24, 1963,recorded May 29, 1963, in Book 7 of Miscellaneous, Page 12, and amendments thereto dated September, 1963 and December, 1965, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

SCHEDULE "A"

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On this 10th day of May, 1971, before me personally came JOHN L. CARROLL, to me known, who, being by me duly sworn, did depose and say that he is Vice President of Antaeus Resources Corporation, a Delaware corporation with offices at 345 Park Avenue, New York, New York 10022, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that it was so affixed by order of the board of directors of said corporation, that the seal affixed to said instrument is such corporate seal, and that he signed his name thereto by like order.

MARSHALL JAY GLUCK
NOTARY PUBLIC, State of New York
No. 31-[illegible]
Qualified in New York County
Certificate Filed in Nassau County
Commission Expires March 30, 1972

Marshall Jay Gluck
Notary Public

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On this 10th day of May, 1971, before me personally came Herbert Keslin, to me known, who, being by me duly sworn, did depose and say that he is the General Partner of Hicks Dome Account, a General Partnership having its principal place of business at 52 Wall Street, New York, New York 10005, and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same as the act and deed of the Partnership.

Marion Bannon
Notary Public

MARION BANNON
Notary Public, State of New York
No. 31-5169913
Qualified in New York County
Commission Expires March 30, 1972

THIS INDENTURE WITNESSETH, That the Grantor MABLE PANKEY, a widow by death

of the City of Harrisburg. in the County of Saline

and State of Illinois FOR AND IN CONSIDERATION of

Good and valuable consideration and One and No/100---------- DOLLARS

in hand paid, CONVEY and WARRANT to INDUSTRIAL MINERALS EXPLORATION COMPANY, A limited Partnership organized under the laws of the State of New York and whose address is 345 Park Avenue, New York, N.Y.

of the of County of and

State of the following described real estate to-wit:

All of the undivided interest of the Grantor in and to the ores, minerals and mineral substances of every kind and character including oil and gas together with the right to mine, remove and produce the same as heretofore reserved by the grantor, in, upon and under the following lands:

"The NE¼ of the NW¼ (except a parcel described as follows: Commencing at the SE corner of said forty acre tract and from thence running north a distance of one hundred ten (110) feet to a point wereon the south right of way line of the Church Public Road entering from the Hicks Town-Elizabethtown Gravel Public Road intersects the division line between the NW¼ of the NE¼ and the NE ¼ of the NW¼ and from thence running west twelve degrees (12°) south a distance of one hundred eighty-six and five-tenths (186.5) feet along the south right of way line of said Church Public Road to a point whereon said south right of way line intersects the east right of way line of the Public Gravel Hicks Town-Elizabethtown Road, and from thence running in a general southeasterly direction along the course of the east right of way line of the Public Gravel Hicks Town-Elizabethtown Road to point whereon said east right of way line intersects the division line between the NE¼ and the SE¼ of the NW¼ and from thence running east along the last above mentioned division line a distance of ninety-three and five-tenths (93.5) feet to the point of beginning, containing thirty-one one-hundredths (.31) acres),

"The SE¼ of the NW¼ (except a parcel described as follows: Commencing at the NE corner of the SE¼ of the NW¼ and running west a distance of ninety-three and five-tenths (93.5) feet along the division line between the SE¼ and the NE¼ of the NW¼ to a point wereon said division line intersects the east right of way line of the Public Gravel Road running from Hicks Town to Elizabethtown, and from thence running in a general southeasterly direction along the course of the east right of way line of said gravel road a distance of one hundred fifty-six (156) feet to a point whereon said east right of way line intersects the division line between the East and West Halves of the N½ of Section Thirty (30) and from thence running north on the last above mentioned division line a distance of one hundred thirty-seven and five-tenths (137.5) feet to to the point of beginning, containing one hundred forty-seven one-thousandths (.147) acres, and also except a tract of land described as follows: Beginning twelve (12) rods south of the NE corner of the SW¼ of the NE¼, running south thriteen (13) rods, thence west thirteen (13) rods, thence north thirteen (13) rods, thence east thirteen (13) to the place of beginning, containing one (1) acre, more or less, said last described tract lying and being in said SW¼ of the NE¼ and said SE¼ of the NW¼, the part of said last described tract lying in said SE¼ of the NW¼ being about one-half (½) acre, more or less),

all in Section Thirty (30) Township Eleven (11) South, Range Eight (8) East of the Third Principal Meridian, containing in the aggregate seventy-nine and forty-three thousandths (79.043) acres, more or less."

sitiated in the County of Hardin

in the State of Illinois hereby releasing and waiving all right under and by virtue of the Homestead exemption Laws of the State wherein said land is located.

DATED this 13th day of March 19 71

_____ (SEAL)	x Mabel Pankey (SEAL) Mable Pankey
_____ (SEAL)	_____ (SEAL)
_____ (SEAL)	_____ (SEAL)
_____ (SEAL)	_____ (SEAL)

AGREEMENT

between

HICKS DOME ACCOUNT

and

ANTAEUS RESOURCES CORPORATION

Dated: May 10, 1971

GASPERINI, KOCH & SAVAGE
277 PARK AVENUE
NEW YORK, N. Y. 10017

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WITNESSETH:

WHEREAS, Antaeus holds under mining leases certain leasehold interests in properties located in Hardin County, Illinois (the "Properties"), as more particularly set forth in Schedule "A" attached hereto and made a part hereof; and

WHEREAS, the parties wish to have HDA conduct further exploration and development of the Properties under the terms and conditions hereinafter set forth;

NOW, THEREFORE, in consideration of the mutual covenants herein contained, it is agreed by and between the parties as follows:

1. Interests of Antaeus. Antaeus represents that it holds under mining leases the Properties listed in Schedule "A" hereto, located in the Hicks Dome area of Hardin County, Illinois, and that such leases are in full force and effect according to their

terms. A copy of each of the leases and related assignments has been delivered separately to HDA.

2. Lease from Antaeus to HDA. Antaeus hereby leases its interest in the Properties to HDA for a period of ten (10) years from the date of this Agreement, and for so long thereafter as mining operations are being conducted on the Properties by HDA or any successor in interest thereto. During the period of such lease, Antaeus hereby grants to HDA the exclusive right to examine, explore, develop, mine and extract from the Properties the ores and minerals contained therein. HDA may remove from the Properties such sample of ore and minerals as are in its opinion necessary or desirable to enable it to evaluate the Properties to determine whether it is suitable for a commercial mining operation.

3. Obligations of HDA. During the period of this Agreement, HDA hereby assumes all of the obligations of Antaeus with respect to the Properties, including royalty or rental payments to the landowners of the Properties as provided in each of said leases.

4. Expenditures by HDA. HDA agrees to expend at least $50,000 in the exploration and development of the Properties. Although HDA is not required to expend any monies in excess of $50,000, it is contemplated that HDA will expend a cumulative total

of $250,000 in the exploration and development of the Properties by the end of a period of five years from the date of this Agreement, and a cumulative total of $750,000 in the exploration and development of the Properties by the end of a period of ten years from the date of this Agreement. It is understood that the provisions of this Paragraph 4 shall no longer apply at such time as HDA has elected to place the Properties into production.

5. Reconveyance. At any time during the period of this Agreement after HDA has expended at least $50,000 but less than $150,000, HDA may notify Antaeus in writing that it does not wish to proceed with further exploration and development of the Property. In such event, HDA will reconvey its interests in the Properties to Antaeus, and the parties will have no further obligation to each other under this Agreement. In any event HDA will reconvey its interests in the Properties to Antaeus if it has not expended $250,000 in exploration and development on the Properties by the end of a period of five years from the date of this Agreement; provided, however, that if at least $150,000 has been expended by HDA in exploration and development, HDA shall retain a one-third (1/3) net profits interest in the Properties being reconveyed.

6. Reconveyance Subject to Net Profits Interest. At such time as HDA has spent $150,000 pursuant to the provisions of

Paragraph 4, it shall have the right:

(a) to reconvey its interest in the Properties to Antaeus, retaining a one-third (1/3) net profits interest in the Properties in recognition of the expenditures which HDA has made; or

(b) to proceed to go forward with the exploration and development of the Properties.

7. Options of HDA. If HDA proceeds to go forward with the exploration and development of the Properties, as provided in Paragraph 6(b), it shall have the right:

(a) to place the Properties into production and pay Antaeus a royalty of either (i) 10% of gross receipts from the Properties ("gross receipts" for the purpose of this clause to mean the amount of money received from purchasers, net of royalty payments to landowners, from the sale of ores, minerals, concentrates or any other form in which the minerals or materials, whether metallic or non-metallic, produced from the Properties are sold, after deduction of all transportation costs paid by the seller in delivering the products from the Properties to the purchaser, sampling and assaying costs paid by the seller), or at the option of HDA (ii) twenty-four (24%) percent of the net profits from the Properties; or

(b) to elect to spend additional monies in exploration and development of the Properties.

8. If HDA elects to expend additional monies in exploration

and development of the Properties as provided in Paragraph 7(b), at any time after HDA has spent at least $300,000, it shall have the right:

(a) to elect to place the Properties into production and pay Antaeus royalties therefrom according to the following schedule:

10% of the net profits from the production of the Properties, if the production is 1,000 tons or more of ore per day;

14% of the net profits from the production of the Properties if the production is from 400 to 999 tons of ore per day; and

18% of the net profits from the production of the Properties if the production is less than 400 tons per day; or

(b) place the Properties into a corporation or joint venture with Antaeus, in which the percentage ownership of HDA will be that percentage obtained by dividing the expenditures of HDA to date by the sum of (1) the expenditures of HDA to date, plus (2) $200,000.

9. Exchange of Information. It is understood and agreed that the parties will prepare and deliver and exchange such additional or more detailed documents which may be necessary or

desirable to carry out the purposes of this agreement, including the mutual exchange of all reports, data, essays and other information relating to the research, exploration, drilling and sampling of the Properties.

10. Notices. All notices required to be given pursuant to this Agreement to Antaeus shall be sent c/o John L. Carroll, 345 Park Avenue, New York, New York 10022, or to such other person and address as may be designated in writing by Antaeus. Any notices to HDA shall be sent to HDA, c/o Gilbert Kerlin, Esq., 53 Wall Street, New York, New York 10005, or to such other person and address as HDA may designate in writing.

11. Assignment. The rights and obligations under this Agreement may be assigned by either party hereto, but it is understood that the assignment of any rights of either party hereunder shall not be assigned without the assignment to and assumption by the same third party of all of the obligations of the assigning party.

12. Governing Law. This Agreement shall be construed and enforced according to the laws of the State of New York.

IN WITNESS WHEREOF, the parties have hereunto set their

hands as of the date and year above written.

HICKS DOME ACCOUNT

By _____
A Partner

ANTAEUS RESOURCES CORPORATION

By _____
Vice President

SCHEDULE "A"

1. MINING LEASE entered into on March 20, 1970 by and between FIRST STATE BANK OF ELIZABETHTOWN, Hardin County, Illinois ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor and containing in the aggregate 160 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

2. MINING LEASE AND OPTION TO PURCHASE entered into on March 9, 1970 by and between EMMA D. JENKINS, EULALA WUNDERLICH and FRED WUNDERLICH, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor and containing 20 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

3. MINING LEASE entered into on April 14, 1970 by and between LOLA EWELL FREDRICKS, JACK L. FREDRICKS and SOPHIA COY, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY, ("Lessee") of certain mineral properties belonging to Lessor and containing in the aggregate 40 acres, more or less, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

4. MINING LEASE entered into on March 12, 1970 by and between FLORENCE F. LOYD, FLUORINE LOYD, S. D. LOYD, BEULAH LOYD, MARYBELLE L. McLIN and W. R. McLIN, ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY, ("Lessee") of certain mineral properties belonging to Lessor, situated in Hardin County, Illinois, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

5. LEASE AND AGREEMENT entered into on May 14, 1971, by and between EDWIN E. ROSE, GLADYS ROSE, THOMAS ROSE, VIVIAN ROSE, VELOISE ZELLER, WILLIAM ZELLER, MAUDE E. WILLIAMS and

VIRGIL H. WILLIAMS ("Lessor") and ANTAEUS RESOURCES CORPORATION ("Lessee") of certain mining properties containing in the aggregate 90 acres, more or less, situated in Hardin County, Illinois, recorded April 5, 1971 in Book 8 of Miscellaneous, Page 558.

6. MINING LEASE AND OPTION TO PURCHASE entered into on July 17, 1963, by and between MABEL PANKEY, ETTA IRBY, and AGNES PANKEY ("Lessor") and INDUSTRIAL MINERALS EXPLORATION COMPANY ("Lessee") of certain mining properties belonging to Lessor containing 79 acres, more or less, situated in Hardin County, Illinois, and amendment thereto dated October 17, 1963, the 17/21 interest of the Lessor owned by MABEL PANKEY having been purchased by INDUSTRIAL MINERALS EXPLORATION COMPANY on March 13, 1971, recorded March 15, 1971, in Book 8 of Miscellaneous, Page 550, and assigned to ANTAEUS RESOURCES CORPORATION on April 1, 1971; and the remaining 4/21 interest of INDUSTRIAL MINERALS EXPLORATION COMPANY as Lessee having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

7. OIL,GAS AND MINERAL LEASE, entered into on April 1, 1963,by and between JAMES E. HAMP ("Lessor") and TRAIN, CABOT & ASSOCIATES ("Lessee") of certain mining properties belonging to Lessor containing 61 1/2 acres, more or less, situated in Hardin County, Illinois,the interest of TRAIN, CABOT & ASSOCIATES as Lessee having been assigned to INDUSTRIAL MINERALS EXPLORATION COMPANY on May 24, 1963,recorded May 29, 1963, in Book 7 of Miscellaneous, Page 12, and amendments thereto dated September, 1963 and December, 1965, the interest of INDUSTRIAL MINERALS EXPLORATION COMPANY having been assigned to ANTAEUS RESOURCES CORPORATION on January 20, 1971.

SCHEDULE "A"

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On this 10th day of May, 1971, before me personally came JOHN L. CARROLL, to me known, who, being by me duly sworn, did depose and say that he is Vice President of Antaeus Resources Corporation, a Delaware corporation with offices at 345 Park Avenue, New York, New York 10022, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that it was so affixed by order of the board of directors of said corporation, that the seal affixed to said instrument is such corporate seal, and that he signed his name thereto by like order.

MARSHALL JAY GLICK
NOTARY PUBLIC, State of New York
No. [illegible]
Qualified in New York County
Certificate Filed in Nassau County
Commission Expires March 30, 1972

Marshall Jay Glick
Notary Public

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On this 10th day of May, 1971, before me personally came Gilbert Kesler, to me known, who, being by me duly sworn, did depose and say that he is the General Partner of Hicks Dome Account, a General Partnership having its principal place of business at 52 Wall Street, New York, New York 10005, and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same as the act and deed of the Partnership.

Marion Bannon
Notary Public

MARION BANNON
Notary Public, State of New York
No. 31-5169913
Qualified in New York County
Commission Expires March 30, 1972

A291 - Statutory Form C. Bargain and Sale Deed, with Covenant against Grantor—Individual.

JULIUS BLUMBERG, INC., LAW BLANK PUBLISHERS 80 EXCHANGE PLACE AT BROADWAY, NEW YORK

THIS IS A LEGAL INSTRUMENT AND SHOULD BE EXECUTED UNDER SUPERVISION OF AN ATTORNEY

This Indenture,

Made the 1st *day of* April *nineteen hundred and* seventy-one

Between

INDUSTRIAL MINERALS EXPLORATION COMPANY, a Limited Partnership organized under the laws of the State of New York, with offices at 345 Park Avenue, New York, New York;

party of the first part,

and

ANTAEUS RESOURCES CORPORATION, a Delaware corporation with offices at 345 Park Avenue, New York, New York

party of the second part,

Witnesseth, *that the party of the first part, in consideration of*

---------- Ten ($10.00) ----------*Dollars,*

lawful money of the United States, and other good and valuable consideration

paid by the party of the second part

does hereby grant and release unto the party of the second part,

and assigns forever,

All of the 17/21 undivided interest of the Grantor in and to the ores, minerals, and mineral substances of every kind and character including oil and gas together with the right to mine, remove and produce the same as heretofore reserved by the grantor, in, upon and under the following lands:

"The NE 1/4 of the NW 1/4 (except a parcel described as follows: Commencing at the SE corner of said forty acre tract and from thence running north a distance of one hundred ten (110) feet to a point wereon the south right of way line of the Church Public Road entering from the Hicks Town-Elizabethtown Gravel Public Road intersects the division line between the NW 1/4 of the NE 1/4 and the NE 1/4 of the NW 1/4 and from thence running west twelve degrees (12°) south a distance of one hundred eighty-six and five-tenths (186.5) feet along the south right of way line of said Church Public Road to a point whereon said south right of way line intersects the east right of way line of the Public Gravel Hicks Town-Elizabethtown Road, and from thence running in a general southeasterly direction along the course of the east right of way line of the Public Gravel Hicks Town-Elizabethtown Road to point whereon said east right of way line intersects the division line between the NE 1/4 and the SE 1/4 of the NW 1/4 and from thence running east along the last above mentioned division line a distance of ninety-three and five-tenths (93.5) feet to the point of beginning, containing thirty-one one-hundredths (.31) acres,

Together *with the appurtenances and all the estate and rights of the party of the first part in and to said premises.*

To have and to hold *the premises herein granted unto the party of the second part, and assigns forever.*

And *the said* party of the first part *covenants that* ~~he~~ it *has not done or suffered anything whereby the said premises have been incumbered in any way whatever.*

The grantor, in compliance with Section 13 of the Lien Law, covenants that the grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and that the grantor will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

In Witness Whereof, *the party of the first part has hereunto set* its *hand and seal the day and year first above written.*

In presence of:

INDUSTRIAL MINERALS EXPLORATION COMPANY

By ..... *L. S.*
General Partner

..... *L. S.*

..... *L. S.*

..... *L. S.*

County of NEW YORK

On the 1st *day of* April *nineteen hundred and* seventy-one

before me came JOHN LEE CARROLL, personally known

a General Partner of Industrial Minerals Exploration

to me ~~known and known to me to be the individual described in and who executed the foregoing instrument and acknowledged to me that he executed the same.~~

Company, a limited partnership having its principal place of business at 345 Park Avenue, New York, New York 10022, and who executed the foregoing instrument, and duly acknowledged to me that he executed the same as the act and deed of said partnership.

Marshall Jay Gluck

Notary Public

MARSHALL JAY GLUCK
NOTARY PUBLIC, State of New York
No. 31-0596700
Qualified in New York County
Certificate Filed in Nassau County
Commission Expires March 30, 1972

State of
County of } ss.:

On the *day of* *nineteen hundred and*

before me came *the subscribing*

witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he resides in

that he knows

to be the individual described in, and who executed the foregoing instrument; that he, said subscribing witness, was present, and saw execute the same; and that he, said witness, at the same time subscribed h name as witness thereto.

Dated, ..., *19*.....

The land affected by the within instrument lies in

RECORD AND RETURN TO

Reserve this space for use of Recording Office.

RIDER

INDENTURE, made the 1st day of April, 1971, between INDUSTRIAL MINERALS EXPLORATION COMPANY, a Limited Partnership organized under the laws of the State of New York, with offices at 345 Park Avenue, New York, New York and ANTAEUS RESOURCES CORPORATION, a Delaware corporation with offices at 345 Park Avenue, New York, New York

"The SE 1/4 of the NW 1/4 (except a parcel described as follows: Commencing at the NE corner of the SE 1/4 of the NW 1/4 and running west a distance of ninety-three and five-tenths (93.5) feet along the division line between the SE 1/4 and the NE 1/4 of the NW 1/4 to a point wereon said division line intersects the east right of way line of the Public Gravel Road running from Hicks Town to Elizabethtown, and from thence running in a general southeasterly direction along the course of the east right of way line of said gravel road a distance of one hundred fifty-six (156) feet to a point whereon said east right of way line intersects the division line between the East and West Halves of the N 1/2 of Section Thirty (30) and from thence running north on the last above mentioned division line a distance of one hundred thirty-seven and five-tenths (137.5) feet to the point of beginning, containing one hundred forty-seven one-thousandths (.147) acres, and also except a tract of land described as follows:
Beginning twelve (12) rods south of the NE corner of the SW 1/4 of the NE 1/4, running south thirteen (13) rods, thence west thirteen (13) rods, thence north thirteen (13) rods, thence east thirteen (13) to the place of beginning, containing one (1) acre, more or less, said last described tract lying and being in said SW 1/4 of the NE 1/4 and said SE 1/4 of the NW 1/4, the part of said last described tract lying in said SE 1/4 of the NW 1/4 being about one-half (1/2) acre, more or less),

all in Section Thirty (30) Township Eleven (11) South, Range Eight (8) East of the Third Principal Meridian, containing in the aggregate seventy-nine and forty-three thousandths (79.043) acres, more or less."

The above described interest of the Grantor was conveyed by MABEL A. PANKEY, a widow, to the Grantor on March 13, 1971, and recorded on March 15, 1971, in Book 8 of Miscellaneous, Page 550.

Project 4
Hardin County, Illinois

SUMMARY OF PROGRESS
AND WORK DONE
on
ROSE PROPERTY

by
Joseph A. Porter
Geologist
February, 1970

OFFICIAL
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C. M. E.
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SUMMARY

1. Exploratory drilling and open pit mining has been done during the past year in an attempt to delineate a fluorspar ore body in the mineralized breccia zone occurring on the Rose Property.

2. Open pit mining operations during the year sustained a loss. Mining was confined to shallow zones where small operators worked in the past. It is believed the mining operation would have broke even or made a small profit had the area mined not been high-graded by previous operations.

3. The mineralized zone is difficult to test by drilling. A combination of air rotary and diamond coring are considered to give a moderately valid sample. All drilling results must be interpreted with caution.

4. Work to date has indicated an irregular, linear trend of mineralization that is still open vertically and on both ends. The zone has considerable potential for a low grade, low cost operation.

   a. Widths encountered in drill holes from 14 to + 30 feet. Where mined, minimum width was approximately 15 feet and maximum width 55 feet.

   b. Evidence indicates a mineable grade within the mineralized zone. Washed and screened crude ore produced to date averaged 53.00% CaF_2. Air rotary drill holes have yeilded a combined total of 263 feet of intersection with a weighted average of 31.4% CaF_2. A total of 28.5 feet of core has been assayed. The weighted average is 21.4% CaF_2, 1.26% lead and 1.02% zinc. Better core recovery would have yeilded a higher assay for both spar and sulphides.

5. Fluorspar occurs as matrix material within the mineralized breccia, disseminated replacement spar in breccia and as lenses and pods of high-grade massive spar. Lead, zinc and copper sulphide mineralization is also present. Though sulphides are negligible at the surface there is evidence of an increase of lead and zinc at depth. Best lead assay was 2.84% over 5.5 feet. Best zinc assay was 5.01% over 4.3 feet. Fairly abundant copper oxides have been seen as well as rather massive chalcopyrite in marmatic sphalerite. This occurrence is unique and may have greater significance at depth.

6. The ore mined responds well to beneficiation. Crude ore can be upgraded by crushing and screening. Some mill testing has been done. Ore milled by Heavy Media Separation yeilded a metallurgical grade concentrate averaging 82.6% Effective CaF_2. The minus 10 mesh fraction averaged 62.88% CaF_2 and was considered free milling. Since this material was blended before milling no real data on its flotation characteristics are available. No problems were evident.

7. The washed and screened material which was milled had a potential recoverable value of $26.50 per crude ton.

OPERATIONS AND GEOLOGY

History of Rose Mine: Mineralization is reported to have been discovered on the Rose property about the turn of the century. Initial discovery is credited to pigs rooting up pieces of gravel spar in a pen located over what is now the pit. The property was worked sporadically, largely by individual lessees during times when the larger mines were shut down. It was common practice for leases to be granted on areas as small a 50'X50'. These operations were generally family affairs. Shallow shafts were sunk with a minimum of timbers and high grade was stoped out if encountered. Stoping usually induced caving as did influxes of water during the rainy season. When this occurred new shafts were put down.

Little work was apparently done at depths greater than 20 to 30 feet. One shaft is reported to be 100 feet deep but no production was attained. Some stripping was done. Most of the work was probably done prior to 1930. Last work reported was during the depression.

The mining was restricted to high grade lenses which could be washed and hand picked to run 90+% CaF_2. In the '20's this was worth about $5/ton. Some reports indicate that the individual pods may have yeilded as much as 2,000 tons. Robert N. Frazer of Kentucky Fluorspar reports (verbal) that he made his first money on the Rose in the 1920's. According to Bob, he made $50,000 ("quicker than a cat can lick its - paw") by mining and shipping "acid grade" crude ore by rail to the old Alcoa mill in Marion Kentucky. He was kind enough to come to the property but was unable or unwilling to show where he mined. I doubt the profit figure.

Mindex acquired a lease in 1964. In 1966 four diamond drill holes were drilled. Three of these holes were barren. Hole #2 intersected 15 feet of low grade disseminated ore at a depth of 100 feet, just southwest of the southwest end of the present pit. In late 1966 several short prospect holes were drilled with a Hossfeld drill. One of these cut ore at what is now the center of the pit. A shallow backhoe trench was put down to confirm the presence of spar. Later work was directed at this showing.

Mindex Operations, 1968-1969: Work was started on the Rose property in November of 1968 and has continued intermittently to the present. The work was started in an attempt to develop a small operation that would at least partly pay its own way and provide information which would help to develop a larger operation. Proceeds from the operation have been dissappointing. Information gained about the character and potential of the ore has been encouraging.

Initial attempts to produce from the Rose were started in November of 1968 and continued until the latter part of December when bad weather made work too expensive. Work done consisted of stripping off the bedded chert overburden with a dragline and dozer and digging a vertical hole into the known ore. A pit was dug about 25' deep into the ore. The bottom of the pit was about 30' X 15'. Good ore was showing in all walls and in the bottom. The ore consisted of green, yellow and clear crystalline spar in a muddy chert matrix. Geologic interpretation was hampered by old works. The ore was trucked to the Hamp logwasher, about 3 miles distance, where it was washed and screened. Production totaled 79.4 tons and averaged 46% CaF_2.

During January of 1970, seven short holes were drilled with a CP 650 air rotary drill in an attempt to delineate the ore trend and develop a satisfactory method of drilling and sampling. The method used was not considered satisfactory as it generally failed to show spar were it was believed to be. Subsequent work indicated most of the holes were drilled beyond the margins of the ore. Mineralization of interest was cut in holes 7 and 8 in solid rock.

Since drilling did not appear to be effective, mining by open pit methods commenced again in March of 1970 in a further attempt to delineate the ore and hopefully be able to operate at a profit. Neither goal was attained but results continued to be encouraging. Interpretation continued to be hampered by mud filled old works where the previous small lessees had taken out high grade lenses. At the point where it was felt a northeast trend was delineated the ore was cut off by an northwest trending fault. It is believed a profit would have been made if the high grade had not been previously mined.

The ore was washed and screened as before and 341.2 tons of ore averaging +50% CaF_2 were produced. The washed ore was milled at the Crystal Mill of Minerva Oil Company and the concentrates were sold to them. Details of milling are discussed later.

During July and August additional attempts were made to drill up an ore body using the air rotary method. A total of 39 holes were drilled ranging from 31' to 125' in depth. No shallow mineralization was found but holes to the northeast of the pit encountered good widths of mineralization at depths of 50' to 120'. Core drilling is now in progress in an attempt to substantiate the previous intersections and test beneath the pit for sufficient ore to justify continued mining.

Character of both the ore in the pit and that intersected by drill holes is discussed more fully in the section dealing with geology. The drilling methods and interpretation of results is discussed in detail following geology.

Geology and Mineralization: The ore occurrence on the Rose property is difficult to interpret. The mode of occurrence is radically different from any known deposit in the district. It is the only known occurrence in Devonian rocks (not ordinarily considered good hosts) in a form that is neither a bedded or vein type of deposit. Some aspects of the mineralogy are also unique to this district.

A map showing the outline of the present pit in relation to the drilling and some of the drill hole data is included with this report. Two cross sections showing geologic interpretation are included following page 6.

Present information based on drilling and mining indicate that an overall grade of +30% CaF_2 might be possible with modest selectivity. Crushing, screening and logwashing where necessary can increase the grade to +50% CaF_2. The present known widths are sufficient to allow for relatively low cost mining.

Mineralization occurs in an altered, silicified and mineralized breccia zone which appears to "intrude" limestones and overlying bedded chert of Devonian age. The alteration and mineralization is most intense within the limestones and appears to deminish in the bedded chert. It does not appear to penetrate a soft muddy shale which represents the highest stratigraphic unit on the property. This shale is probably New Albany.

The form and attitude of the vein can not be interpreted with any certainty. Mining and drilling to date indicate that the zone is very irregular in shape and trends about N 45° to 50° E. Maximum width at the center of the pit was approximately 50' but it thinned rather abruptly to 20' toward the northeast end where it was cut off by a fault trending N 17° W. It also appeared to be thinning vertically. Drilling indicates that mineralization continues to the northeast of the fault where the top appears to be about 50' deep. To the northeast drilling information indicates a zone up to 30' in width dipping about 45° to the northwest. It is difficult to tell at present whether or not the zone persists southwest of the pit. Interpretation of the pit wall is difficult because of old works. Short air rotary holes southwest of the pit were all barren.

If the zone does continue to the southwest it is probably less than 20' in width.

The ore zone is essentially still open vertically and on both sides. Tonnage and grade calculations will be attempted when the present drilling is completed and analyzed.

Four fairly distinct types of fluorspar mineralization occur within the breccia zone. The principal types are a chert breccia with a fluorspar matrix and zones of disseminated replacement spar in a breccia containing highly altered, silideous, decalcified limestone and chert. Occurring throughout the mineralized zone are lenses and pods of high grade massive and crystalline fluorspar. Spar also occurs in seams along bedding and joint planes in the limestone wall rock and the overlying bedded chert.

The chert breccia zones make up the greatest volume within the mineralized zone where mined. It is composed of fragments of black, very fine grained, translucent chert in a matrix of green, clear and yellow fluorspar with varying amounts of mud. Matrix material ranges from less than 10% to more than 60%. Average is probably about 30%. The spar is massive and crystalline and sometimes large fragments consists of alternating bands of fluorspar and chert. It is believed that limestone and calcite was originally included within the breccia but has been replaced by fluorspar or leached out by weathering. Gangue minerals consist mostly of chert and acicular quartz crystals and sometimes drusy quartz. In general the highest grade portions of the chert breccia occurred from the center of the pit to the northwest wall and was of lower grade toward the southwest side of the pit. Because of the very soft nature of the spar in contrast to the hard chert this type of material cannot be cored and can only be sampled with the air rotary drill.

Though the amount of disseminated replacement material was minor in the pit drilling has indicated this type of mineralization may dominate at depth. This material can also be classified as a breccia. It consists of rather dark gray, pourous, altered and silified limestone and chert in a calcite-spar matrix. Amount of matrix material is probably less than 20%. Fine grained purple and clear fluorspar is disseminated throughout. It is occassionally somewhat banded, reminiscent of "coontail" structures of the Cave-In-Rock district. This type of ore appears to range from about 15% to 50% spar and probably also averages about 30%. Gangue consists of quartz, chert, decalcified limestone and calcite. It is quite soft and drills very quickly with

the air rotary drill. Fair success has been had coring this material. In the pit most of this type of ore was found in the lower part of the northeast end.

High grade zones, lenses and pods of massive, crystalline spar occur throughout the mineralized zone. It is impossible to tell what portion of the mineralized zone is composed of these high grade zones because of the earlier mining that was done. These are composed of massive and crystalline, generally green spar with minor amounts of chert. They range in grade from 60% to +90% spar. In the pit the most persistant occurrence of high grade was along the upper portion of the zone at the approximate elevation of the contact between the bedded chert and the limestone. This high grade zone extended all the way across the pit at its greatest width and was 8' to 12' thick. Other occurrences seemed to be random and of generally smaller size. This material is very soft and it is doubtful that it can be cored successfully. Some of the ore cut by the air rotary holes is believed to have been of this type. Gangue consists of chert, some quartz and occassionally calcite.

The fluorspar occurring in seams along joint and bedding planes is of little significance. It does indicate the mineralizing solutions ability to fill all available spaces. These seams can give misleading drill hole data, particularly if only cuttings are available for study.

Sulphide mineralization occurs with the fluorspar. In general, it seems to be minor, at least in the upper portions of the ore though they may be of significance at depth. Sulphides are more evident in the drill holes than in the pit where it is likely most of the sulphides have been leached out by weathering.

The more crystalline spar generally contains fairly abundant chalcopyrite needles oriented in a plane parallel to crystal faces. In places, notably the northeast end of the pit, there were several occurrences of massive spar containing patches of marmatic sphalerite containing blebs and patches of massive chalcopyrite. This occurrence is unique to this district. Chalcopyrite is seen occasionally in the drill holes. Much of the ore mined was stained with azurite and malachite.

Lead and zinc sulphide mineralization may be of significance at depth. Though generally not assayed for results of the diamond drilling indicate assays should be done. Galena and sphalerite seem to occur fairly consistantly disseminated in the low grade replacement material. Six assays were done for lead and zinc on core samples. Lead

values ranged from 0.21% to 2.84% and averaged 1.26%. Zinc values ranged from 0.16% to 5.02% and averaged 1.00%. The zinc occurs as very finely disseminated marmatitic sphalerite with some red and yellow jack. Indications are that some zinc carbonates or oxides are also present.

A total of 21 assays were made on air rotary samples, representing 263 feet of intersection. The weighted average of all these samples is 31.2% CaF_2. In general it is believed the upper part of the mineralized zone will average about 40% spar and the lower part will average about 20% spar.

For the 2 diamond drill holes 7 assays were done on split core and 4 assays on sludge. Weighted average of these assays was 21.4% CaF_2, 1.26% Pb. and 1.00% Zn. It is probable that better core recovery would have yeilded higher assays.

Copies of the assay sheets are included on the following page.

E. W. FRAZER, CHEM.
C. L. FRAZER, CHEM.

ANALYSIS OF FLUORSPAR
ZINC, LEAD, BARITE ORES

Edwin W. Frazer Laboratory

Mr. Joseph A. Porter
Rosiclare, Ill.

MARION, KY.

Sept. 6, 1969

Certificate of analysis

Sample	No.	CaF_2	SiO_2	$CaCO_3$	R_2O_3		
#627 Minus 3/8"	5230	38.56	36.18	22.82	2.44	R-42	61-75
#628 " "	5231	12.10	68.08	15.32	4.50	R-42	97-117
#629 " "	5232	6.96	44.74	42.62	5.68	R-49	85-99
#630 As Is	5233	30.38	58.26	7.14	4.22	R-47	56-64
#631 Minus 3/8"	5234	16.32	62.34	15.88	5.46	R-47	79-84
#632 " "	5235	20.42	61.06	13.42	5.10	"	84-110
#633 " "	5236	25.66	45.26	20.98	8.10	R-50	80-98
#634 " "	5237	22.72	52.02	21.72	3.54	R-27	183-128
#635 " "	5238	46.02	25.18	26.74	2.06	R-27	76-85
#636 " "	5239	40.28	45.74	10.28	3.70	"	88-97
#637 " "	5240	20.72	50.38	24.62	4.28	R-29	77-93
#638 " "	5241	68.06	20.08	9.84	2.02	R-23	55-65
#639 " "	5242	34.44	34.92	28.26	2.38	R-23	65-78
#640 " "	5243	24.68	54.56	17.14	3.62	R-23	78-118
#641 " "	5244	76.58	14.42	7.26	1.74	R-22	68.5-78
#642 " "	5245	68.72	16.84	12.16	2.28	"	78-96
#643 " "	5246	17.24	65.92	13.12	3.72	R-16	43-47.5
#644 " "	5247	22.48	69.32	4.72	3.48	R-18	55-60
#645 " "	5248	23.44	55.82	15.98	4.76	"	60-65
#646 " "	5249	21.82	63.08	10.98	4.12	"	65-70
#647 " "	5250	21.08	57.16	18.06	3.70	"	70-75
#648 " "	5251	20.46	58.22	17.14	4.18	"	75-80
#649 " "	5252	14.58	56.48	25.58	3.56	"	80-85

C. L. Frazer
Chemist

ANALYSIS OF FLUORSPAR
ZINC, LEAD, BARITE ORE

Edwin W. Frazer Laboratory

MARION, KY.

Jan. 30, 1970

MR. Joseph A. Porter
Rosiclare, Ill.

Certificate of analysis

Sample	No.	CaF_2	SiO_2	$CaCO_3$	R_2O_3	Pb	ZN	
651	9287	19.12	37.32	39.06	4.50	1.02	0.16	R-51 113.0-120.7
652	9288	15.92	68.46	9.16	6.46			" 120.7-123.5
653	9289	32.82	44.24	19.42	3.52	0.43	0.22	" 123.5-127.5
654	9290	17.06	48.98	30.16	3.89	2.84	0.19	R-22 98.5-104.0
655	9291	25.88	39.18	30.68	4.26	1.63	0.46	" 107.7-111.7
656	9292	18.32	65.12	10.58	5.98	0.21	5.02	" 111.7-116.0
657	9293	15.14	66.72	11.78	6.36	0.74	1.91	R-2 140-145.0
658	9294	31.48	17.32	48.16	3.04	R-22 104.0-107.7 (sludge)		
659	9295	23.12	34.12	38.76	4.00	" 98.5-104.0 "		
660	9296	23.88	35.12	37.76	3.24	" 107.7-111.7 "		
661	9297	23.28	25.56	45.10	5.06	111.7-116.0 "		

C. L. Frazer
Chemist

Drilling Methods: Due to the variable physical characteristics the ore on the Rose property is very difficult to sample by drilling. Several methods must be used, none of them are entirely satisfactory but used together and interpreted with caution should yeild fairly accurate data.

Because of its drilling speed and ability to move quickly the air rotary drill is best adapted to probing with numerous shallow holes. It is the only method of recovering a sample from the high grade portions or weathered material. In very muddy ground it is considered ineffective. The holes marked with a "?" on the map are those in which the results are not considered valid.

The method which has evolved has resulted from trial and error and experience. All drilling is done using high pressure water injection at a rate of 3 to 5 gallons per minute. The water injection is neccessary to clear muddy cutting out of the hole. It also tends to cake the side wall and prevent caving. All drilling is done with a tricone rock bit. The hole is started a 6¼" and drilled either to solid rock or a specific horizon in the unconsolidated material. Casing is set and the hole is continued with a 4 3/4" bit. If deemed necessary the hole can be reamed and casing set deeper. While drilling the hole is flushed at sample intervals or when back pressure develops. An attempt is made to avoid flushing the hole in excess of several minutes as it may induce sidewall caving that will neccessitate setting casing.

The samples are returned in the form of a muddy slurry that is caught in a sample bucket and washed out. They must be constantly monitored using a large tea strainer and high pressure water hose. At the first sign of mineralization in soft ground the hole is flushed and casing is set to bottom. The cutting from the next sample interval should provide good data. In soft ground it is often possible to push the casing on down without reaming after the hole is advanced with a 4 3/4" bit. In solid rock it would be necessary to ream to put the casing down deeper.

To help interpret the results one must be constantly aware of the amount of down pressure used, condition of the bit and the rate of penetration. A drill time record must be kept. Overburden, shale loose broken chert and soft ore drill at the rate of 3 to 4 feet per minute using very little down pressure. Solid rock will drill at the rate of +3 minutes per foot using 5,000 pounds down pressure. As bit wear increases more pressure is necessary. A badly worn bit will not penetrate rock but often will continue to penetrate mineralized ground.

mineralized ground. When ore is encountered within solid rock a marked contrast in drilling time is evident.

Sidewall caving of soft fluorspar is the biggest draw back to air rotary drilling. When ore is encountered it is desirable to drill through it as quickly as possible in order to minumize salting. In general the higher the grade the greater the tendency to cave. Bad hole caving is signalled by an increase in back pressure and an increase in the amount of hydraulic pressure neccessary to rotate the drill string. In extreme cases the rotation becomes very rough and the rods can be stuck. In order to moderate the effects of hole caving samples drilled with the 4 3/4" bit were screened and only the -3/8" portion was assayed.

The air drill is the only method applicable to sampling the higher grade ore. When coring the higher grade ore the soft incompetent fluorspar tends to be washed out and only the chert fragments are competent enough to be retained in the core barrel. While coring, cutting are saved when they are returned but lost circulation is the general rule.

Since core loss is generally experienced awareness of the drilling characteristics is important in interpreting the results. The procedure used when drilling a soft or suspected ore zone is as follows. A high gear giving a relatively high rpm is used with only enough down pressure to keep the penetration rate up. A minimum volume of water is used in attempt to keep the core from eroding. This is all done in order to get the core up into the barrel quickly with a minimum of crushing and erosion of the softer portions. In addition, if a block does occur it will have a more pronounced effect on the machine which will be more readily apparent to the operator.

When very soft drilling is encountered it is advisable to stop occassionally and put slight down pressure on the bit. If the soft ground is the result of mud the bit will advance and plug up causing a sharp increase in water pressure. If the material being drilled is ore the bit will not advance and the water pressure will not increase unless enough pressure is used to push the inner tube up. If pressure does go up it should fall back when the down pressure is released if the material being drilled is not mud.

It is necessary to use wire-line equipment when coring as every effort must be made to keep the bit on the bottom of the hole. Whenever the bit must be pulled back more than .5' side wall caving will fill the bottom of the hole and cause an immediate block when drilling is resumed. These fragments consist largely of chert and can quickly damage a bit and will cause grinding of soft spar. It is felt that N size core will give better recovery than A size core.

Individual Drill Holes: For the sake of convenience, a summary log and discussion of each drill hole is given here. The holes are spotted on the included map. Detailed logs are available.

1. Diamond drill hole, AX, vertical
   0.0 - 28.0 - loose chert
   28.0 - 221.0 - limestone, occassional spar ult.

2 Diamond drill hole, AX, - 45°, S. 40° E.
   0.0 - 34.0 - loose chert
   34.0 - 136.7 - limestone
   136.7 - 151.3 - bx zone, very poor recovery, 140.5 - 145 assayed 15.4 CaF_2, 0.74 pb, 1.91 zn.
   151.3 - 220.0 - limestone
   Spar values believed to have been ground in breccia zone.

3 Diamond drill hole, AX, - 45°, S. 50° W.
   0.0 - 64.0 - loose chert
   64.0 - 157.0 - limestone

4 Diamond drill hole, AX, - 45°, N. 40° W.
   0.0 - 35.0 - loose chert
   35.0 - 157.0 - limestone

5 Air Rotary - attempted to drill dry, no samples returned, soft and muddy to 60'.

6 Air Rotary - muddy and soft to 40', very poor samples, solid at 40', T. D. 45'.

7 Air Rotary
   0.0 - 20.0 - loose chert
   20.0 - 43.0 - limestone
   43.0 - 55.0 - mineralization, drilled soft, assay 9.2%, sample not screened, cuttings estimated to be high grade.
   55.0 - 65.0 - mineralization, assay 22.8%, lower than visual estimate.
   65.0 - 70.0 - mineralization, assay 7%, stopped hole because of caving.

8 Air Rotary
   0.0 - 21.0 - loose chert
   21.0 - 33.0 - limestone
   33.0 - 47.0 - ore, best at top, 44.8%.
   47.0 - 62.0 - mineralization, assay 13.69%

8 (con't)

62.0 - 72.0 - drilling soft, less than 10% spar, hole caving.

Assay for holes 7 and 8 much less than visual estimates. Samples were not screened.

9 Air Rotary - total depth, 70', samples not satisfactory, poor return, probably in mud filled seam.

10 Air Rotary

0.0 - 40.0 - loose chert, traces fine spar.
40.0 - 60.0 - limestone, traces fine spar, started drilling soft at 57.0.
60.0 - 70.0 - limestone and spar, estimated at 25%, assayed 15%.
70.0 - 82.0 - as above, hole caving badly, estimated at 17%, not assayed.

11 Air Rotary

0.0 - 30.0 - loose chert, trace spar
30.0 - 35.0 - limestone, traces spar
35.0 - 40.0 - drilled soft, chert and spar poor sample, assayed 17.2%.
40.0 - 45.0 - limestone and chert, fair spar, poor sample.
45.0 - 50.0 - soft and hard, fair spar, poor sample.

12 Air Rotary

0.0 - 51.0 - chert with traces of spar, very soft and muddy, set casing twice, samples probably not very good.
51.0 - 58.0 - limestone

13 Air Rotary

0.0 - 47.0 - broken chert, very soft, few traces spar, set casing at 21, best show of spar 21 - 26.
47.0 - 53.0 - limestone

14 Air Rotary

0.0 - 50.0 - broken chert, very soft, set casing 21 and 43.
50.0 - 58.0 - limestone

15 Air Rotary

0.0 - 8.0 - chert, soft
8.0 - 20.0 - mud, probably old works.
25.0 - 37.0 - limestone, faint traces of spar.

16 Air Rotary
0.0 - 43.0 - chert, soft, few traces spar.
43.0 - 47.5 - dark gray chert and clear spar, assayed 17.2.
47.5 - 75.0 - limestone, traces of spar.

17 Air Rotary
0.0 - 28.0 - loose chert, faint trace fine spar at bottom.
28.0 - 51.0 - limestone

18 Air Rotary
0.0 - 27.5 - overburden and soft shale.
27.5 - 54.0 - loose chert
54.0 - 60.0 - chert and spar - 22.4%, casing set to 55'.
60.0 - 65.0 - chert and spar - 23.4%.
65.0 - 70.0 - chert and spar - 21.8%.
70.0 - 75.0 - " " " - 20.0%.
75.0 - 80.0 - " " " - 20.4%.
80.0 - 85.0 - " " " - 14.6%, stopped, hole caving.

19 Air Rotary
0.0 - 31.0 - overburden and soft shale.
31.0 - 51.0 - loose chert, faint trace spar at bottom.
51.0 - 71.0 - Limestone, trace spar at top.

20 Air Rotary
0.0 - 26.0 - overburden and soft shale.
26.0 - 43.0 - loose chert
43.0 - 67.0 - linestone

21 Air Rotary
0.0 - 31.0 - overburden and soft shale.
31.0 - 46.0 - loose chert, trace fine spar.
46.0 - 61.0 - limestone
61.0 - 62.0 - spar
62.0 - 69.0 - limestone
69.0 - 75.0 - spar and limestone, estimated 30%.
75.0 - 97.0 - limestone

22 Air Rotary - to 96.0 - cored 126.
0.0 - 30.0 - overburden and soft shale.
30.0 - 43.0 - loose chert
43.0 - 67.0 - limestone
67.0 - 78.0 - spar, very soft, 76.6%, some replacement limestone.
78.0 - 96.0 - spar, 68.7%, hole caving, rods binding, abandoned.

22 (con't)

Coring

96.0 - 98.5 - 1' badly ground core, chert ls, bx with good spar.

98.5 - 104.0 - 4.5' core, broken, drilled soft, core assay 17.06%, sludge 23.12%, 2.84% pb, 0.19 zn.

104.0 - 107.7 - 1' recovered, chert ls - bx, sludge assayed 31.48%.

107.7 - 111.7 - 4' recovered, ls - chert bx with dissem. replacement spar, core assayed 25.88% spar, 1.63 pb, 0.46 zn, sludge 23.88% spar.

111.7 - 116.0 - silicified and replaced ls, core assayed 18.32% spar, 0.21% pb and 5.02% zn, sludge assay 23.28% spar.

116.0 - 118.0 - core loss, few bx fragments.

118.0 - 126.0 - limestone.

Composit of sludge assayed 25.06% spar, 1.36% pb, and 2.22% zn.

23 Air Rotary

0.0 - 31.0 - overburden and soft shale.

31.0 - 53.0 - loose chert.

53.0 - 65.0 - spar, 68.0%, little chert.

65.0 - 78.0 - spar 34.09%.

78.0 - 118.0 - spar 24.6%, 0.16 pb and 0.23 zn.

118.0 - 123.0 - some spar, started drilling hard at 120'.

123.0 - 125.0 - attempted to core, barren limestone.

Note: Drilled hard and soft from 63.0 to 78.0, pulled bit at 78.0, completely worn out, put in new bit, first 4 feet drilled relatively hard, then soft to 120.

24 Air Rotary

0.0 - 31.0 - overburden, and shale.

31.0 - 118.0 - loose chert.

51.0 - 90.0 - limestone.

25 Air Rotary

0.0 - 33.0 - overburden and shale.

33.0 - 50.0 - loose chert.

50.0 - 77.0 - limestone.

26 Air Rotary

0.0 - 18.0 - overburden.

18.0 - 30.0 - shale

30.0 - 51.0 - loose chert

51.0 - 77.0 - limestone

27 Air Rotary

0.0 - 7.0 - overburden and shale.
17.0 - 29.0 - shale
29.0 - 51.0 - broken chert
51.0 - 60.0 - broken chert, very muddy, traces fine spar, poor sample.
60.00 - 76.0 - limestone, hit spar at 75'.

Attempting to core.

76.0 - 76.5 - green crystalline spar, badly broken.
76.5 - 78.5 - limestone with seams of spar with malachite, chalcopyrite, sphalerite.

Air Rotary

78.5 - 85.0 - limestone with abundant clear, coarse and fine spar, assay 46.02%, drilling hard and soft.
85.0 - 88.0 - bad sample, believed to be spar.
88.0 - 99.00 - altered limestone with trace cu and zn, assay 40.28% spar (composit sample for 85-99), drilling hard and soft.

Attempting to core

99.0 - 102.0 - no recovery, ruined bit, good spar in cuttings.

Air Rotary

102.2 - 120.0 - chert and altered limestone, assayed 22.72% spar, drilled soft but hard at bottom, stopped hole because drilling hard.

May have stopped in ore, bit completely gone when pulled. Interpetation of hole is questionable.

28 Air Rotary

0.0 - 18.0 - overburden and shale.
18.0 - 33.0 - shale
33.0 - 38.0 - chert, very soft, tr. spar.
38.0 - 45.0 - chert, muddy, fair show coarse and fine spar.
45.0 - 53.0 - mud, chert and spar, estimated 20%, bad hole caving, highly altered, set casing to 5.
53.0 - 61.0 - limestone, fair show spar, few soft zones.
61.0 - 66.0 - limestone, drilling hard.

29 Air Rotary

0.0 - 18.0 - overburden and shale.
18.0 - 28.0 - shale
28.0 - 51.00 - chert, very soft.
51.0 - 75.5 - limestone
75.5 - 84.0 - drilled soft, probable fair spar.
84.0 - 93.0 - drilled hard, possibly soft at bottom, hole caving.

29 (con't)

Assayed composit sample 77' to 93', 20.72 CaF_2, ore section estimated on drilling time to be 75.5 - 84.0.

30 Air Rotary
00.0 - 17.0 - loose chert
17.0 - 32.0 - limestone

31 Air Rotary
0.0 - 31.0 - loose chert
31.0 - 37.0 - limestone

32 Air Rotary
0.0 - 23.5 - loose chert
23.5 - 31.0 - limestone, very faint trace spar.

33 Air Rotary
0.0 - 26.0 - loose chert
26.0 - 46.0 - limestone

34 Air Rotary
0.0 - 22.0 - loose chert
22.0 - 32.0 - limestone, faint trace spar.
32.0 - 55.0 - limestone

35 Air Rotary
0.0 - 29.0 - loose chert
29.0 - 37.0 - limestone

36 Air Rotary
0.0 - 48.0 - loose chert, abundant mud throughout.
48.0 - 59.0 - limestone

37 Air Rotary
0.0 - 10.0 - overburden
10.0 - 33.0 - chert and mud, tr. fine spar at bottom.
33.0 - 41.0 - mostly mud, chert, good show clear and yellow spar.
41.0 - 66.0 - mud, crinoid stems and chert, trace spar at bottom.
66.0 - 74.0 - mud, hole caving, back pressure.
Bad hole, sample unreliable due to mud, possibly in mud filled fracture.

38 Air Rotary
0.0 - 33.0 - chert and mud.
33.0 - 57.0 - mostly mud, crinoidal.
57.0 - 60.0 - mostly mud, fair show coarse spar.
60.0 - 68.0 - mud and limestone fragments.
68.0 - 104.0 - limestone, hard.

39 Air Rotary

0.0 -	18.0 -	overburden and shale.
18.0 -	41.0 -	shale
41.0 -	57.0 -	loose chert
57.0 -	104.0 -	limestone

40 Air Rotary

0.0 -	18.0 -	overburden and shale.
18.0 -	33.0 -	shale
33.0 -	49.0 -	loose chert, faint traces spar at bottom.
49.0 -	104.0 -	limestone, faint trace spar at top, abundant white calcite and trace barite at 77.0'.

41 Air Rotary

0.0 -	18.0 -	overburden and shale
18.0 -	28.0 -	shale
28.0 -	32.0 -	loose chert
32.0 -	97.0 -	limestone

42 Air Rotary

0.0 -	12.0 -	overburden
12.0 -	45.0 -	shale
45.0 -	59.5 -	limestone, traces spar and clear calcite
59.5 -	77.0 -	good spar and limestone, composit sample 38.56% spar with traces lead at bottom.
77.0 -	81.0 -	probably limestone, good spar in sample, hole caving.
81.0 -	97.0 -	limestone and chert, estimated 10% spar.
97.0 -	122.0 -	drilled soft, composit sample 12.10 spar 0.11 pb and 0.56 zn.
122.0 -	137.0 -	drilled hard, some spar, probably hole caving, bottom of mineralized zone probably at 122.

43 Air Rotary

0.0 -	18.0 -	overburden and shale.
18.0 -	25.0 -	shale
25.0 -	27.0 -	chert
27.0 -	79.0 -	limestone

Started drilling soft at 79.0 .

79.0 -	107.0 -	limestone (?), mud with traces spar, drilled soft, poor sample.
107.0 -	127.0 -	as above, estimated 10% spar.
127.0 -	131.0 -	drilled hard, estimated 15% spar, hole caving.

Samples from 79' on of little value. Back pressure built up and samples blowing out of hole 42.

44 Air Rotary

0.0 -	12.0 -	overburden
12.0 -	27.5 -	shale
27.5 -	37.5 -	loose chert
37.5 -	52.0 -	loose chert with fair trace yellow and clear spar.
52.0 -	55.0 -	limestone, show clear and purple spar.
55.0 -	60.0 -	as before, trace chalcopyrite.
60.0 -	97.0 -	limestone, solid, traces spar throughout.

45 Air Rotary

0.0 -	18.0 -	overburden
18.0 -	24.0 -	shale
24.0 -	48.0 -	loose chert
48.0 -	90.0 -	limestone

46 Air Rotary

0.0 -	18.0 -	overburden
18.0 -	29.0 -	shale
29.0 -	48.0 -	loose chert
48.0 -	99.0 -	limestone, few traces spar.

47 Air Rotary

0.0 -	18.0 -	overburden and shale
18.0 -	35.0 -	shale, few pieces soft white, possibly barite.
35.0 -	39.0 -	chert, abundant white material.
39.0 -	49.0 -	chert, faint trace spar.
49.0 -	51.0 -	chert, fair show clear spar.
51.0 -	56.0 -	chert, abundant spar, top spar at 54.0, set casing to 56.
56.0 -	64.0 -	chert, good spar, assay 30.38%.
64.0 -	79.0 -	limestone, show spar, drilled hard.
79.0 -	84.0 -	chert and altered limestone, partly soft, assay 16.32% spar.
84.0 -	110.0 -	chert and altered limestone, drilled soft to 97.0, assay 20.42% CaF_2, 0.33% pb 1.97% zn.
110.0 -	119.0 -	limestone, traces spar.

When pulled, bit was completely flat, section from 97.0 to 110.0, may have been soft.

48 Air Rotary

0.0 -	18.0 -	overburden
18.0 -	32.0 -	shale
32.0 -	43.0 -	loose chert
43.0 -	52.0 -	loose chert with fair show spar.
52.0 -	92.5 -	limestone, faint trace spar at bottom.

Samples from 43.0 to 52.0 not considered reliable.

49 Air Rotary

0.0 - 15.0 - overburden
15.0 - 29.0 - shale
30.0 - 38.0 - loose chert
38.0 - 85.0 - limestone
85.0 - 89.0 - limestone, good show clear, coarse and fine spar, estimated 10%.
89.0 - 99.0 - limestone, good show spar, poor sample.

Stopped because of poor sample and slow drilling time. When pulled bit was flat, may have been in soft material.

50 Air Rotary

0.0 - 18.0 - overburden and shale.
18.0 - 33.0 - shale
33.0 - 44.0 - loose chert
44.0 - 74.0 - limestone
74.0 - 80.0 - altered limestone with fair show clear and purple spar.
80.0 - 85.0 - mostly chert with altered limestone, estimated 10% spar, some pb CO_3.
85.0 - 98.0 - as before, assayed 25.66% CaF_2.

Twisted cone off bit. Abandoned hole. Bit probably gone during 25' off hole.

51 Diamond Drill Hole, NX S. 45° E., - 45°.

0.0 - 78.0 - overburden and loose chert.
78.0 - 108.0 - limestone, occassional veinlet, some disseminated spar and lead toward bottom, few pb rich veinlets.
108.0 - 113.0 - altered limestone and chert, replacement spar and veinlets scattered throughout, traces chalcopyrite, fair show pb, disseminated and veinlets.
113.0 - 120.7 - 3.9' recovered, limestone - chert bx, disseminated spar and veinlets, assay 19.12% spar, 1.02% pb, 0.16 zn.
120.7 - 123.5 - less than 1' broken chert recovered, believed to have been in good ore, assayed 15.92% CaF_2.
123.5 - 127.5 - 3' solid core, highly altered limestone and chert with replacement spar, assayed 32.82% CaF_2, 0.43 pb, 0.22 zn.
127.5 - 131.2 - 2' recovered, badly broken, estimated at +30% CaF_2.
131.2 - 133.3 - badly broken, mostly alter chert with limestone spar estimated 10%.
133.3 - 135.0 - chert bx, badly broken core, estimated less than 10% spar.
135.0 - 138.0 - chert bx, fair show spar, traces pyrite and chalcopyrite.

Best section from 113.0 to 131.2. Believe that with good recovery the section would run +30% CaF_2.

BENEFICIATION

Beneficiation done consisted of washing and screening and milling through heavy media and flotation. The ore was free milling and generally responded well to all aspects of beneficiation.

Though much valuable information was gained, attempts to beneficiate the ore represented a breakeven situation. A summary of the direct costs of beneficiation without allocation of overhead items follows;

Gross reciepts		$6,399.79
Costs		
Trucking to Washer	$2,198.50	
Washing cost	3,050.67	
Ship to Calvert City	212.50	
Ship to Minerva	707.76	
Milling	n.c.	
		6,169.43
		$ 230.36

Beneficiation costs incurred during the last three months of operation showed improvement. They were as follows;

Gross reciepts		$5,552.78
Costs		
Trucking to Washer	$1,173.00	
Washing Cost	2,275.95	
Shipping to Minerva	707.76	
		4,156.71
		$1,396.07

Part of the improved costs were due to a small tonnage which was hauled to the washer in December. Improvement was due mostly to better washer dirt, higher yeild per ton washed, and better grade.

Washing and Screening: Due to mud filled old works and the close proximity to the surface most of the ore mined required washing. Dilution of ore by caving into the pit of the bedded chert walls and the enclosed chert breccia fragments necessitated screening out of the coarser fragments at the washer. These factors made it impossible to determine the the grade of the crude ore as it was mined.

The crude ore was trucked approximately 3 miles to the Hamp logwasher where it was washed and screened to minus 1". Several attempts were made to screen finer but resulted in clogged screens due to inadequate screening capacity. Spar lumps were hand picked from the +1" fraction and the rest was discarded or hauled back to the property for roads. The -1" fraction was stockpiled in high and low grade piles depending on visual estimates of grade. An undetermined amount of fine material was lost at the washer overflow as no provisions had been made to recover this material. This could represent a substantial loss over a long period of time.

Washer feed was estimated to contain 33% mud, 33% + 1" solid and 33% - 1" solid. Washer product shipments were as follows;

To	Tons		Grade
Calvert City Chem.	34.25		44.65%
" " "	45.18		49.32%
Minerva Oil Co.	341.20		52.44%
" " " (lump)	15.97		97.99%
	436.60	Ave.	53.00%

Screened washer material ranged from 39.6% to 64.4% CaF_2 and averaged 51.4% CaF_2.

A breakdown of the actual overall washing cost per screened ton produced is as follows;

Washer (rental)	$0.50
Labor	3.89
Power	0.98
Loader (feed washer)	1.67
Total	$7.04

The following is the washing cost per screened ton for the months of May, June and July, 1969.

Washer (rental)	$0.43
Labor	4.00
Power	0.67
Loader (Feed washer)	1.39
Total	$6.39

The Hamp washer was designed to wash an ore containing mostly mud as gangue. Screening capacity is not adequate

for Rose ore. This caused fairly slow washing. A washer of adequate size with better screening capacity and a sands reclamation system should reduce the total cost to $3.50 to $4.00 per ton, including hauling if the washer were situated on the property.

Mining at greater depths should encounter a minimum of material that requires washing. Present indications are that primary crushing or a quick pass through an autogenous mill followed by screening will liberate most of the spar from the chert gangue. Present estimation is that where washing is not required this method could produce a grade of 50% Spar at a 2 to 1 concentration ration.

Heavy Media Milling: During August, 1969, 341 tons of washer product were shipped to the Crystal Mill of Minerva Oil Company for milling through the Heavy Media section. This was done to determine its amenability to H.M.S. beneficiation and to determine its suitability for making metallurgical grade concentrates. Since the ore consists mainly discrete pieces of chert and spar the most critical factor is producing a concentrate low in silica. Results were entirely satisfactory. A summary of the H.M.S. results follows;

	% of Total	Tons	% CaF_2	% SiO_2
Feed		341.2	52.44	40.62
Minus 10 mesh	38.4	130.9	62.88	
Cone Feed		210.3	38.5	
Gravel Prod.	24.6	84.4	89.83	5.4
(1) Tails and Loss	37.0	125.9	7.85	

Pertinent assays are given on the next page.

Though these results are considered good it is believed that under different conditions and with certain modifications the results could be improved.

Daily concentrates ranged from 82.98% to 94.75% in CaF_2 content and 1.27% to 6.99% in SiO_2 content. Wide ranges are more the result of operators inexperience with the ore and poor mechanical condition of the mill than with the character of the ore. This was the last ore run before the mill closed down. Due to repairs and single shift operations start up and shut down times represented a greater portion of the operating time than would normally be expected. It was during these times the grade of the concentrate was lowest.

(1) Assay believed in error. Estimated not exceed 3% CaF_2.

ASSAYS PERTINENT TO HEAVY MEDIA MILL TESTS

CaF_2	SiO_2	$CaCO_3$	$BaSO_4$	R_2O_3
Daily HMS Concentrates				
82.98	9.00	6.99	0.48	5.50
92.54	2.27	4.27	0.36	0.56
88.74	7.80	2.27	0.25	0.94
94.75	3.40	1.27	0.24	0.34
93.30	4.20	2.06	0.10	0.34
88.92	7.70	2.92	0.12	0.34
Assay While Moving Stockpile				
82.26	9.91	6.64	0.11	1.08
90.88	5.41	2.82	0.14	0.70
92.15	4.94	2.29	0.12	0.50
90.1	5.4 - (weighted average)			
Composit Head Feed				
52.44	40.62	5.80	0.30	0.89
Composit - 10 mesh				
62.88	29.68	5.58	0.30	1.56
Acid Lump				
97.92	1.18			
Sample 009 at Frazer Laboratories				
86.20% plus 10 mesh				
62.84	31.08	3.34	-	2.74
13.80% minus 10 mesh				
66.84	26.14	3.84	-	3.18
Sample 010 at Frazer Laboratories				
87.50% plus 10 mesh				
50.72	43.58	2.82	-	2.88
12.50% minus 10 mesh				
61.22	32.52	3.16	-	3.10

Note: Any sulphides or iron would be reported in the R_2O_3 column. Frazer assays would include Barite in the R_2O_3.

The proportion of material reporting to the heavy media cone could be increased by slightly different screening methods. At the Crystal mill screening is done with a slotted 10 mesh screen. This slotted screen allows thin angular cleavage fragments of fluorspar to pass through the screen and report with the minus 10 mesh fraction. As a comparison the mill test showed 38.4 - 10 mesh whereas screening tests with a square mesh screen at Frazer Laboratories indicated about 13% minus 10 mesh. It is estimated that the ore should not exceed 30% minus 10 mesh. It is possible that under present market conditions metallurgical grade material would be accepted with more fines than ordinarily has been allowed in the past (10% minus 10 mesh has been standard). If a 12 or 14 mesh screen could be used the ratio of metallurgical grade produced per ton of crude would be greatly increased.

Through trial and error it was found the best results were obtained by using a relatively low top density and a high bottom density in the cone. An attempt was made to keep the specific gravity of the media at the top at about 2.75 and the bottom about 3.0. Some difficulty was experienced in maintaining the proper density. There was a tendency for the top to get too low and the bottom to get too high. The operator felt that if the ore contained somewhat more mud it would have alleviated this condition by helping keep the ferrosilicon in suspension.

Assuming more ideal milling conditions the following projected results are considered possible on similar ore.

Gravel - 33% of feed @ 94% CaF_2 and 3% SiO_2

Sands - 31% of feed @ 65% "

Tails - 36% of feed @ 5% "

Flotation: Indications are the ore is free milling and responds well to flotation. Since the Crystal flotation section was essentially shut down at the time of the test the minus 10 mesh fraction was shipped to the flotation mill at Minerva's Mine #1. It was blended with other ores to take advantage of its free milling characteristics.

The sands averaged 62.88% CaF_2. Since it was blended no quantitative data on its flotation characteristics are available. Minerva mill personnel reported the ore seemed to mill easily and no problem areas were identified. It is probable that a 90% recovery could be maintained while making acid grade. No flotation bench tests were made.

Theoretical Value Calculations: The following value calculations are bassed on the total recoverable values per ton of the washed crude ore and the projected mill results.

Gravel Value

$(94\% \ CaF_2)/6 - (3\% \ SiO_2 \times 2.5) = 86.5\%$ Effective

IT 86% eff. + 0.19 T Ls. = 1.19 T 72.5% Effective

$42.50/Ton for 72.5 eff. X 1.19 T = $50.50

$50.50 X .33 = $16.80 Contained value/crude ton

Sands Value (minus 10 mesh)

$$\frac{65\% \ CaF_2 \times 90\% \text{ recovery}}{97\% \text{ Concentrate}} \times \$52.00 = \$31.40$$

$31.40 X .31 = $9.75 contained value/crude ton

Recoverable Gravel value	$16.80
Recoverable Sands value	9.75
Total value contained/ton washer prod.	$26.50

Fluorspar ore value calculations are subject to wide variations due to variable characteristics of the ore and the market. The figures cited here are optimal.

FORM 9-1648
MARCH 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

OPERATOR'S MONTHLY VOUCHER For Month of January, 1973

Hicks Dome Account

Operator's Name c/o Gilbert Kerlin, Esq.

Address Shearman and Sterling, 53 Wall St.
New York, New York 10005

Docket No. OME- OME-6873

Contract 14-08-0001 2306

Contract Amount $ 95,450

Gov't. Participation % 50 $ 47,725

COST ITEMS (FROM EXHIBIT A)	FOR OPERATOR'S USE: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS	FOR GOVERNMENT USE ONLY: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS
		$		$		$		$
Category (1)								
Hrs. Dozing	14	175.00	42	525.00	14	175.00	42	525.00
Rotary Drilling	103'	401.70	725	2,827.50	103	401.70	725	2827.50
Cored, NX 0-500'	89'	391.60	828'	3,643.20	89	391.60	822	3643.20
500-1000	48'	230.40	639	3,067.20	48	230.40	639	3067.20
1000-1500	-	-	230	1,242.00	—	—	230	1242.00
Cored, BX 0-500'	22'	92.40	22	92.40	22	92.40	22	92.40
500-1000'	273'	1,255.80	409	1,881.40	273	1255.80	409	1881.40
1000-1500'	500'	2,600.00	770	4,004.00	500	2600.00	730	4004.00
1500-2000'	500'	3,050.00	1000	6,100.00	500	3050.00	1000	6100.00
2000-2500'	200'	1,460.00	526	3,839.80	200	1460.00	526	3839.80
Reaming	101'	303.00	329	987.00	101	303.00	329	987.00
Water Supply, mons.	1	300.00	3.7	1,110.00	1	300.00	3.7	1110.00
Standby time, hrs.	6	84.00	8	112.00	6	84.00	8	112.00
Drilling Mud, bags	45	171.00	79	286.71	45	171.00	79	286.71
Caustic Soda	-	-	1	10.85	—	—	1	10.85
Quebracho	-	-	1	20.78	—	—	1	20.78
Freight & Handling	-	-	21	22.59	—	—	21	22.59
BX Casing lost	120'	300.00	120	320.00	120	300.00	120	300.00
Casing Shoe lost	1	92.60	1	92.60	(37.04)	92.60	37.04	92.60
Category (2)								
Geologist-Supervisor	1	1,250.00	4	5,000.00	1	1250.00	4	5,000.00
Sampler	2	126.23	4	235.11	2	126.23	3	235.11
Category (3)								
Tons Road Rock	169	273.65	199.9	327.73	169	273.65	199.9	327.73
Core Boxes	231	288.75	511	638.75	231	288.75	511	638.75
Sample Bags	27	9.45	52	16.95	27	9.45	52	16.95
Category (7)								
Office Expense	1	139.02	4	455.56	1	83.46	4	400.00
Trans. of Samples	-	-	25	15.83	—	—	25	15.83
Prepare & Assay CaF_2	19	76.00	44	138.50	19	76.00	44	138.50
Other Assays	-	-	27	35.50			27	35.50
Spectro. Anal.	-	-	19	171.00			19	171.00
TOTALS		$13,070.60		$37,199.96		$13,015.04		$37,124.40

I certify that the above bill is correct and just and that payment therefor has not been received.

Date Feb. 6, 1973 *Payee Hicks Dome Account

Per Joseph A. Porter Title Geologist

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U. S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Approved as noted, subject to field examination and audit.

Signature Harold Kushema Chief, OME ~~Field Officer~~ Date 3/4/73

Approved for: $ (SUBJECT TO AUDIT)

Signature

Date Vou. No.

(SEE OTHER SIDE)

FOR OPERATOR'S USE

REMARKS

Category (1)

A total of 120' of casing and a casing shoe was lost in OME-2. A casing shoe was necessary in setting the casing because of caving ground. The shoe is considered a lost casing expense.

Category (2)

Since a small amount was earned by sampler in December payment was deferred till January.

FOR GOVERNMENT USE

REMARKS 1/ Includes approval of 28 ft. of rotary bit (R.B.) drilling from 410' to 438' in Hole 3. Contractor billed at the $3.90/ft. price allowed for the 0-300' depth category for rotary drilling instead of the $4.40/ft. price for core drilling. This resulted in savings to the Government, and R.B. enabled completion of hole. Absence of core was not critical to geologic evaluation of the hole.

2/ Allow on per-foot price basis equivalent to BX casing. This device is a steel sleeve threaded to bottom end of casing as cutting head when casing is advanced through broken rock.

3/ Allow $83.46, disallow $55.56 in order to bring charges to date to a monthly allowable average of $100.00.

Harold Sirkemo

4/ Allow $300.00. Operator's total in error.

HK.

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of two parts.

FIRST, the Operator's Monthly Voucher on Form 9-1648 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and three copies of each of the two sections of this report to the OME regional Field Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, FORM 9-1648

In the left hand column list the items for which costs were incurred during the month, and also the items for which costs were previously reported. For items previously reported, show only UNITS TO DATE and COSTS TO DATE. Items listed should conform to Exhibit A of the contract (Estimated Costs of the Work). The total of COSTS THIS MONTH followed by the Operator's signature constitutes a claim for payment of the Government's share of the costs. The Operator or his agent must sign the certification in the lower left corner.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as unemployment taxes, employee's liability insurance, and depreciation of Operator-owned equipment. The certification may be stated thus, "Certified True Copy", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Field Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

STATEMENT

FROM Larry G. Robinson

Route 1, Herod, Ill.

January 19 1973

TO Joseph A. Porter (Hicks Dome Account)

ADDRESS Box 447

CITY Rosiclare, Ill.

TERMS Use of D-4 tractor dozing drill site

Jan	19	5½ hrs.	@12	50	68	75
	20	6 hrs.	@12	50	75	00
	23	2½ hrs.	@12	50	31	25
			TOTAL		175.00	

Larry G. Robinson

Larry G. Robinson

paid ck # 865
2/2/73 - $ 175.00

CERTIFIED TRUE COPY

JOY MANUFACTURING COMPANY

OLIVER BUILDING
PITTSBURGH, PENNSYLVANIA 15222

PLEASE REMIT TO
P. O. BOX 360135M
PITTSBURGH, PA. 15230

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORD'R NO.	DATE	AT REC. POINT	B.O.NO.

CONTRACT	CODE	DATE	AT SHIP POINT
	99 69 05 14 03 209		

31180

SOLD TO
Mr. Gilbert Kerlin
53 Wall Street
New York, New York 10005

TERMS NET 30 DAYS
NO CASH DISCOUNT

INVOICE NO. 05116563

INVOICE DATE 2-7-73

PLEASE REMIT TO
P.O. BOX 360135M
PITTSBURGH, PA. 15230

DATE SHIPPED

SHIPPED TO
Hicks Dome, Illinois

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM Michigan City, Indiana

ORIGINAL QUANTITY ORDERED	PART NUMBER	DESCRIPTION			CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
	To 1,735' core drilling at Hicks Dome, Illinois for period ending January 25, 1973 as per agreement.								
	PROSPECT NO.		FROM	TO		TOTAL FT.	COST	UNIT	TOTAL COST
	F-1 (OME-2)	BX	727.	1000.		273.	4	60	$1,255.80
		BX	1000.	1500.		500.	5	20	2,600.00
		BX	1500.	2000.		500.	6	10	3,050.00
		BX	2000.	2200.		200.	7	30	1,460.00
	H-6 (OME-4)	6¼" R.B.	0.	75.		75.	3	90	292.50
	P-3 (OME-3)	NX	361.	410.		49.	4	40	215.60
		3-7/8" R.B.	410.	438.		28.	3	90	109.20
		NX	438.	478.		40.	4	40	176.00
		BX	478.	500.		22.	4	20	92.40
		NX	500.	548.		48.	4	80	230.40
									$9,481.90
	REAMING								
	P-3 (OME-3)		361.	410.		49.			
			438.	490.		52.			
						101.' @	$3.00/ft.		303.00
	MUD USED UP								
		45 100-lb. bags drilling mud @ $3.80/bag							171.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED
NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE
GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

4134 4/67
(P133A)

JOY MANUFACTURING COMPANY

PAGE NO. 2

SOLD TO Mr. Gilbert Kerlin

OUR ORDER NO.	AT REC. POINT	AT SHIP POINT	B.O. NO.	INVOICE NO.
				05116553

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
	CORE	BOXES USED						
		F-1 (OME-2)	166 Cardboard Core Boxes					
		H-5 (OME-1)	57 Cardboard Core Boxes					
		P-3 (OME-3)	8 Cardboard Core Boxes					
			231 Cardboard Core Boxes @ $1.25/ea.					$ 288.75
	CASING LOST							
		F-1 (OME-2)	120 feet BX Casing @ $2.50/ft.					300.00
			1 BX Diamond Set Casing Shoe		$185.20			
			Less 50% for usage		92.60			92.60
	FURNISHING WATER							
			Dec. 26 through Jan. 25					
			One (1) month @ $300.00/mo.					300.00
	SURVEY TIME							
		F-1(OME-2*	Jan. 18 6 hours @ $16.00/hr.					96.00
								$11,033.25

CERTIFIED TRUE COPY

Jacqueline Clark

FORM P138A

INVOICE (CONTINUATION)

TRAIN CABOT INC

003952170

EARNINGS	HOURS	AMOUNT	DEDUCTIONS				YEAR TO DATE	
REGULAR		70000	FICA TAX	4095	FED.TAX	10067	GROSS PAY	70000
			STATE TX	1333			FICA	4095
							FED. TAX	10067
							STATE TAX	1333
							FOR PERIOD ENDING	01-15-73
TOTAL EARNINGS		70000	TOTAL DEDUCTIONS			15495	NET PAY	545.05

JOSEPH A PORTER

501 1 020 00044 NON-NEGOTIABLE

5755
1MM 12-71

STATEMENT OF EARNINGS AND DEDUCTIONS

TRAIN CABOT INC

004006690

EARNINGS	HOURS	AMOUNT	DEDUCTIONS				YEAR TO DATE	
REGULAR		70000	FICA TAX	4095	FED.TAX	10067	GROSS PAY	140000
			STATE TX	1333			F.I.C.A.	8190
							FED. TAX	20134
							STATE TAX	2666
							FOR PERIOD ENDING	01-31-73
TOTAL EARNINGS		70000	TOTAL DEDUCTIONS			15495	NET PAY	545.05

JOSEPH A PORTER

501 1 020 00044 NON-NEGOTIABLE

5755
1MM 12-71

STATEMENT OF EARNINGS AND DEDUCTIONS

CERTIFIED TRUE COPY

February 2, 1973

Mr. Roy A. Stacey
Elizabethtown, Illinois

Dear Sir:

Enclosed is check for $112.27, representing wages earned for 21 hours during December and 32 hours during January. Amount due was calculated as follows:

53 hrs. @ $2.25	$119.25
S.S.	6.98
	$112.27

Thank you.

Sincerely,

Joseph A. Porter

JAP:vb
Enc.

Total Earned 119.25
Social Security 6.98
Total Check 112.23

CERTIFIED TRUE COPY
Joseph A. Porter

RECORD OF TIME WORKED

Roy A. Stacey — December 1972

Name, S.S. No., Dependents 2 — Month

351-12-5269

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
12-14-72			4 hrs		hauled cares from bath rings to home
12-19-72			2 hrs		cars to house
12-21-72			2 hrs		hauled cars to house
12-22-72			4 hrs		" " " home from bath rings
12-28-72			4 hrs		hauled cars to Rosiclare
12-29-72			3 hrs		" " to house
12-30-72			2 hrs		" " " "
		Total	21 hrs		

CERTIFIED TRUE COPY

Joseph G. Poole

Roy A. Stacey

RECORD OF TIME WORKED

Roy A. Stacey

January, 1973

Month

Name, S.S. No., Dependents 2

351-12-5269

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
1-4-73			4 hrs		hauled cores to Rosiclare
1-17-73			4 hrs		" " graded road
1-18-73			2 hrs		" " to house
1-19-73			8 hrs		while bulldozer work, piling pits
1-20-73			8 hrs		moved rig
1-30-73			2 hrs		hauled core to house
1-31-73			4 hrs		hauled cores to Rosiclare
		Total	32 hrs		

CERTIFIED TRUE COPY

James G. Porter

Roy A. Stacey

Invoice No.

M. L. CONN & SONS

TRUCKING SERVICE

ELIZABETHTOWN, ILLINOIS

From ..... Date 1-27-73, 196

At ..... City ..... County ..... State

Consigned to Joe Porter

Destination ..... Street Rosiclare, Ill. City

County, State

DATE	DESCRIPTION	WEIGHT	RATE	TOTAL
	Road Rock to Hicks Dome Road	169.00 Tons	$0.85	$143.65
	Hauling Only	13 Loads	$10/Load	130.00
	Total			$273.65

ck #861 - $273.65
1/30/73

CERTIFIED TRUE COPY

Joann G. Porter

Shipper

Glenn Conn Agent

Per

Per

February 5, 1973

Mrs. Vera Bishop
Elizabethtown
Illinois

Dear Vera:

Enclosed find a check in the amount of $114.22, representing wages earned during the month of January.

77 hrs.	x	$1.80	=	$138.60
S.S.		$8.11		
State I.T.		3.37		
Fed. I. T.		12.90		24.38
				$114.22

Sincerely,

JAP:vb
Encl.

Chg. OMC

70 hrs x $1.80 $126.00

5.8% S.S. 7.30

$133.30

CERTIFIED TRUE COPY

RECORD OF TIME WORKED

Vera Bishop, 178-18-8537 0 January 1973
Name, S.S. No., Dependents Month

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
Fri. 12/29/72	11:00	5:00	6		2 hrs Accounting
Sat. 12/30/72	11:30	3:30	4		
Wed. 1/3	11:30	3:30	4		"
Thurs. 1/4	11:30	3:30	4		
Fri. 1/5	11:30	3:30	4		
Mon. 1/8	11:30	3:30	4		
Tues. 1/9	11:30	3:30	4		
Wed 1/10	11:30	3:30	4		
Thurs. 1/11	10:30	3:30	5		3 hrs File
Mon. 1/15	10:30	3:30	5		2 hrs File
Tues. 1/16	11:00	3:30	4 ½		
Thurs. 1/18	11:30	3:30	4		
Fri. 1/19	12:00	3:30	3 ½		
Mon. 1/22	11:30	3:30	4		
Tues. " 1/23	11:30	3:30	4		
Wed. 1/24	11/30	3:30	4		
Thurs. 1/25	11:00	4:00	5		
Tues. 1/30	11:30	3:30	4		
			77		

CERTIFIED TRUE COPY

[signature]

January Phone Expenses
Chargeable OME-HDA

Date	Place	Person	Amount
12/20	LaPorte, Ind.	Joy	$2.40
1/3	Princeton, Ky.	Trace	.40
1/5	Washington	Kirkemo	1.00
1/5	LaPorte, Ind.	Joy	1.40
		Total Toll	$5.20
		Tax	.52
			$5.72

CERTIFIED TRUE COPY

STATEMENT

FROM V.C.McDonald (Chemist)

Rosiclare, Illinois 62982

19

TO Mr. Joe Porter (Geogologist)

ADDRESS Rosiclare, Illinois

CITY Illinois 62982

TERMS

	CORE SAMPLES FOR JANUARY 1973	
1-31-73	56 Determinations @ $1.00 Each	$ 56.00

V.C.McDonald
Chemist

V.C.McDonald

paid- ch # 864
2/2/73 - $56.00

CERTIFIED TRUE COPY

Joe C. Porter

STATEMENT

FROM V.C.McDonald (Chemist)

Rosiclare, Ill.

19

TO Mr. Joe Porter (Geogelogist)

ADDRESS Rosiclare, Ill.

CITY

TERMS

RE: CORE SAMPLES

Sample No.	Date Run	Determinations
946	12-11-72	4
947	"	4
948	17	4
949	20	4
950	27	4
		20

20 Determinations @ $1.00 each $20.00

V.C.McDonald

V.C. McDonald

CERTIFIED TRUE COPY

Joseph A Port

OPERATOR'S MONTHLY REPORT

January, 1973

During the month OME-2 was drilled from 878' to a total depth of 2200'. Total footage was 1322'. OME-3 was drilled from 361' to 548', and OME-4 was started and rotary drilled to 75'.

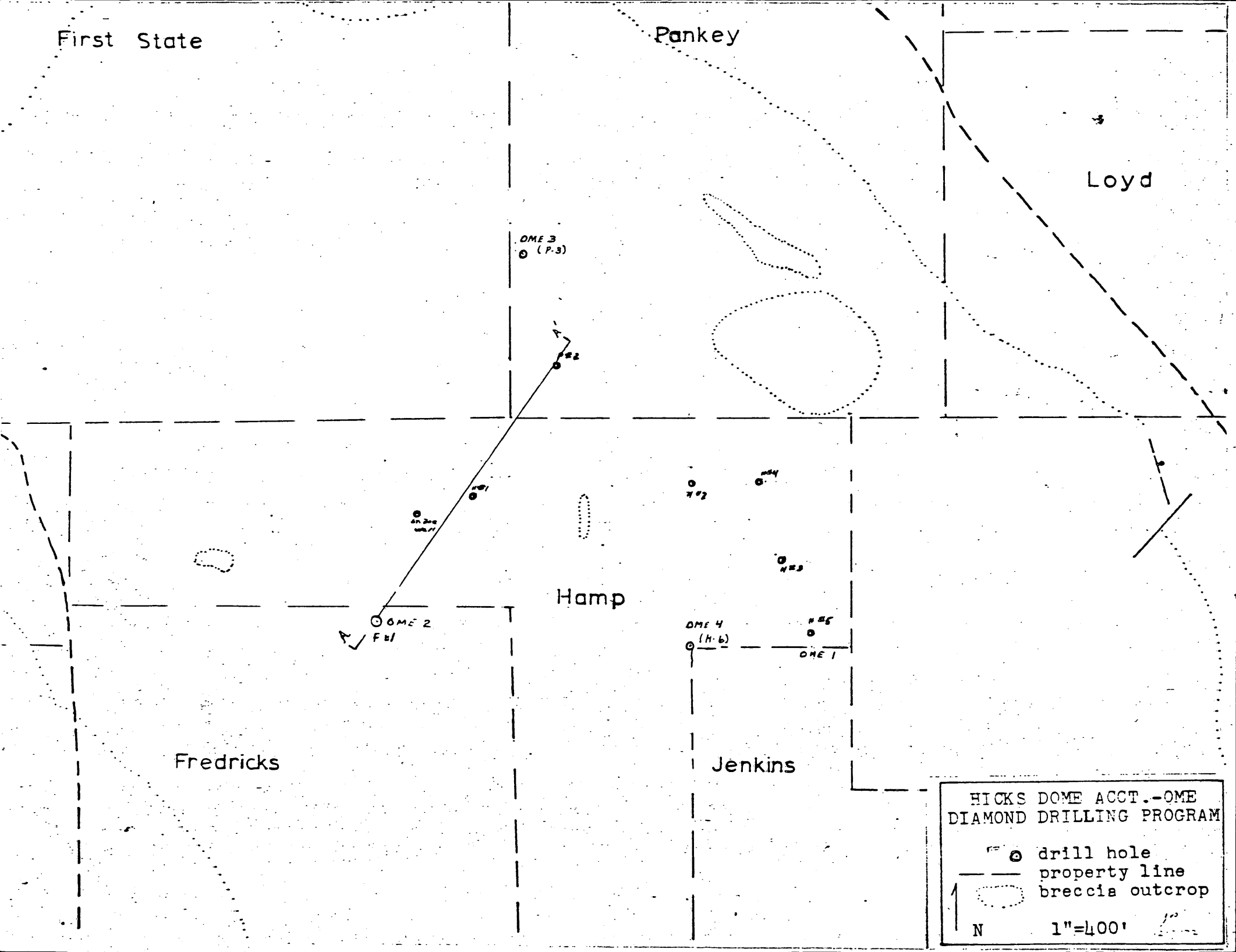
A map showing the location of the subject holes is attached.

OME-2 is considered to have been reasonably successful and encouraging. The main breccia body was intersected at 1812', 490' beneath the base of the Maquoketa, approximately where projected. Fine gray rock flour breccia was encountered from 1928' to 2108'. Below 2108' the breccia was rather coarse and very dolomitic.

A mineralized zone was encountered within the fine breccia. It consisted of 157' of 11.3% CaF_2. This mineralization occurred between 1908' and 2065', 594' and 751' respectively beneath the base of the Maquoketa shale. This zone coincides with the lower part of the Plattin limestone. It correlates very well with the intersections in previous holes.

This mineralized zone had all the characteristics of the zone previously encountered. Fluorite consisted principally of fine grained purple disseminations and replacements in the matrix. Richer portions contained distinct coarse clear barite crystals as is usually encountered. Additionally, it had the fine disseminated yellow sphalerite and galena and spectographic analysis indicated lower but anomolous amounts of other metallics as previously encountered. It differed slightly from the other intersections in that there were increased amounts of coarse crystalline spar in small fractures and patches. Though this feature is usually seen, it was more prominent in this hole.

Though marginal in grade, considerable importance can be attached to this intersection. This occurrence at the same stratigraphic horizon where it was previously encountered offers rather conclusive proof that this is a favored horizon within the breccia mass surrounding Hicks Dome. This intersection also demonstrates that the mineralization is occurring over a very wide area. The nearest previously drilled hole was approximately 1500' to the east.


First State
Pankey
Loyd
Hamp
Fredricks
Jenkins
OME 3
(P-3)
OME 2
F #1
OME 4
(H-6)
OME 1
HICKS DOME ACCT.-OME
DIAMOND DRILLING PROGRAM
drill hole
property line
breccia outcrop
N
1"=400'

Assays cited are those of Skyline. Some McDonald assays are presently in. As was the previous case, McDonald's assays are consistently 1.5% to 2% lower than Skyline.

Attached are:

1. Summary Geologic Log
2. Cross section showing the relationship of OME-2 to the other holes on the southwest limb of Hicks Dome
3. Copies of assay certificates and spectrographic analyses
4. Detailed geologic log of the breccia zone
5. Columnar section and assay graph of the breccia zone.

OME-3 was drilled from 361' to 548'. Substantial difficulties were encountered throughout. Difficulties were due principally to cavities and caving ground. The hole was reduced several times. At 361' the casing was pulled, and the hole was reamed to 410'. It was then drilled with a rock bit from 410' to 438'. The hole was subsequently cored from 438' to 478' where caving ground necessitated reduction to BX. It was then drilled BX to 490', where again caving ground required that all casing be pulled and the hole was reamed with a rock bit to 490'. NX casing was set at 490', and the hole was drilled NX to 548' by the end of the month.

Hole OME-4 was started at the northwest corner of the Jenkins property (Proposed Hole-B). The hole was drilled with a rock bit to a total of 75'. While pulling rods to unplug a stopped up bit, the drill collars and 10' of NX wireline rods were dropped down the hole. The rest of the month was spent in attempting to fish out the collars. These attempts were unsuccessful, and the hole was abandoned. The rig was subsequently moved over 5' and the hole restarted.

Respectfully submitted,

Joseph A. Porter
Geologist
March 2, 1973

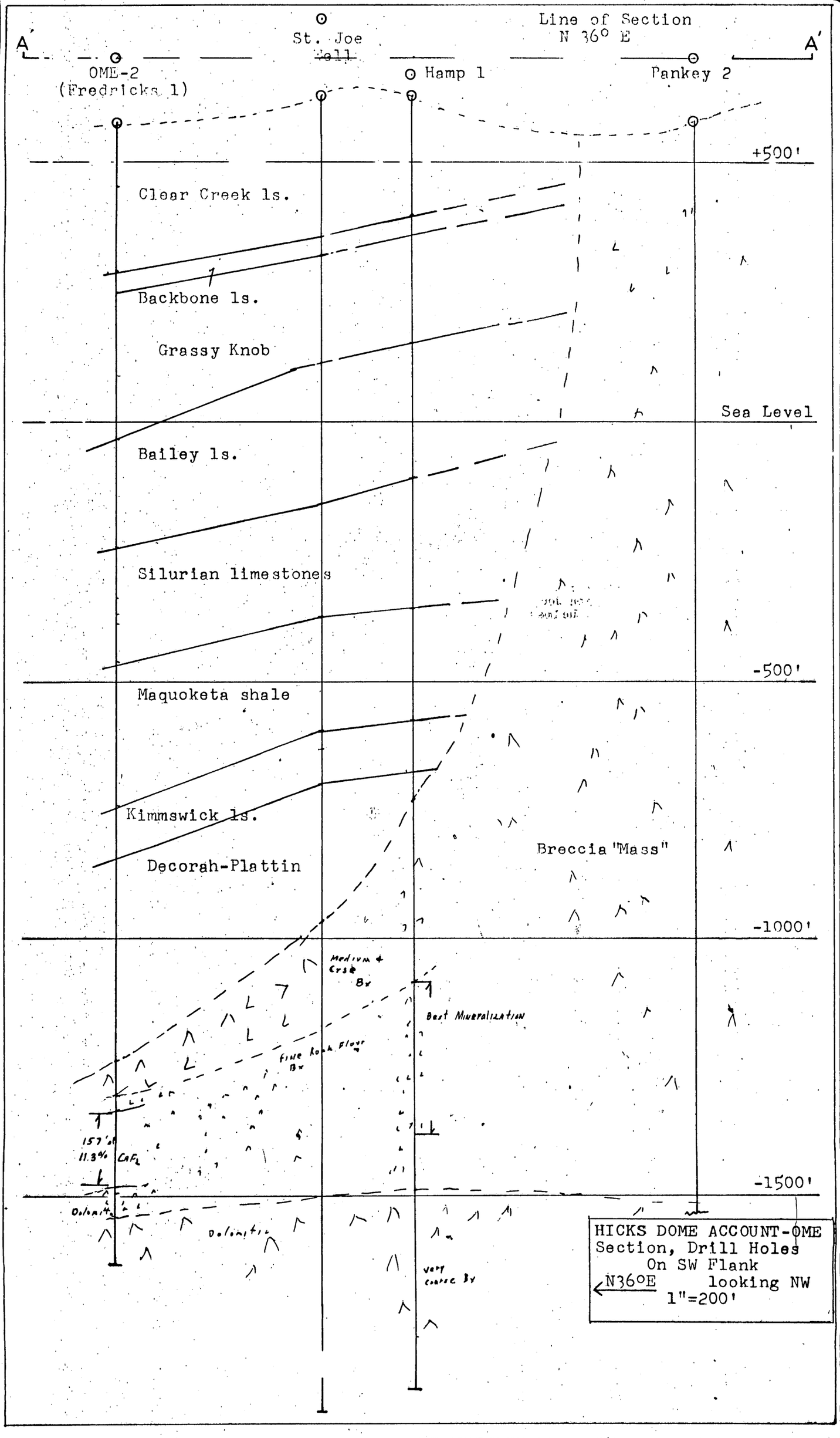
SUMMARY LOG
OME-2 (Fredericks Property)

FORMATION	DESCRIPTION	THICK.	DEPTH
Overburden	Cherty residuum	120	120
DEVONIAN			
Clear Creek ls.	Crystalline, light gray and light tan limestone, mostly fine grained, somewhat cherty throughout, few zones very cherty, slightly dolomitic	163	283
Backbone ls.	Light gray, crystalline, fine, medium, some coarse, very pure, stylolitic	40	323
Upper Grassy Knob	Mostly very fine, gray and brownish gray, similar to above in part, somewhat siliceous and argillaceous throughout, few zones fairly cherty, unit contains fairly abundant intrusive dike material and deeply weathered breccia zones	162	485
Lower Grassy Knob	Dark gray, very fine grained, very argillaceous and very cherty, 30% to 60% chert	123	608
Bailey ls.	Very fine grained, very silty and siliceous throughout, gray, somewhat speckled	203	811
SILURIAN			
Moccasin Springs ls.	Extra fine, dense, gray to light gray with streaks and patches of pink and green, wavy argillaceous streaks, disseminated pyrite	103	914

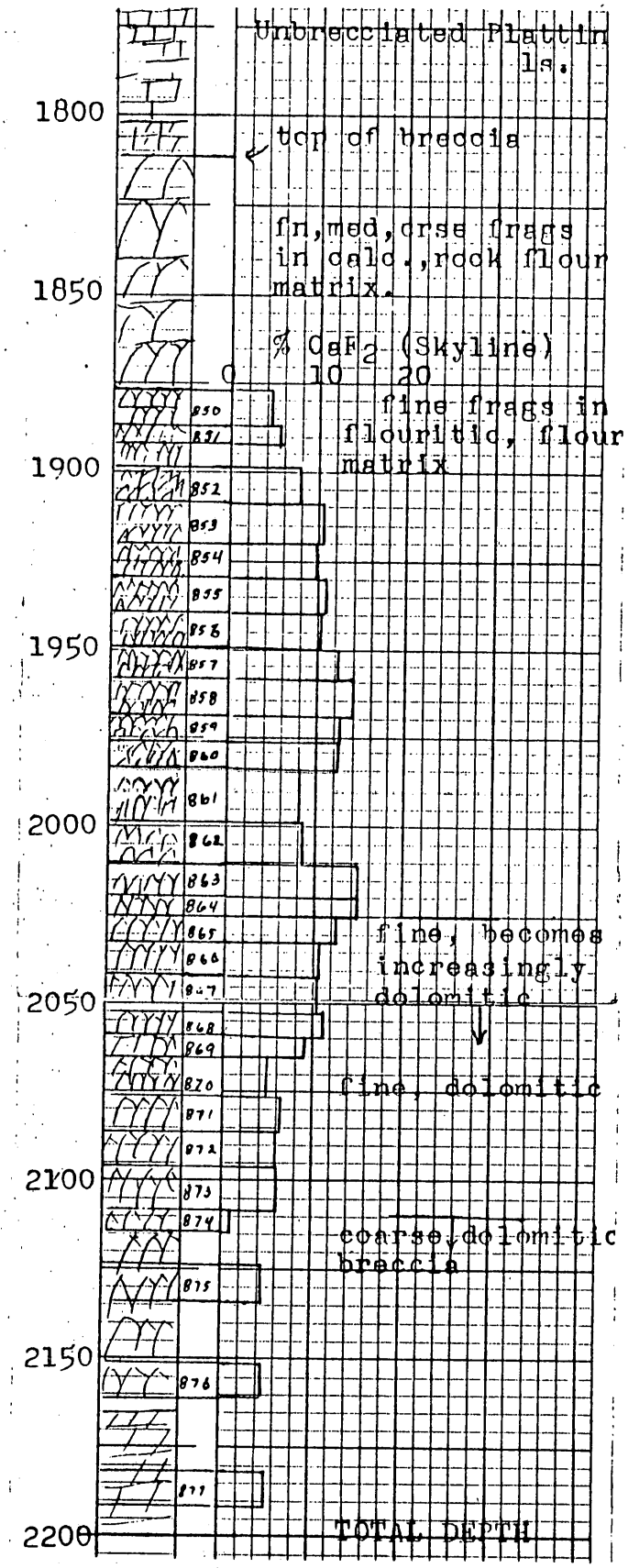
FORMATION	DESCRIPTION	THICK.	DEPTH
St. Clair ls.	Very fine grained, light gray, distinct isolated pink crystals, streaks with abundant pink crystals, stylolitic	31	945
Sexton Creek ls.	Abundant interlaminated, dolomitic, argillaceous streaks, all rather pink and pyritic, few interbedded silty and dolomitic streaks	16	961
Edgewood ls.	Fine grained, dark gray, partly cherty, somewhat nodular in appearance	76	1037
ORDOVICIAN			
Maquoketa shale	Dark gray to black, partly calcareous, fairly hard, bottom part sandy, fairly well fractured throughout	277	1314
Kimmswick ls.	Crystalline, fine, medium, and coarse, rather pure, light gray, stylolitic	68	1382
Decorah-Plattin ls.	Very fine grained, gray, dense, abundant irregular dolomitic argillaceous streaks, slightly silty and dolomitic	41	1423
Breccia and brecciated ls.	Tightly interlocked fragments in a calcareous matrix, traces of fluorite	66	1489
Plattin ls.	Limestone as above	323	1812
Breccia	Fine, medium and coarse, tightly interlocked, fragments of limestone and dolomite in calcite and rock flour matrix, very little matrix material, traces of fluorite, pyritic throughout	65	1877

FORMATION	DESCRIPTION	THICK.	DEPTH
Breccia	Gray rock flour breccia, consists of mostly fine angular fragments in a gray rock flour matrix, a little coarse, gradually increasing clear and purple spar, estimated from 1% to 3%, fair amounts of clear barite, yellow sphalerite, typical of purple breccia zone	51	1928
Breccia	Considered low grade "purple breccia", mostly very fine, angular fragments in a fluoritic rock flour matrix, spar estimated 5% to 7% throughout, rather abundant disseminated barite and sphalerite, as typical in purple breccia zone	48	1976
Breccia	Gray rock flour breccia, fine, medium and coarse angular fragments in a somewhat fluoritic rock flour matrix, spar, barite, and zinc throughout, estimated at 2% to 3%, bottom contact rather sharp	34.5	2010.5
Purple breccia	Fine angular fragments in a purple fluoritic matrix, generally typical of previous purple breccias, contains associated sphalerite and barite, spar estimated at 12%	14.5	2025
Breccia	Mostly very fine, little medium, consists of angular fragments of limestone and dolomite in a calcareous, dolomitic, sandy rock flour matrix, tends to be increasingly dolomitic toward bottom, grades from above, contains abundant isolated purple fragments which appear to have been well replaced by crystalline fluorite, possibly before brecciation, generally resembles low grade purple breccia throughout, except more dolomitic, spar averages 8% to 10%	34	2059

FORMATION	DESCRIPTION	THICK.	DEPTH
Breccia	Generally fine, angular fragments of dolomite limestone and some sandstone in a dolomitic gray rock flour matrix, some coarse fragments tending to be more coarse toward bottom, blebs of purple and clear fluorite scattered throughout, spar estimated at 1% to 2%	49	2108
Dolomite	Finely crystalline, light gray to white, shattered and brecciated throughout, occasional sandstone fragments, principally light gray in color, with fairly abundant streaks, patches of fine breccia with a purple fluoritic matrix	92	2200
	TOTAL DEPTH		


Line of Section
N 36° E
A'
A'
St. Joe
OME-2
(Fredricks 1)
Hamp 1
Pankey 2
+500'
Clear Creek ls.
Backbone ls.
Grassy Knob
Sea Level
Bailey ls.
Silurian limestones
-500'
Maquoketa shale
Kimmswick ls.
Decorah-Plattin
Breccia "Mass"
-1000'
Medium + Crse Bx
Best Mineralization
Fine Rock Flour Bx
157' of 11.3% CaF2
-1500'
Dolomite
Dolomitic
very coarse Bx
HICKS DOME ACCOUNT-OME
Section, Drill Holes
On SW Flank
N36°E
looking NW
1"=200'

COLUMNAR SECTION & ASSAY GRAPH
BRECCIA ZONE
OME-2 (FREDRICKS #1)



Vertical 1"=50'
Assay 1"=20% CaF_2

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

REPORT OF ANALYSIS

Job No. M-1799
February 12, 1973

Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

Analysis of 29 Rock Chip Samples DIAMOND DRILL HOLE - Fredericks 1 (OME-2)

Item	Sample No.	CaF_2 (%)	Item	Sample No.	CaF_2 (%)
1.	850	4.4	16.	865	12.5
2.	851	5.5	17.	866	10.5
3.	852	7.8	18.	867	10.5
4.	853	10.5	19.	868	11.
5.	854	9.9	20.	869	8.8
6.	855	11.	21.	870	4.9
7.	856	10.5	22.	871	6.2
8.	857	12.5	23.	872	6.0
9.	858	14.	24.	873	6.0
10.	859	12.5	25.	874	1.2
11.	860	12.5	26.	875	4.5
12.	861	8.2	27.	876	4.5
13.	862	8.6	28.	877	5.1
14.	863	14.5	29.	878	6.6
15.	864	14.5			

Charles E. Thompson
Chief Chemist

CC: John L. Carroll

SKYLINE LABS, INC.
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REPORT OF SPECTROGRAPHIC ANALYSIS

Job No. M-1799
February 12, 1973

Mr. Joseph A. Porter
P.O. Box 447
Rosiclare, Illinois 62982

DIAMOND DRILL HOLE F-1 (OME-2)

Values reported in parts per million except where noted otherwise, to the nearest number in the series 1, 1.5, 2, 3, 5, 7 etc.

Element	Sample Number 853	854	860	862	863	864	865
Fe	2%	3%	1.5%	2%	2%	2%	2%
Ca	20%	20%	20%	20%	10%	7%	10%
Mg	3%	3%	2%	2%	2%	2%	3%
Ag	<1	<1	<1	<1	<1	<1	<1
As	<500	<500	<500	<500	<500	<500	<500
B	20	20	30	20	50	30	30
Ba	>10,000	10,000	10,000	5,000	>10,000	>10,000	10,000
Be	200	200	500	200	300	300	500
Bi	15	15	15	10	20	20	10
Cd	<50	<50	<50	<50	<50	<50	<50
Co	<5	<5	<5	<5	<5	<5	<5
Cr	30	300	30	50	50	50	30
Cu	15	10	10	7	15	10	10
Ga	<10	<10	<10	<10	<10	<10	<10
Ge	<20	<20	<20	<20	<20	<20	<20
La	200	200	200	200	200	200	200
Mn	700	700	700	500	1,000	700	700
Mo	2	<2	2	<2	2	<2	2
Nb	700	500	700	300	500	700	700
Ni	10	100	10	10	15	15	10
Pb	700	500	300	300	300	500	300
Sb	<100	<100	<100	<100	<100	<100	<100
Sc	200	200	200	150	300	300	200
Sn	<10	<10	<10	<10	<10	<10	<10
Sr	7,000	10,000	5,000	5,000	3,000	3,000	5,000
Ti	5,000	3,000	3,000	3,000	5,000	5,000	3,000
V	300	100	300	150	150	200	200
W	70	<50	50	<50	50	50	50
Y	2,000	1,500	1,500	1,000	3,000	2,000	1,000
Zn	300	300	200	<200	300	500	200
Zr	200	150	150	100	200	150	100

Element	Sample Number 866	869	870	873	877	878
Fe	1%	1%	1%	1%	.7%	2%
Ca	10%	7%	7%	15%	15%	5%
Mg	3%	3%	5%	7%	5%	1.5%
Ag	<1	<1	<1	<1	<1	<1
As	<500	<500	<500	<500	<500	<500
B	30	20	15	15	15	50
Ba	10,000	7,000	2,000	5,000	1,000	70
Be	300	300	200	300	30	10
Bi	15	15	<10	10	<10	<10
Cd	<50	<50	<50	<50	<50	<50
Co	<5	<5	<5	<5	<5	30
Cr	20	20	15	20	10	150
Cu	10	10	5	5	2	70
Ga	<10	<10	<10	<10	<10	30
Ge	<20	<20	<20	<20	<20	<20
La	200	200	50	100	<20	500
Mn	700	700	700	700	700	1,000
Mo	<2	<2	2	2	2	2
Nb	700	500	200	500	70	100
Ni	7	7	5	5	5	70
Pb	500	500	300	20	10	70
Sb	<100	<100	<100	<100	<100	<100
Sc	200	100	20	50	30	20
Sn	<10	<10	<10	<10	<10	<10
Sr	1,500	1,500	1,000	2,000	500	1,500
Ti	3,000	3,000	1,500	2,000	1,000	7,000
V	150	150	100	100	100	100
W	50	50	<50	50	<50	50
Y	1,500	1,500	200	700	150	100
Zn	500	<200	<200	<200	<200	<200
Zr	100	150	30	100	30	300

Charles E. Thompson
Charles E. Thompson
Chief Chemist

CC: John L. Carroll

Comparison and Summary
Skyline and McDonald Assays
Hole OME-1

Sample	McDonald		Skyline
	$BaSO_4$	CaF_2	CaF_2
944	5.60	6.41	8.6
945	5.18	6.76	9.4
946	4.12	5.26	8.6
947	7.40	19.19	18.5
948	2.20	7.07	9.9
949	3.70	13.55	16.0
950	2.60	10.96	12.5
951	2.00	6.45	8.6
952	3.00	8.25	11.0
953	4.40	9.00	14.5
954	3.12	7.00	9.4
955	1.60	13.40	17.5
956	4.26	14.68	18.0
957	1.54	2.55	5.3

Field Office's copy

MME Form 50
July 1965

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

EXPLORATION CONTRACT
(Long Form)

Docket No.	Commodity	Contract No.	County	State
OME -6873	Fluorspar-beryllium-rare earths-thorium-niobium	201	Hardin	Illinois

It is agreed SEP 26 1972 (Date), between the United States of America, acting through the Department of the Interior, U. S. Geological Survey, hereinafter called the "Government," and

~~Gilbert Kerlin, Robert C. Goslet, Francis Goslet, d/b/a,~~
Hicks Dome Account, a partnership

whose mailing address is c/o Gilbert Kerlin, Esq. Sherman and Sterling, 99 Wall Street, New York, N. Y. 10005 hereinafter called the "Operator," as follows:

ARTICLE 1. Authority and scope.--(a) This contract entered into under the authority of Public Law 701, 85th Cong., 2d sess. (72 Stat. 700; 30 U.S.C. § 641 - 646), consists of this form, the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed. The work is a search for new or unexplored deposits of the commodity designated above. The Operator shall begin the work on or before October 10, 1972 (Date), and, subject to the provisions of Article 9 and Exhibit A, shall either have completed the work within 8 months from the date of the contract or shall have incurred allowable costs (see Article 6) in a sum not less than the total cost set forth in Exhibit A.

(b) The total allowable cost of the work set forth in Exhibit A is $ 95,450.00. The Government will contribute 50 percent of the allowable costs as they are incurred, in a total sum not in excess of $ 47,725.00 in accordance with the provisions of Articles 3, 4, 5, and 6. "Costs incurred" means costs that have been paid or have become due and payable, or that the Government determines have become obligations.

(c) Interest computation.--Simple interest at the rate of 8½ percent shall accrue from the dates Federal funds are made available until the period specified for payment of royalty expires, or until the amount of Federal funds contributed is fully repaid with interest.

(d) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. Operator's right in land.--(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's right of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances:

See Annex I

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the lien agreement of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached as follows:

See Article 16

(c) The Operator shall preserve and maintain his right, title, or interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a royalty on production and liens for the payment thereof. Two true copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 7 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

ARTICLE 3. Performance of the work.--(a) Operator's responsibility.--The work shall be performed diligently, efficiently, in a workmanlike manner in accordance with good mining standards, and in compliance with State laws governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work as specified in Article 1(a).

(b) Independent contracts.--To the extent that the allowable costs are estimated in Exhibit A with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed (see Article 6(a), Category (1)). Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract, the Government will participate in payments to the independent contractor only as to work performed in accordance with the provisions of this exploration contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) Government may inspect.--The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract and production operations during the period that royalty is payable to the Government. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. Contribution by the Government.-- The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5(b), but all payments by the Government are provisional only, subject to audit. Until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been received, the Government may withhold such sums as are necessary to protect its interests. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. Reports, accounts, audits.--(a) Operator's records.--The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) Monthly reports.--The Operator shall provide the Government with four copies of monthly reports in three sections as follows:

(1) Operator's Monthly Voucher claiming costs for work performed;

(2) Operator's Progress Report showing the number of units of the various types of work performed; and

(3) a narrative report of the work performed during the reporting period, including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground.

(Forms for reporting under (1) and (2) above will be provided by the Government; however, the original of the Operator's Monthly Voucher shall be supported by documentary evidence, such as certified copies or transcripts of payrolls and invoices, for all costs claimed under Article 6 (a) (1).)

(c) Final report.--Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with three copies of a final report (in addition to the final monthly report). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the related costs.

(d) Report of sales.--The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's royalty relates, such as two copies of smelter or concentrator settlement sheets and certified accounts of production and sale or other disposition of production.

(e) Compliance with requirements.--If the Government determines that any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the preparation or completion of the same with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. Costs.--(a) Allowable costs.--The allowable costs of the work to which the Government will contribute are limited to:

(1) the necessary, reasonable, and direct actual costs that are estimated in Exhibit A by categories as specified in this article; and

(2) fixed costs for units of work to be performed (per foot, per hour, etc.) agreed upon in lieu of actual costs and set forth in Exhibit A.

The Government will not contribute to costs under any category or subcategory omitted from the estimate of costs in Exhibit A. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost; any excess over a fixed unit cost; and any excess over the total allowable cost of the work are not allowable. The Operator shall incur such excesses for his own account without contribution by the Government, but the Operator is not obligated to incur more than his agreed percentage of the total allowable cost of the work.

Any category or subcategory or element thereof not designated as a maximum in this article, or in Exhibit A may be exceeded, provided that the total allowable cost of the work, which is a maximum, is not exceeded.

CATEGORY (1)--INDEPENDENT CONTRACTS.--(See Article 3(b)). The total of this category and the average unit cost estimated for each type of work to be performed under an independent contract are maximums.

CATEGORY (2)--PERSONAL SERVICES.

Subcategory (a)--Supervision and Technical Services--All elements of this subcategory (number of supervisors, technicians, outside consultants, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)--Labor.

CATEGORY (3)--OPERATING MATERIALS AND SUPPLIES.--Includes such items as drill bits and steel, explosives, fuel, pipe, power, timber, rail, and small tools costing less than $50 each.

CATEGORY (4)--OPERATING EQUIPMENT.

Subcategory (a)--Rental.--The number of each rented item [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)--Purchases.--The total of this subcategory is a maximum.

Subcategory (c)--Depreciation.--All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)--INITIAL REHABILITATION AND REPAIRS.--Costs of items listed under this category include all requirements, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The total of this category is a maximum.

Subcategory (a)--Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).--The total of this subcategory is a maximum.

Subcategory (b)--Initial rehabilitation and repairs of operating equipment.--The total of this subcategory is a maximum.

CATEGORY (6)--NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).--Costs of items listed under this category include all requirements, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The total of this category is a maximum.

CATEGORY (7)--MISCELLANEOUS.--Includes requirements and costs that do not fall within any of the first six categories, such as repairs other than initial and maintenance of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, and communications.

(b) Nonallowable costs.--In addition to the limitations imposed by paragraph (a) of this Article 6 the Government will not contribute to the following costs:

(1) Costs of the land, such as rental, depreciation, depletion, or other costs of acquiring, owning, or holding possession;

(2) Indirect costs, such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) Previous work performed or costs incurred before the date of this contract; and

(4) Deferred payments.--Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods, unless the purchase agreement is approved by the Government in writing.

(c) Reductions in costs.--The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original total cost. The provision does not apply to receipts from production which are subject to the Government's royalty under the provisions of Article 7.

ARTICLE 7. Repayment by Operator.--(a) Certification.--If the Government considers that mineral or metal production from the land covered by the contract may be possible as a result of the exploration work, it shall so certify in writing to the Operator at any time not later than six months after a sufficient final report and final accounting (see Article 5) have been furnished.

(b) Royalty on production.--The Operator, whether or not the producer (for example, if the Operator either transfers or does not retains his interest in the land), shall pay to the Government a royalty on all minerals and metals mined or produced from the land as follows:

(1) irrespective of any certification of possible production--from the date of the contract until the lapse of the time within which the government may issue such certification or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first; or

(2) if the Government issues a certification of possible production--for a period of ~~tenx~~ fifteen years from the date of the contract, or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first.

(c) Payment of royalty.--(1) The Government's royalty shall be five percent of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrate, metal or equivalent), at the point of delivery (the f.o.b. point); except, that charges of the buyer arising in the regular course of business and shown as deductions on the buyer's settlement sheets (such as treatment processes performed by the buyer, sampling and assaying to determine the value of the production sold, and freight payable by the buyer to a carrier (not the Operator or producer)), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. No costs of the Operator or Producer are deductible in arriving at the "gross proceeds" as that term is here used.

The term "treatment processes" means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(2) The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be.

(d) Unsold production.--If any production (ore, concentrate, metal, or equivalent), after the lapse of six months from the date the ore was extracted from the ground, remains neither sold nor used in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrate, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination or the market value, whichever is greater.

(e) Lien for payment.--To secure the payment of royalty (see Article 7(b)), the Operator hereby grants to the Government a lien upon his interest in the land and upon any production of minerals and metals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(f) Notice to purchasers.--The Operator or producer shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Government, and this estimate shall be final and binding upon the Operator or producer.

(g) No obligation to produce.--Nothing in this contract shall be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(h) Government not obligated to buy.--Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals and metals mined or produced from the land.

ARTICLE 8. Interests in purchased property.--(a) Title and ownership.--All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions although title thereto shall be taken in the name of the Operator.

(b) Preservation of property.--Until the final disposal of any property in which the Government has an interest, the Operator shall preserve and protect same for the best interest of the Government, and any reasonable and necessary cost thereof will be treated as an allowable cost of the exploration. After the completion of the work, termination of the Government's obligation to contribute, or when such property is not being used for the work, the Operator shall not use it elsewhere without the written consent of the Government and without paying a reasonable rental to be fixed by the Government for its proportionate interest.

(c) Disposal of property.--Upon the completion of the work, termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, sale to others, purchase by the Operator, or sale or transfer to the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government, the Operator shall not sell at any price any item of property that cost more than $500, and shall not sell at less than 25 percent of the purchase price any item of property that cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or offers. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, explosives, pipe, or rail), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item, the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the exploration.

(d) Default of the Operator re disposal.--If within 90 days after the completion of the work, termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may:

(1) in writing extend the time within which the Operator must dispose of or liquidate the property;

(2) by written notice to the Operator, place upon such property what it determines to be a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; and

(3) enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 9. Termination of the Government's obligations.--(a) If the Government determines that operations at any time have failed to achieve anticipated results and further work is not justified, the Government may give the Operator written notice thereof, and thereupon:

(1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to final accounting and reporting; and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

(b) If the Government determines that the Operator is in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon:

(1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to final accounting and reporting; and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 9 shall not affect the Government's rights as provided for in the contract with respect to royalty and liens to secure the payment thereof, and such rights shall be fully preserved.

(d) The determinations of the Government are subject to appeal under Article 13.

ARTICLE 10. Notices to be given by the Government may be delivered to the Operator, or may be sent by certified mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 11. Officials not to benefit.--No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 12. Nondiscrimination in Employment. The provisions respecting nondiscrimination in employment which are required by section 301 of Executive Order 10925, dated March 6, 1961 as amended and supplemented are attached hereto as Exhibit B and are hereby incorporated in and made a part of this contract.

ARTICLE 13. Disputes.--Any dispute arising under this contract which is not disposed of by agreement shall be decided by the Director, U. S. Geological Survey, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Operator. The decision of the Director, U. S. Geological Survey, shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Operator mails or otherwise furnishes to the Director, U. S. Geological Survey, a written appeal addressed to the Secretary of the Interior. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence.

The term "Director, U. S. Geological Survey," as used herein includes his duly authorized representative.

ARTICLE 14. Work Hours Act of 1962 - Overtime Compensation.--This contract, to the extent that it is of a character specified in the Work Hours Act of 1962 (Public Law 87-581, 76 Stat. 357-360) and is not covered by the Walsh-Healey Public Contracts Act (41 U.S.C. 35-45), is subject to the following provisions and to all other provisions and exceptions of said Work Hours Act of 1962.

(a) Overtime requirements.--No Operator or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic to be employed on such work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate of not less than one and one-half times his basic rate of pay for all hours worked in excess of eight hours in any such calendar day or in excess of forty hours in any such workweek, as the case may be.

(b) Violations; liability for unpaid wages; liquidated damages.--In the event of any violation of the clause set forth in subparagraph (a) of this paragraph, the Operator and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Operator and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for

liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic employed in violation of the clause set forth in subparagraph (a) of this paragraph, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (a) of this paragraph.

(c) Withholding for unpaid wages and liquidated damages.--The U. S. Geological Survey may withhold or cause to be withheld, from any moneys payable on account of work performed by the Operator or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Operator or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (b) of this paragraph.

ARTICLE 15. Copeland (Anti-Kickback) Act--Nonrebate of wages.--The regulations of the Secretary of Labor applicable to contractors and subcontractors (29 CFR, Part 3), made pursuant to the Copeland Act, as amended (40 U. S. C. 276c) and to aid in the enforcement of the Anti-Kickback Act (18 U. S. C. 874) are made a part of this contract by reference. The Operator will comply with these regulations and any amendments or modifications thereof and will be responsible for the submission of affidavits required of independent contractors thereunder. The foregoing shall apply except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions.

ARTICLE 16. Changes and added provision.--

The Government shall not make or be obligated to make any contribution to the cost of work performed under this contract until the Operator has submitted an adequate performance bond in the penal sum of $67,735.00, and the bond has been approved by the Government.

Executed in ~~quintuplicate~~ quadruplicate the day and year first above written.

HIGH ROAD ASSOCIAT
(Operator)

By [signature]
Title General Partner
By [signature]
Title General Partner
By [signature]
Title General Partner

THE UNITED STATES OF AMERICA

By [signature]
U. S. Geological Survey
Acting Assistant
Director for Administration

I, _____, certify that I am the
(Name)

_____ secretary of the corporation named as Operator herein; that

_____, who signed this contract on behalf of the Operator, was then
(Name)

_____ of said corporation; that said contract was duly signed for
(Title)

and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

[CORPORATE SEAL]

EXPLORATION CONTRACT

HICKS DOME ACCOUNT
OME-6873

ANNEX I

The land, including all rights pertaining thereto, referred to in Article 2 of the Contract consists of eight contiguous tracts of leased land or mineral rights thereto totalling approximately 615 acres in section 25, T. 11 S., R. 7 E., and sections 30 and 31, T. 11 S., R. 8 E., Third Principal Meridian, Hardin County, Illinois. It is shown on Figure 1 entitled, "Map showing leased land and proposed drill holes, Hicks Dome Account, Hardin County, Illinois," which is attached and made part hereof.

Date of lease or deed	Acres	Parties to lease or deed	Description
March 20, 1970	160	First State Bank of Elizabethtown, Illinois, lessor, Industrial Minerals Exploration Co., lessee.	E-1/2 NE-1/4 sec. 25, T. 11 S., R. 7 E., and W-1/2 NW-1/4, Sec. 30, T. 11 S., R. 8 E.
March 13, 1971	79.543	Mabel A. Pankey, grantor Industrial Minerals Exploration Co., grantee. (17/21st interest in tract)	NE-1/4 NW-1/4 and SE-1/4 NW-1/4, Sec. 30, T. 11 S., R. 8 E., less a parcel containing approximately 0.457 acre excepted in lease
July 30, 1971		Etta Irby and Iley "Doc" Pankey, lessors, Antaeus Resources Corp., lessee. (4/21st interest in tract)	Same as above
March 12, 1970	40	Florence F. Loyd, Fluorine Loyd, S. E. Loyd, Beulah Loyd, Marybelle L. McLin, W. R. McLin, lessors, Industrial Minerals Exploration Co., lessee.	SW-1/4 NE-1/4 sec. 30, T. 11 S, R. 8 E., less a parcel containing approximately 0.45 acre excepted in lease
Feb. 18, 1972	61.5	William L. Hamp, Applena Hamp, James E. Hamp, Diane K. Hamp, Franklin E. Hamp, and Mary E. Hamp, lessors, Antaeus Resources Corp., lessee.	N-1/2 NW-1/4 SW-1/4 Sec. 30, and portion of E-1/2 SW-1/4 sec. 30, T. 11 S., R. 8 E.

Date of lease or deed	Acres	Parties to lease or deed	Description
April 14, 1970	40	Lola Ewell Fredricks, Jack L. Fredricks, and Sophia Coy, lessors, Industrial Minerals Exploration Co., lessee	N-1/2 SW-1/4 SW1/4 and S-1/2 NW-1/4 SW-1/4 sec. 30, T. 11 S., R. 8 E.
March 9, 1970	20	Emma D. Jenkins, Eulala Wunderlich and Fred Wunderlich, lessors, Industrial Minerals Exploration Co., lessee	Portion of E-1/2 SW-1/4 sec. 30, T. 11 S., R. 8 E.
May 14, 1971	90	Edwin E. Rose, Gladys Rose, Thomas Rose, Vivian Rose, Veloise Zeller, William Zeller, Maude E. Williams and Virgil H. Williams, lessors, Antaeus Resources Corp., lessee.	N-1/2 SE-1/4, sec. 30, and E-1/4 NE-1/4 SW-1/4 sec. 30, T. 11 S., R. 8 E.
Feb. 22, 1972	105	J. J. Coan Co., Inc., International Fastener Research Corp., J. D. Quarant, Allene B. Quarant, lessors, Antaeus Resources Corp., lessee	S-1/2 SE-1/4 sec. 30, T. 11 S., R. 8 E. except the north 15 acres of SE-1/4 SE-1/4; and the NW-1/4 NE-1/4 sec. 31, T. 11 S., R. 8 E.

Copies of the leases, deed of mineral interest and subsequent assignments are contained in the docket of this Contract and are incorporated herein by reference.

The Operator is in possession of these parcels of land or mineral rights under terms of an Agreement dated May 10, 1971, between Hicks Home Account and Antaeus Resources Corporation, a copy of which is contained in the docket of this Contract and is incorporated herein by reference.

It is agreed that the requirements for payment of royalty to the Government on mineral production set forth in Article 7 of this Contract shall not apply to any mineral production which results from mining operations conducted on the 80-acre portion of the Rose-Zeller-Williams tract located in the NW-1/4 SE-1/4, section 30, T. 11 S., R. 8 E., above the 200 foot level below the surface. It is further agreed that mineral production resulting from mining operations conducted below the 200 foot level shall be subject to payment of royalty as required by Article 7.

In the event the Operator or any subsidiary thereof at any time during the period expiring fifteen years from the date of this Contract acquires any right, title or interest in or to any land situated within one thousand (1000) feet of the heavy boundary lines shown on Figure 1 previously referred to the Operator shall promptly notify the Government of such acquisition and furnish a description of the land, the acreage involved and the nature of the right, title or interest acquired, maps and such other data as the Government may require, and such land automatically shall become subject to the provisions of this Contract as of the date of acquisition.

With respect to any land which is subject to this Contract, the Operator may at any time not exceeding six months after the date of completion of the exploration work or termination thereof report and certify to the Government the following:

(a) That the land specified has no known value for mineral production; and

(b) That the Operator has surrendered or otherwise disposed of all its right, title, and interest in such land without consideration therefore other than relief from the cost of maintaining such right, title, or interest.

If, upon receipt of such report and certification, the Government is satisfied with the representations and showing made by the Operator an amendment shall be prepared and executed deleting such land from the land referred to in Article 2 and listed in this Annex I. Upon execution of an amendment such land shall be freed from any obligation under the Contract, and withdrawn from the land described in Annex I. However, should the Operator or any subsidiary thereof at any time reacquire any right, title, or interest in land withdrawn from this contract before the expiration of fifteen (15) years from the date of the Contract, the Operator or any subsidiary thereof shall promptly notify the Government of such reacquisition and such land automatically shall become subject to the provisions of this Contract as of the date of reacquisition.

A Performance Bond in lieu of Consent to Lien and Subordination Agreements is attached and made a part hereof.

EXPLORATION CONTRACT

HICKS DOME ACCOUNT
OME-6873

EXHIBIT A

The purpose of the project is to explore by diamond core drilling for fluorspar-beryllium-rare earths-thorium-niobium ores in mineralized breccias in the Hicks Dome cryptovolcanic structure.

General Provisions

A bulldozer no smaller than a Caterpillar D-4 shall be used to prepare access roads and drill sites.

All drill holes shall be cased as necessary and completed not less than standard BX (nominal diameter 1-5/8 inches) core size or equivalent wire line size.

The Government will not contribute to the cost of holes abandoned without prior Government approval confirmed in writing, casing left in the hole at the request of the Operator, or holes drilled closer than 100 feet to the outer boundary of the project area.

All drill core shall be stored in boxes identified as to hole number, with markers in the core sections indicating the depths represented.

Significantly mineralized core recovered from hole intervals not exceeding 5 feet shall be split and one split assayed for fluorspar. The remaining core shall be stored in proper sequence with the unsampled core. The stored core shall be available for additional analyses as necessary and for Government inspection and possible use. With prior Government approval, the Operator may dispose of the stored core.

Preliminary assays of the fluorspar content of sampled intervals may be used to select samples for subsequent more detailed and confirmatory analyses of the fluorspar content, and to determine the content of beryllium, lead, zinc, rare earths, thorium, and niobium.

True copies of certificates of assay or analysis of all samples analyzed shall be submitted with the Operator's monthly reports, which shall include a log of the drilling completed and the location of all samples collected and assayed or analyzed.

The Operator shall provide such supervision, labor, and technical services as may be required to complete the work in a satisfactory manner.

Description of the Work

The work shall consist of bulldozing access roads, preparing drill sites, and core drilling four vertical diamond drill holes, one at each of four surface sites, for an estimated drilling total of 10,000 feet. The approximate locations of the first holes to be drilled, OCD-1 and OCD-2, are shown on Figure 1. The location and extent of the third and fourth drill holes shall be subject to prior Government approval confirmed in writing. If it should be determined that any existing drill holes should be extended, reentry may be made and the hole deepened by additional drilling, either on a vertical course or directed by wedging to a predetermined course.

No drill hole shall exceed 3,000 feet in depth, and all holes are to be directed into breccia zones.

Upon completion of the work, the Operator shall restore to its approximate original condition any land surface where land use has been impaired by the project work.

Estimated Costs of the Work

Actual Costs

Category (1) Independent Contracts

Bulldozing access roads and drill sites
60 hours at $12.50/hr — $ 750.00

Diamond drilling from surface sites
10,000 feet — 56,200.00

Depth Feet	Rate per Foot NXWL	BXWL
0-300 (rotary non-coring)	$3.90	
0-500 core drilling	4.40	$4.20
500-1,000	4.80	4.60
1,000-1,500	5.40	5.20
1,500-2,000	6.30	6.10
2,000-2,500	7.50	7.30
2,500-3,000	9.00	8.80

Bit costs (diamond loss) 10,000 feet at $0.50/ft. 5,000.00

Reaming, 1,200 feet at $3.00/ft.	$ 3,600.00	
Standby time, 160 hours at $14.00/hr.	2,240.00	
Cement, drill muds, additives 250 sacks materials at driller's invoice prices, but not exceeding $9.00/100 lb. for cement, $5.50/100 lbs. for drill mud, $16.00/100 lbs. for caustic soda, or $65.00/50 lb. for Cellex.	2,000.00	
Cementing and redrilling 80 hours at $16.00/hr.	1,280.00	
Water supply by pump or truck 6 months at $300.00/month	1,800.00	
Lost casing in completed holes, 1,200 feet NX casing at $3.50/foot BX casing at $2.50/foot	4,200.00	
Total Category (1)		$77,070.00
Category (2) Personal Services		
None except:		
1 Supervisor-geologist, 7 months at $1,250.00 month	$ 8,750.00	
1 Sampler, 7 months at $500.00/month	3,500.00	
Total Category (2)		$12,250.00
Category (3) Operating Materials and Supplies		
Road metal, 200 tons at $2.00 ton	$ 400.00	
Core boxes, 880 at $1.25/box	1,100.00	
Sample bags, 300 at $0.30/bag	90.00	
Total Category (3)		$ 1,590.00

Category (7) Miscellaneous

Office and accounting services, including part time secretarial services, printing, supplies, postage, and telephone, 7 months at $100.00/month	$ 700.00	
Transportation of samples, 400 at $0.60/each	240.00	
Analytical work		
Fluorspar assays, specific ion electrode method 400 at $2.50/sample	1,000.00	
Wet assays (Ca F_2, Pb, Zn, and others) 400 samples, at ranging prices per determination	1,600.00	
Spectrographic and X-ray emission analyses (multiple components) 100 samples at $10.00/sample	1,000.00	
Total Category (7)		$ 4,540.00
Total Estimated Cost of the Project		$95,450.00
Government Participation at 50 percent		$47,725.00

EXHIBIT B

EQUAL OPPORTUNITY CLAUSE (FEDERALLY ASSISTED CONSTRUCTION)

EQUAL OPPORTUNITY (APPLICANT)

(a) The applicant hereby agrees to incorporate, or cause to be incorporated, into any contract for construction work, or modification thereof, as defined in the rules and regulations of the Secretary of Labor at 41 CFR, Chapter 60, which is paid for, in whole or in part, with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following Equal Opportunity (Federally Assisted Construction) clause:

EQUAL OPPORTUNITY [1] (FEDERALLY ASSISTED CONSTRUCTION)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this Equal Opportunity (Federally Assisted Construction) clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(c) The Contractor will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity (Federally Assisted Construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as provided by law.

(g) The Contractor will include this Equal Opportunity (Federally Assisted Construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* That in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

(b) The applicant further agrees that it will be bound by the above Equal Opportunity (Federally Assisted Construction) clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided, however,* That if the applicant so participating is a State or local government, the above Equal Opportunity (Federally Assisted Construction) clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the contract.

(c) The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and subcontractors with the Equal Opportunity (Federally Assisted Construction) clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

(d) The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order No. 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the Equal Opportunity (Federally Assisted Construction) clause as may be imposed upon Contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D, of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings the administering agency may take any or all of the following actions: Cancel, terminate, or suspend, in whole or in part, this grant [contract, loan, insurance, guarantee]; refrain from extending any further assistance to the applicant under the program with respect to which its failure or refusal occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

[1] On and after Oct. 14, 1968, the term "race, color, religion, sex, or national origin" is substituted for the term "race, creed, color, or national origin," as provided by Executive Order No. 11375, Oct. 13, 1967 (32 F.R. 14303).

U.S. Geological Survey
Office of Minerals Exploration

Hicks Dome Account
OME-6873

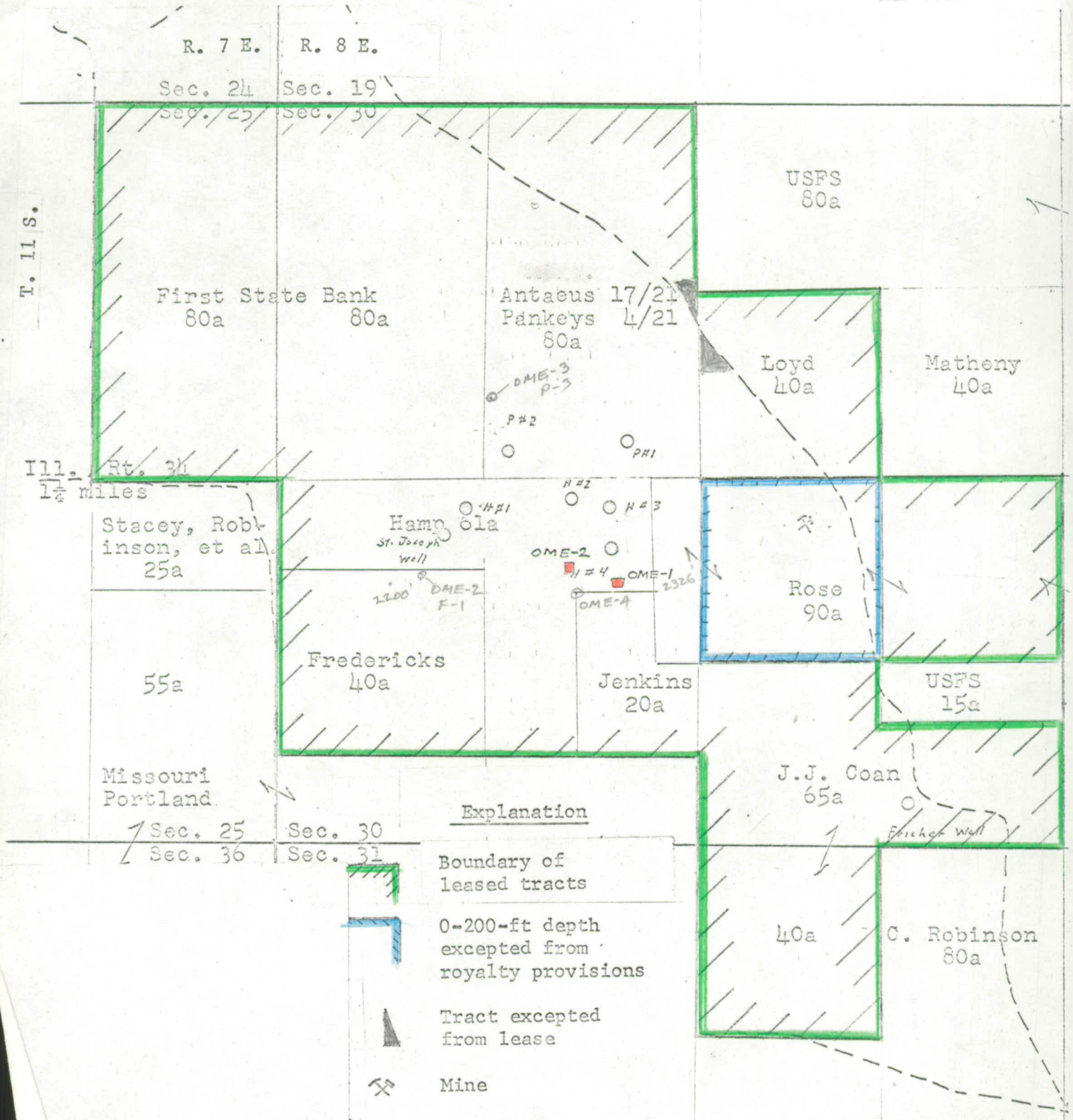

Figure 1

Map showing leased land and proposed drill holes

Hicks Dome Account

Hardin County, Illinois

FORM 9-1648
MARCH 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

OPERATOR'S MONTHLY VOUCHER For Month of May, 1973

Docket No. OME- OME-6873
Contract 14-08-0001 2306
Contract Amount $ 95,450
Gov't. Participation % 50 $47,725

Operator's Name Hicks Dome Account c/o Gilbert Kerlin, Esq.
Address Shearman and Sterling, 53 Wall St. New York, NY 10005

COST ITEMS (FROM EXHIBIT A)	FOR OPERATOR'S USE: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS	FOR GOVERNMENT USE ONLY: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS
Category (1)		$		$		$		$
Hrs. Dozing	-	-	51	637.50	-	-	51	637.50
Rotary Drilling	-	-	816	3,182.40	-	-	816	3,182.40
Cored NX 0-500	-	-	1092	4,804.80	-	-	1,092	4,804.80
500-1000	-	-	840	4,032.00	-	-	840	4,032.00
1000-1500	-	-	230	1,242.00	-	-	230	1,242.00
Cored BX 0-500	-	-	92	386.40	-	-	92	386.40
500-1000	-	-	1160	5,336.00	-	-	1,160	5,336.00
1000-1500	421'	1,936.60	1770	8,951.40	421	1,936.60	1,770	8,951.40
1500-2000	500'	2,600.00	2000	11,750.00	500	2,600.00	2,000	11,750.00
2000-2500	200'	1,220.00	1103	7,811.90	200	1,220.00	1,103	7,811.90
Reaming	-	-	1197	3,591.00	-	-	1,197	3,591.00
Water supply, mons.	1	300.00	7.7	2,310.00	1	300.00	7.7	2,310.00
Standby time, hrs.	8	112.00	24	336.00	8	112.00	24	336.00
Drilling mud, bags	-	-	114	419.71	-	-	114	419.71
Caustic Soda	-	-	1	10.85	-	-	1	10.85
Quebracho	-	-	1	20.78	-	-	1	20.78
Freight & Handling	-	-	21	22.59	-	-	21	22.59
BX Casing lost	-	-	267	667.60	-	-	267	667.60
NX Casing lost	42'	157.00	220	780.00	45 1/	157.00	223	780.00
Category (2)								
Geologist-Supervisor	.75	937.50	7.75	9,687.50	2/	2/	7	8,750.00
Sampler	1	104.79	6	563.77	1	104.79	6	563.77
Category (3)								
Road Rock, tons	-	-	199.9	327.73	-	-	199.9	327.73
Core Boxes	125	156.25		1,136.25	125	156.25	909	1,136.25
Sample Bags	26	7.80	107	34.90	3/	-	81	27.10
Category (7)								
Office Expense	1	100.00	8	795.35	1	100.00	8	795.35
Trans. of samples	-	-	54	31.66	-	-	54	31.66
Prepare, assay CaF_2	-	-	108	351.00	-	-	108	351.00
Other Analysis	-	-	27	35.50	-	-	27	35.50
Spectro. analysis	-	-	32	301.00	-	-	32	301.00
TOTALS		$ 7,631.94		$ 69,557.59		$ 6,686.64		$ 68,612.29

I certify that the above bill is correct and just and that payment therefor has not been received.

Date June 21, '73 *Payee Hicks Dome Account
Joseph A. Porter

Per Joseph A. Porter Title Geologist

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U. S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Approved as noted, subject to field examination and audit.

Signature Harold Kirkham Chief, OME ~~Field Officer~~ Date 7/5/73

Approved for: $
(SUBJECT TO AUDIT)

Signature

Date Vou. No.
(SEE OTHER SIDE)

FOR OPERATOR'S USE

REMARKS

Category (1)

1. 157' of 4" pipe taken as NX casing.
2. Billed for core boxes in inventory at end of job. These will be charged as used. 125 boxes billed here.
3. Reconciliation of all bit charges to follow.

Category (2)

Geologist-Supervisor at 3/4 time.

Category (7)

Two part time secretarial helpers used during month. One helping with drafting. Total charged $100.00.

Charges for assay work to follow.

FOR GOVERNMENT USE

REMARKS

1/ 4" pipe substituted for casing. Credit 45 feet NX casing at $3.50/ft. for 157 feet of pipe as follows: $\frac{157}{3.50} = 45$

2/ Disallow claim ($937.50) because all elements under Category (2)(a) of Article 6 of the contract are maximums. Contract allows 7 months at $1,250/month for a total of $8,750 for Supervisor-Engineer.

3/ Disallow claim for $7.80 for 25 bags because receipt not furnished. May be reclaimed upon submittal of receipt.

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of two parts.

FIRST, the Operator's Monthly Voucher on Form 9-1648 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and three copies of each of the two sections of this report to the OME regional Field Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, FORM 9-1648

In the left hand column list the items for which costs were incurred during the month, and also the items for which costs were previously reported. For items previously reported, show only UNITS TO DATE and COSTS TO DATE. Items listed should conform to Exhibit A of the contract (Estimated Costs of the Work). The total of COSTS THIS MONTH followed by the Operator's signature constitutes a claim for payment of the Government's share of the costs. The Operator or his agent must sign the certification in the lower left corner.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as unemployment taxes, employee's liability insurance, and depreciation of Operator-owned equipment. The certification may be stated thus, "Certified True Copy", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Field Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

FORM 9-1643
MARCH 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

OPERATOR'S MONTHLY VOUCHER

For Month of May, 1973

Docket No. OME- OME-6873
Contract 14-08-0001 2306
Contract Amount $ 95,450
Gov't. Participation % 50 $47,725

Operator's Name Hicks Dome Account
Address c/o Gilbert Kerlin, Esq.
Sheerman and Sterling, 53 Wall St.
New York, NY 10005

COST ITEMS (FROM EXHIBIT A)	FOR OPERATOR'S USE: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS	FOR GOVERNMENT USE ONLY: THIS MONTH UNITS	THIS MONTH COSTS	TO DATE UNITS	TO DATE COSTS
Category (1)		$		$		$		$
Hrs. Dozing	-	-	51	637.50	—	—	51	637.50
Rotary Drilling	-	-	816	3,182.40	—	—	816	3,182.40
Cored NX 0-500	-	-	1092	4,804.80	—	—	1092	4,804.80
500-1000	-	-	840	4,032.00	—	—	840	4,032.00
1000-1500	-	-	230	1,242.00	—	—	230	1,242.00
Cored BX 0-500	-	-	92	386.40	—	—	92	386.40
500-1000	-	-	1160	5,336.00	—	—	1160	5,336.00
1000-1500	421'	1,936.60	1770	8,951.40	421	1,936.60	1770	8,951.40
1500-2000	500'	2,600.00	2000	11,750.00	500	2,600.00	2000	11,750.00
2000-2500	200'	1,220.00	1103	7,811.90	200	1,220.00	1103	7,811.90
Reaming	-	-	1197	3,591.00	—	—	1197	3,591.00
Water supply, cons.	1	300.00	7.7	2,310.00	1	300.00	7.7	2,310.00
Standby time, hrs.	8	112.00	24	336.00	8	112.00	24	336.00
Drilling mud, bags	-	-	114	419.71	—	—	114	419.71
Caustic Soda	-	-	1	10.85	—	—	1	10.85
Quebracho	-	-	1	20.78	—	—	1	20.78
Freight & Handling	-	-	21	22.59	—	—	21	22.59
BX Casing lost	-	-	267	667.60	—	—	267	667.60
NX Casing lost	42'	157.00	220	780.00	45 1)	157.00	223	780.00
Category (2)								
Geologist-Supervisor	.75	937.50	7.75	9,687.50	— 3)	— 3)	7	8,750.00
Sampler	1	104.79	6	563.77	1	104.79	6	563.77
Category (3)								
Road Rock, tons	-	-	199.9	327.73	—	—	199.9	327.73
Core Boxes	125	156.25		1,136.25	125	156.25	909	1,136.25
Sample Bags	26	7.80	107	34.90	— 3)	—	81	27.10
Category (7)								
Office Expense	1	100.00	8	795.35	1	100.00	8	795.35
Trans. of samples	-	-	54	31.66	—	—	54	31.66
Prepare, assay CaF2	-	-	108	351.00	—	—	108	351.00
Other Analysis	-	-	27	35.50	—	—	27	35.50
Spectro. analysis	-	-	32	301.00	—	—	32	301.00
TOTALS		$ 7,631.94		$ 69,557.59		$ 6,686.64		$ 68,612.29

I certify that the above bill is correct and just and that payment therefor has not been received.

Date June 21, '73 *Payee Hicks Dome Account
Joseph A. Porter

Per Joseph A. Porter Title Geologist

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U. S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Approved as noted, subject to field examination and audit.

Signature _____ OME Field Officer Date

Approved for: $ _____
(SUBJECT TO AUDIT)

Signature _____

Date _____ Vou. No. _____
(SEE OTHER SIDE)

FOR OPERATOR'S USE	FOR GOVERNMENT USE
REMARKS	REMARKS
Category (1) 1. 157' of 4" pipe taken as NX casing. 2. Billed for core boxes in inventory at end of job. These will be charged as used. 125 boxes billed here. 3. Reconciliation of all bit charges to follow. Category (2) Geologist-Supervisor at 3/4 time. Category (7) Two part time secretarial helpers used during month. One helping with drafting. Total charged $100.00. Charges for assay work to follow.	1) 4" pipe substituted for casing. Credit 45 feet NX casing at $3.50/ft for 157 feet of pipe at $1.00/ft as follows: $\frac{157}{3.50} = 45$ 2) Disallow claim ($937.50) because all elements under Category (2)(a) of ~~contract~~ Article 6 of the contract are maximums. Contract allows 7 months at $1,250/month for a total of $8,750 for Supervisor-Engineer. 3) Disallow claim for $7.80 for 25 bags because receipt not furnished. May be reclaimed upon submittal of receipt.

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of two parts.

FIRST, the Operator's Monthly Voucher on Form 9-1648 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and three copies of each of the two sections of this report to the OME regional Field Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, FORM 9-1648

In the left hand column list the items for which costs were incurred during the month, and also the items for which costs were previously reported. For items previously reported, show only UNITS TO DATE and COSTS TO DATE. Items listed should conform to Exhibit A of the contract (Estimated Costs of the Work). The total of COSTS THIS MONTH followed by the Operator's signature constitutes a claim for payment of the Government's share of the costs. The Operator or his agent must sign the certification in the lower left corner.

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JOY MANUFACTURING COMPANY

OLIVER BUILDING
PITTSBURGH, PENNSYLVANIA 15222

PLEASE REMIT TO
P. O. BOX 360135M
PITTSBURGH, PA. 15230

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORD'R NO.	DATE	AT REC. POINT	B.O.NO.
CONTRACT	CODE 99 69 05 14 03 209			DATE	AT SHIP POINT	

31180
SOLD TO
Mr. Gilbert Kerlin
53 Wall Street
New York, New York 10005

TERMS NET 30 DAYS
NO CASH DISCOUNT

INVOICE NO. 05116815
INVOICE DATE 6-15-73

PLEASE REMIT TO
P.O. BOX 360135M
PITTSBURGH, PA. 15230

DATE SHIPPED

SHIPPED TO
Hicks Dome, Illinois

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM Michigan City, Indiana

ORIGINAL QUANTITY ORDERED	PART NUMBER	DESCRIPTION			CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
	To 1,121' core drilling at Hicks Dome, Illinois as per agreement.								
	PROSPECT NO.		FROM	TO		TOTAL FT.	COST	UNIT	TOTAL COS
	H-6	BX	1079.	1500.		421.	4.60		$1,936.6
		BX	1500.	2000.		500.	5.20		2,600.0
		BX	2000.	2200.		200.	6.10		1,220.0
									$5,756.6
	CORE BOXES USED								
		341 Cardboard Core Boxes @ $1.25/ea.							426.2
	CASING LOST OR REQUESTED IN PLACE								
	H-6	157 feet 4" Pipe @ $1.00/ft.							157.0
		220' BX W. L. Rods and Casing Cutter lost in cavity							N/C
	FURNISHING WATER								
		April 26 through May 25, 1973							300.0
	DIAMOND BIT LOSS IN EXCESS OF $1.00/FT.								
		April 26 through May 25, 1973.							
		Attached detail listing shipments, returns, and foreman's inventory.							301.0
		1 Well Pump and Wiring per agreement							500.0

CERTIFIED TRUE COPY

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED
NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

4134 4/67
(P133A)

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

PAGE NO. 2

SOLD TO Mr. Gilbert Kerlin

OUR ORDER NO.	AT REC. POINT	AT SHIP POINT	B.O. NO.	INVOICE NO.
				05116815

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	SALES CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
	SURVEY TIME							
		H-6	May 29 5 hours May 30 3 hours					
			8 hours @ $16.00/hr.					$ 128.
								$7,568.

CERTIFIED TRUE COPY

INVOICE (CONTINUATION)

FORM P138A

June 2, 1973

Mr. Roy A. Stacey
Elizabethtown
Illinois

Dear Roy:

Enclosed is a check for $93.21 for wages earned during the month of May, 1973. Also enclosed is a check for $7.00 for welding. Amount due was calculated as follows:

44 hrs. x $2.25 =		$99.00
Income Tax	$0.00	
State Tax	0.00	
Social Security	5.79	- 5.79
		$93.21

Thank you.

Sincerely,

Joseph A. Porter, Geologist
P.O. Box 447
Rosiclare, IL 62982

JAP/kt
Encl. 2

CERTIFIED TRUE COPY

Amount Earned $ 99.00
Employee S.S. 5.79
104.79

RECORD OF TIME WORKED

Name, S. S. No., Dependents 2. Month May

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
5-4-73			8 hrs		Disc harrowing [illegible] to Ponders
5-5-73			6 hrs		Sandbagging & Diking
5-8-73			2 hrs		cows to house
5-10-73			4 hrs		cows to Rosedale
5-18-73			4 hrs		" " "
5-19-73			2 hrs		cows to house
5-21-73			2 hrs		" " "
5-23-73			4 hrs		" " Rosedale
5-26-73			4 hrs		" " "
5-29-73			8 hrs		Bladed Road - work at Rosedale
		Compensate for care taker			
			44 hrs.		

June 1, 1973

Mrs. Vera Bishop
Elizabethtown, Illinois

Dear Vera:

Enclosed find a check in the amount of $50.07, representing wages earned during the month of May, 1973.

31 hrs.	x	$1.80	=	$55.80
S. S.	$3.26			
State I. T.	1.37			
Fed. I. T.	1.10			5.73
				$50.07

Sincerely,

Joseph A. Porter

JAP:vb
Enc.

CERTIFIED TRUE C

55.80
55 3.26
$59.06

Change one 100%

RECORD OF TIME WORKED

Vera Bishop 178-18-8537 0 — May, 1973

Name, S. S. No., Dependents — Month

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
Mon - 5/14	11:30	3:30	4		
Tues 5/15	11:30	3:30	4		
Wed 5/16	11/30	3:30	4		
Thurs 5/17	11:30	3:30	4		
Mon 5/21	11:45	3:15	3 ½		
Tues 5/22	11:30	3:30	4		
Thurs 5/24	11:45	3:15	3 ½		
Tues 5/29	11:30	3:30	4		
			31		

June 1, 1973

Mrs. Kay Thornberry
Rosiclare
Illinois

Dear Kay:

Enclosed find a check in the amount of $84.87 representing payment of wages for May 16-31, 1973. Also included is $12.00 for mileage.

43 hrs. x $1.80 =		$ 77.40
S.S.	$4.53	
I.T.	0.00	
S.T.	0.00	- 4.53
		$ 72.87
120 mi. x $0.10 =		12.00
	Total	$ 84.87

CERTIFIED TRUE COPY

Sincerely,

Joseph A. Porter
Rosiclare, IL

~~84.00~~

Earned 77.40
Employee SS 4.53
Total 81.93

Charge OME-100%

RECORD OF TIME WORKED

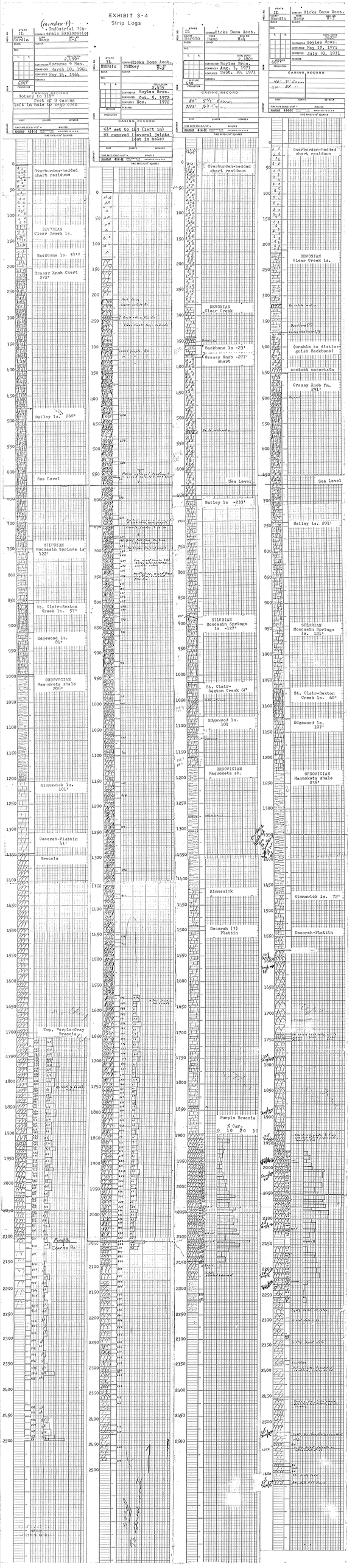
Kay Thornberry 330-44-2095 — Name, S. S. No., Dependents

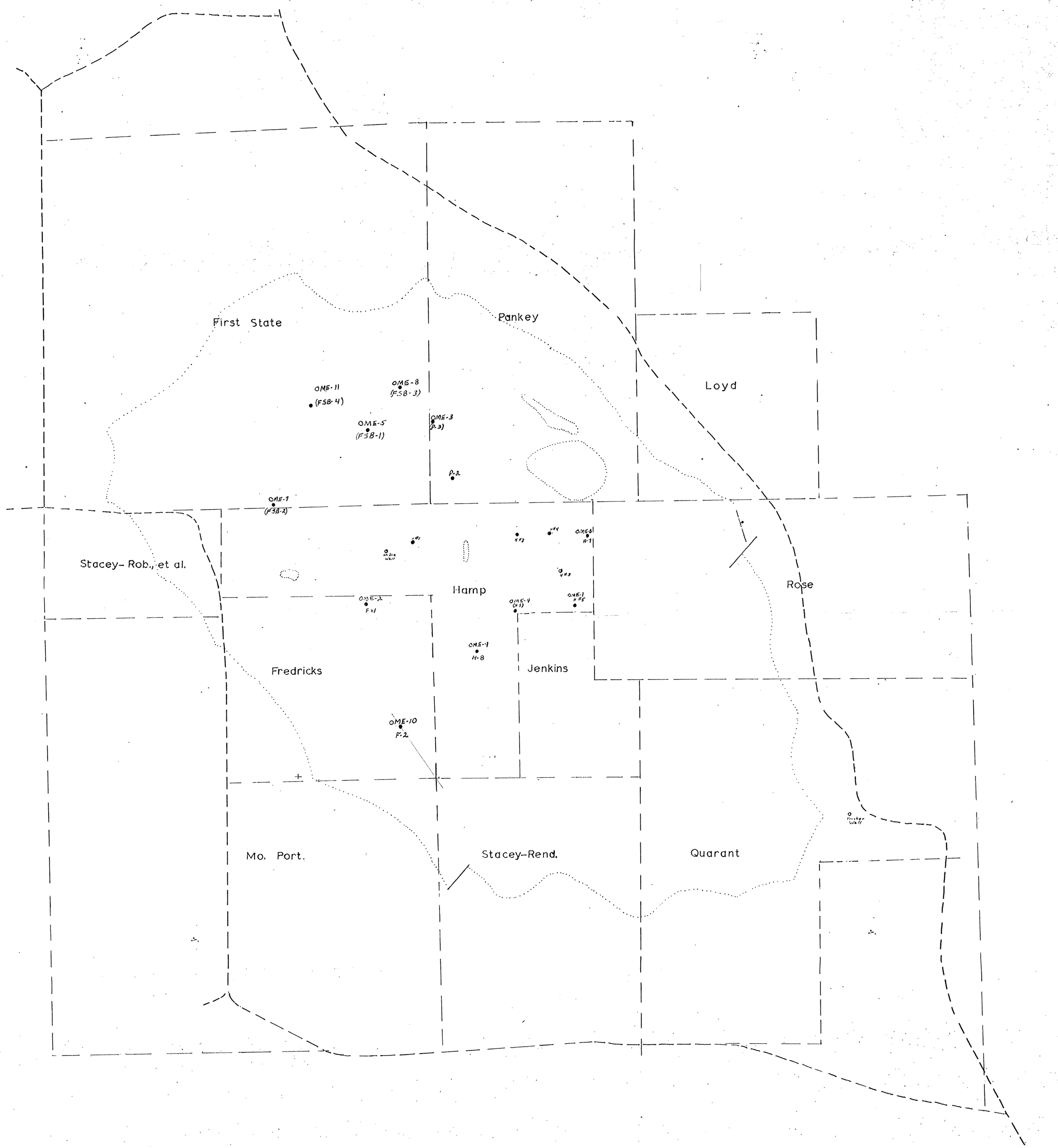
May 1-15, 1973 — Month

Day - Date	Start Work	Stop Work	Hrs. Worked	Overtime	Remarks
5-10	8:30	4:00	7		B & HDA
5-11	8:30	4:00	7		B
5-14	8:30	4:00	7		B
5-15	8:30	3:00	6		B
				May 16-31, 1973	
5-21	8:30	4:30	7½	Trip to Marion & Dale site	HDA
5-22	8:30	3:30	6½		HDA
5-24	8:30	3:30	6½		HDA + B
5-25	8:30	4:30	7½		HDA
5-29	8:30	4:30	7½		HDA
5-30	8:30	4:30	7½		HDA

EXHIBIT 3-4

Strip Logs



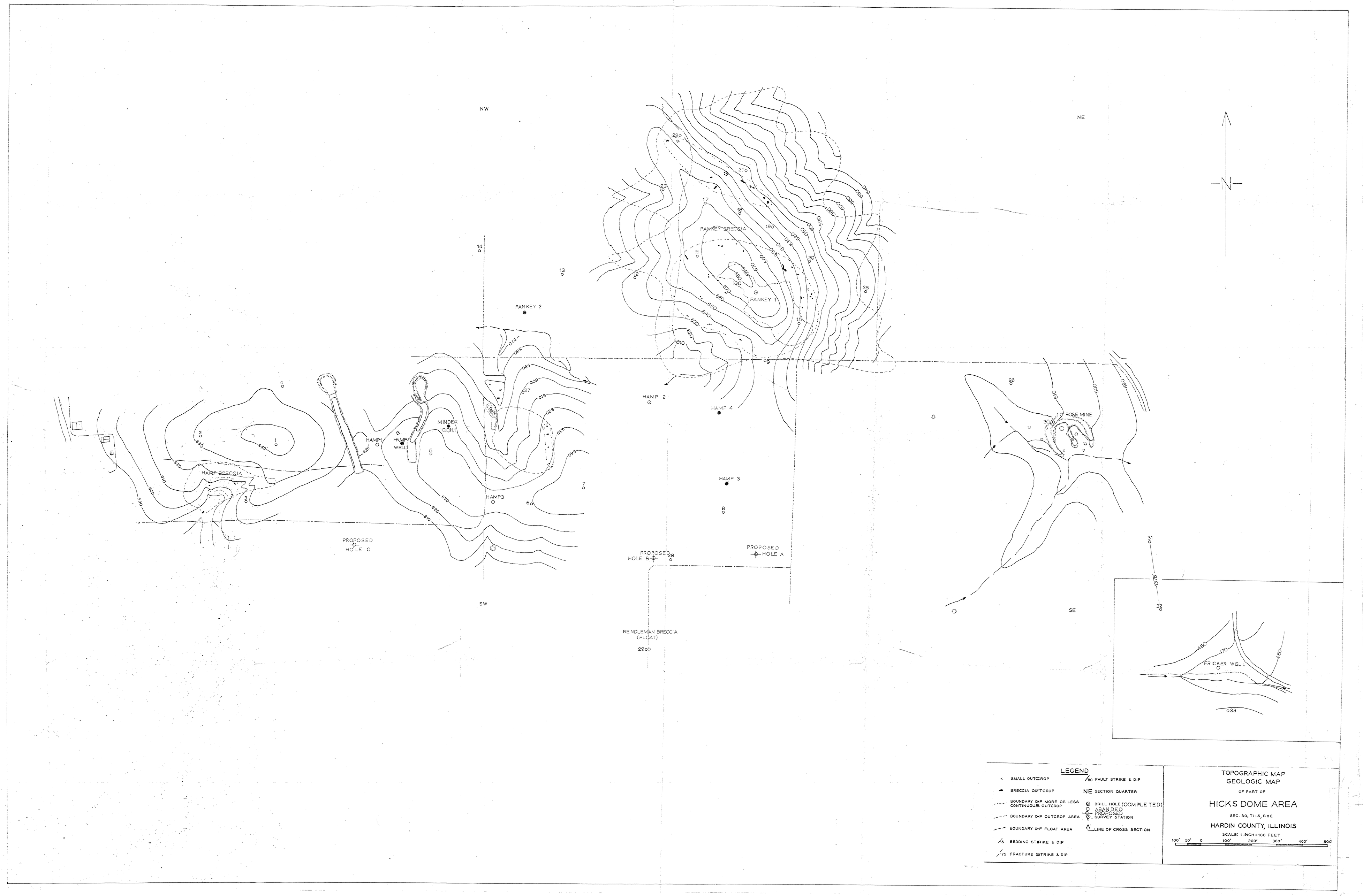


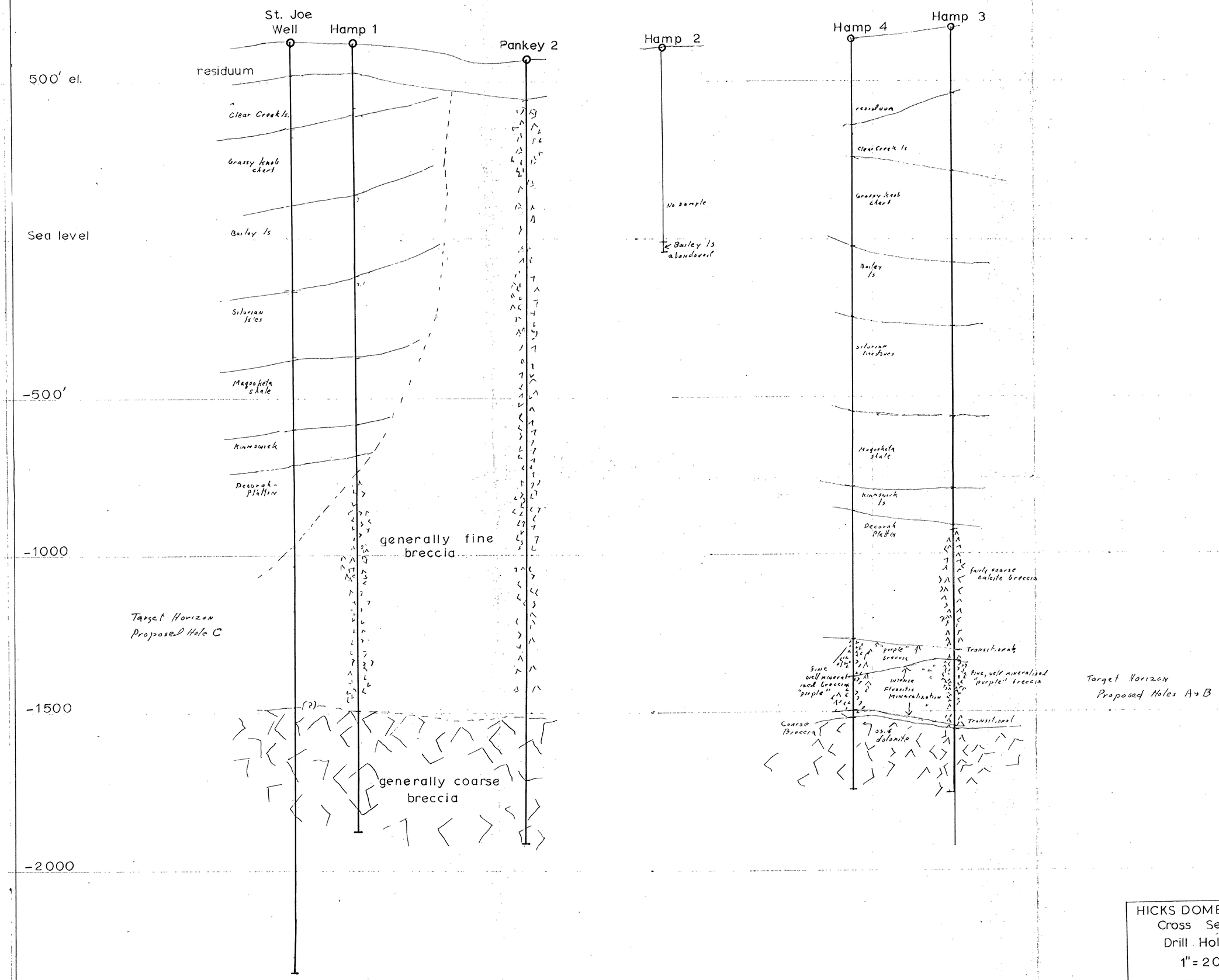
HICKS DOME ACCT. - OME
DIAMOND DRILL HOLES

- drill holes
- property line
- breccia outcrop
- base, New Albany shale

1 N 1" = 400'

Received Jan. 28, 1974


NW
NE
SW
SE
N
PANKEY BRECCIA
PANKEY 1
PANKEY 2
HAMP 2
HAMP 3
HAMP 4
HAMP1
HAMP WELL
MINDEK C.D.H.1
HAMP BRECCIA
HAMP3
PROPOSED HOLE C
PROPOSED HOLE B
PROPOSED HOLE A
ROSE MINE
RENDLEMAN BRECCIA (FLOAT)
FRICKER WELL
LEGEND
SMALL OUTCROP
BRECCIA OUTCROP
BOUNDARY OF MORE OR LESS CONTINUOUS OUTCROP
BOUNDARY OF OUTCROP AREA
BOUNDARY OF FLOAT AREA
BEDDING STRIKE & DIP
FRACTURE STRIKE & DIP
FAULT STRIKE & DIP
NE SECTION QUARTER
DRILL HOLE (COMPLETED)
ABANDED
PROPOSED
SURVEY STATION
LINE OF CROSS SECTION
TOPOGRAPHIC MAP
GEOLOGIC MAP
OF PART OF
HICKS DOME AREA
SEC. 30, T11S, R8E
HARDIN COUNTY, ILLINOIS
SCALE: 1 INCH = 100 FEET
100' 50' 0 100' 200' 300' 400' 500'



HICKS DOME ACCOUNT
Cross Section
Drill Holes
1" = 200'
3/72

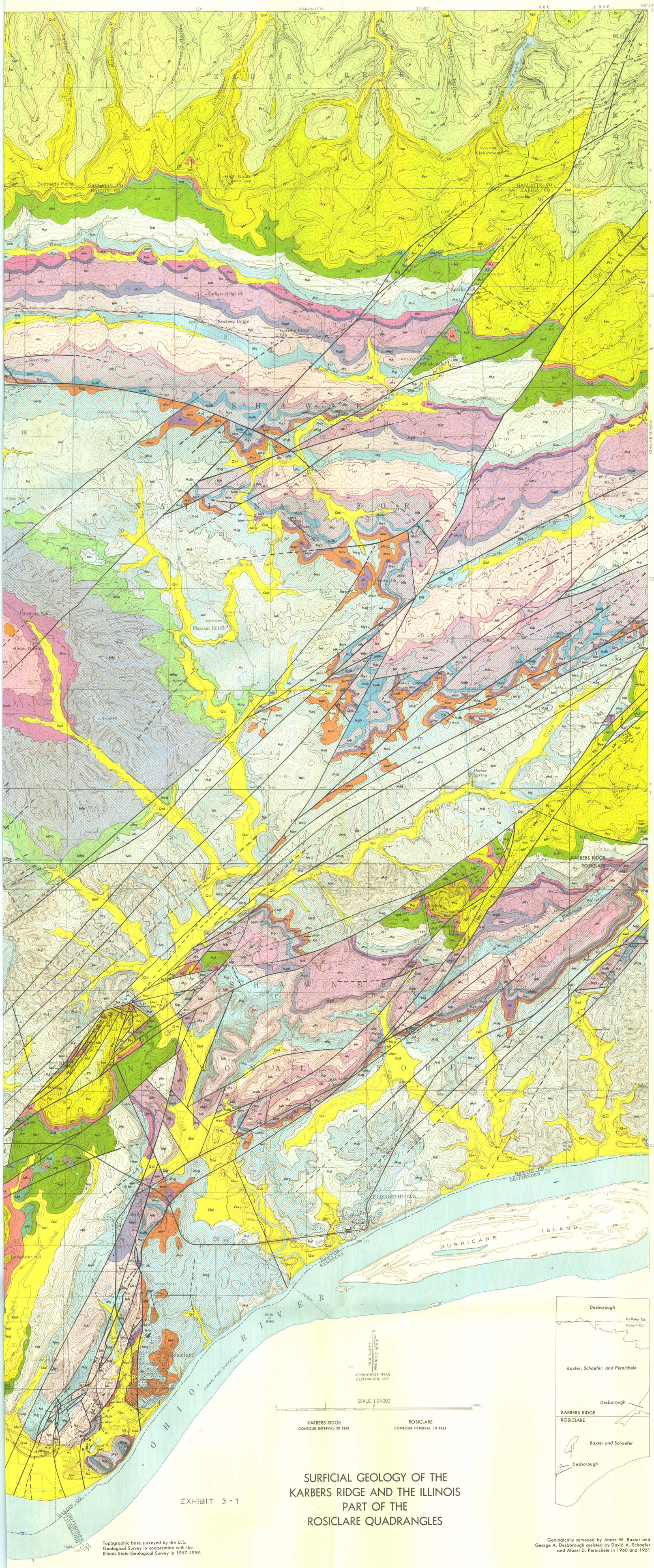


EXHIBIT 3 - 1

SURFICIAL GEOLOGY OF THE KARBERS RIDGE AND THE ILLINOIS PART OF THE ROSICLARE QUADRANGLES

Topographic base surveyed by the U.S. Geological Survey in cooperation with the Illinois State Geological Survey in 1957-1959.

Geologically surveyed by James W. Baxter and George A. Desborough assisted by David A. Schaefer and Albert D. Pernichele in 1960 and 1961

GENERALIZED COLUMNAR SECTION OF EXPOSED ROCKS

SYSTEM	SERIES	MEGAGROUP	GROUP	FORMATION	MEMBER	SYMBOL	THICKNESS IN FEET
PENNSYLVANIAN			Kewanee	Spoon		Ps	30±
			McCormick	Abbott	Murray Bluff	Pa	200-330
					Delwood Coal		
					Finnie		
					Willis Coal		
					Grindstaff		
				Caseyville	Pounds	Pcv	250-350
					Gentry Coal		
					Sellers		
					Battery Rock		
					Lusk		
CHESTERIAN		Pope		Kinkaid	Negli Creek	Mk	0-40
				Degonia		Md	0-30
				Clore	Ford Station	Mcl	70-120
					Tygett		
					Cora		
				Palestine		Mp	50-60
				Menard	Allard	Mm	100-130
					Scottsburg		
					Walche		
				Waltersburg		Mw	15-50
				Vienna		Mv	10-20
				Tar Springs		Mts	70-90
				Glen Dean		Mgd	40-60
				Hardinsburg		Mh	90-110
			Golconda	Haney		Mg	120-130
				Fraileys			
				Beech Creek			
			West Baden	Cypress		Mc	80-100
				Ridenhower		Mr	25-65
				Bethel		Mb	70-100
			Cedar Bluff	Downeys Bluff		Mdb	20-40
				Yankeetown		Mys	30-45
				Renault	Shetlerville		
					Levias	Ml	10-35
MISSISSIPPIAN		Mammoth Cave	Aux Vases	Rosiclare		Mav	15-35
			Ste. Genevieve		Joppa	Msg	140-180
					Karnak		
					Spar Mountain		
					Fredonia		
			St. Louis			Msl	350-400
			Salem			Ms	500-520
			Harrodsburg			Mhg	60-300
			Fort Payne			Mfp	280-640
		Knobs	Springville				
DEVONIAN AND MISSISSIPPIAN		UPPER DEVONIAN AND KINDERHOOKIAN	New Albany			Dna	450±
DEVONIAN	MIDDLE	Hunton	Lingle			Dh	350+
			Grand Tower				
	LOWER		Clear Creek				

Williams & Heintz Map Corporation, Washington 27, D.C.

EXPLANATION

PLEISTOCENE

RECENT

Qal — Stream alluvium; includes some areas of low terrace
Silt, clay, sand, and gravel

WISCONSINAN

Qwi — Intermediate terrace
Well bedded, calcareous, clayey silts; a few sandy lenses

Qwh — High terrace
Sand with occasional silt beds

PENNSYLVANIAN

Ps — Spoon Formation
Shale of the lower part of the formation

bmb, tf, bf, Pa, tg, bg — Abbott Formation
Shale, sandstone, thin coal; top (tg) and base (bg) of Grindstaff Sandstone, top (tf) and base (bf) of Finnie Sandstone, and base (bmb) of Murray Bluff Sandstone

bp, Pcv, tbr, bbr — Caseyville Formation
Sandstone, shale, conglomerate, thin coal, and limestone; top (tbr) and base (bbr) of Battery Rock Sandstone and base (bp) of the Pounds Sandstone shown in some areas

MISSISSIPPIAN

Mk — Kinkaid Formation
Gray, cherty limestone

Md — Degonia Sandstone
Fine-grained sandstone, red and green shale, siltstone, and chert

Mcl — Clore Formation
Gray shale, limestone, siltstone, and thin-bedded sandstone

Mp — Palestine Sandstone
Fine-grained sandstone, mostly thin bedded; shale

Mm — Menard Limestone
Dark, fine-grained, partly fossiliferous limestone; shale

Mw — Waltersburg Formation
Shale, shaly sandstone

Mv — Vienna Limestone
Dark, fine-grained, partly cherty, locally calcarenitic limestone; shale

Mts — Tar Springs Sandstone
Fine-grained, partly cross-bedded sandstone; shale

Mgd — Glen Dean Limestone
Fine- to coarse-grained, fossiliferous, partly oolitic limestone; shale

Mh — Hardinsburg Sandstone
Sandstone; upper part is interlaminated greenish gray shale and sandstone

Mg — Golconda Group
Haney Limestone — fine- to coarse-grained, fossiliferous limestone; Fraileys Shale — shale, siltstone, some limestone; Beech Creek Limestone — argillaceous, dark, fine- to medium-grained limestone

Mc — Cypress Sandstone
Fine-grained sandstone, shaly in upper part

Mr — Ridenhower Formation
Interlaminated, wavy-bedded shale and sandstone, soft, dark shale, light colored thin- to medium-bedded sandstone; thin, discontinuous limestone beds

Mb — Bethel Sandstone
Light gray, fine- to medium-grained sandstone; basal conglomerate

Mdb — Downeys Bluff Limestone
Medium-grained, crinoidal, locally oolitic limestone; some chert at top

Mys — Yankeetown Shale and the Shelterville Member of the Renault Limestone
Yankeetown Shale — calcareous, gray shale with thin siltstone and limestone beds; Shelterville Member — gray, more or less oolitic limestone that grades to dark, fine-grained limestone at top

Ml — Levias Member of the Renault Limestone
Light colored, oolitic, locally fine-grained limestone

Mav — Aux Vases Sandstone
Rosiclare Member — very fine-grained, very calcareous sandstone; siltstone; some sandy limestone; shale at base

Msg — Ste. Genevieve Limestone
Gray to almost white, variable textured but largely oolitic limestone; thin, calcareous sandstone lenses

Msl — St. Louis Limestone
Fine-grained, cherty limestone; partly oolitic in upper half

Ms — Salem Limestone
Gray to almost black, argillaceous limestone, foraminiferal (?) calcarenite; oolitic calcarenite; lower half has interbedded light-colored, coarse-grained, fossiliferous limestone and cherty, dolomitic limestone; silty limestone at base grades laterally to siltstone

Mhg — Harrodsburg Limestone
Light-colored, crinoidal, bryozoan limestone

Mfp — Fort Payne Formation and Springville Shale
Calcareous siltstone; silty, dark-colored limestone; cherty limestone; chert; Springville Shale at base

DEVONIAN AND MISSISSIPPIAN

Dna — New Albany Group
Dark gray to black shale

DEVONIAN

Dh — Hunton Limestone
Limestone and chert

IGNEOUS ROCKS

Dikes, sills, and breccias
Dikes are lamprophyres and mica-peridotites; sills are lamprophyres; breccias are intrusion and/or explosion types

ECONOMIC AND STRUCTURE DATA

Fault — *Dashed where inferred*

Strike and dip of bedding

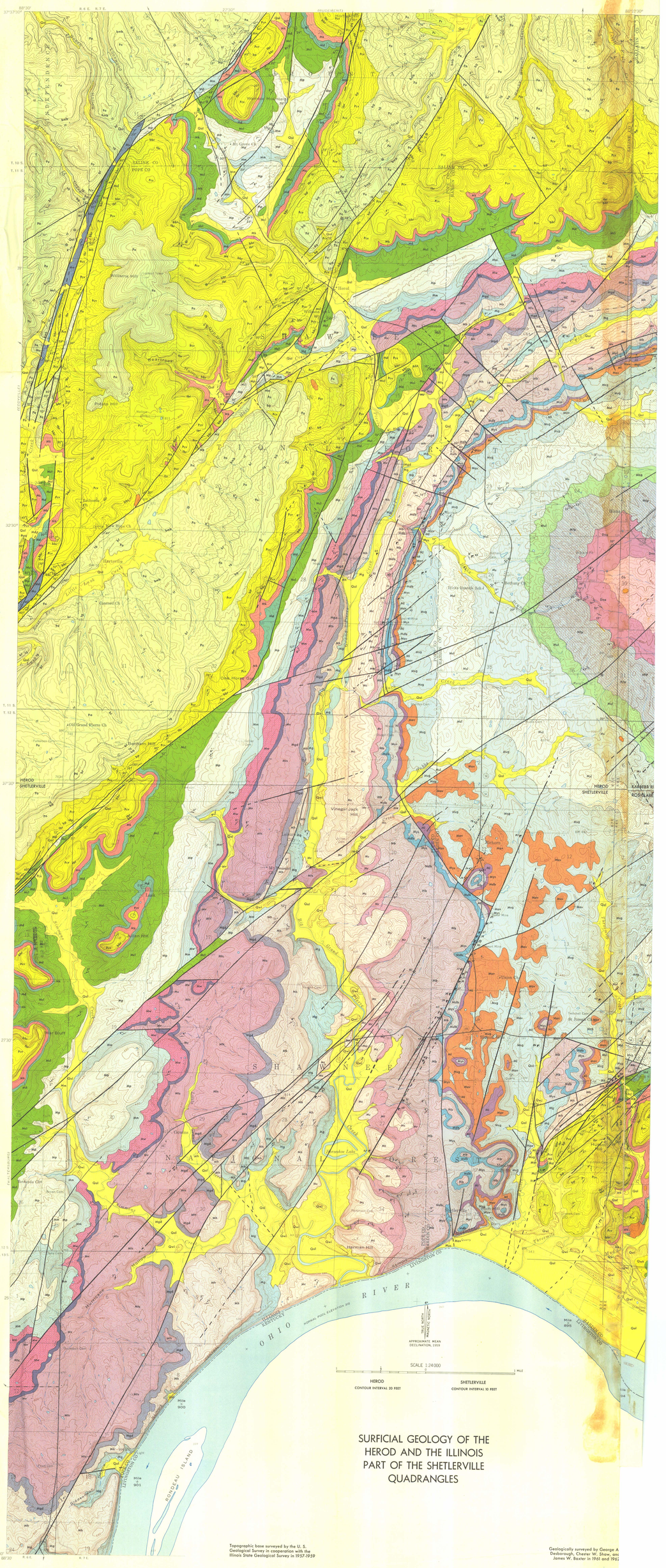
Mines and quarries

Mine shaft — Adit

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

ILLINOIS STATE GEOLOGICAL SURVEY
URBANA

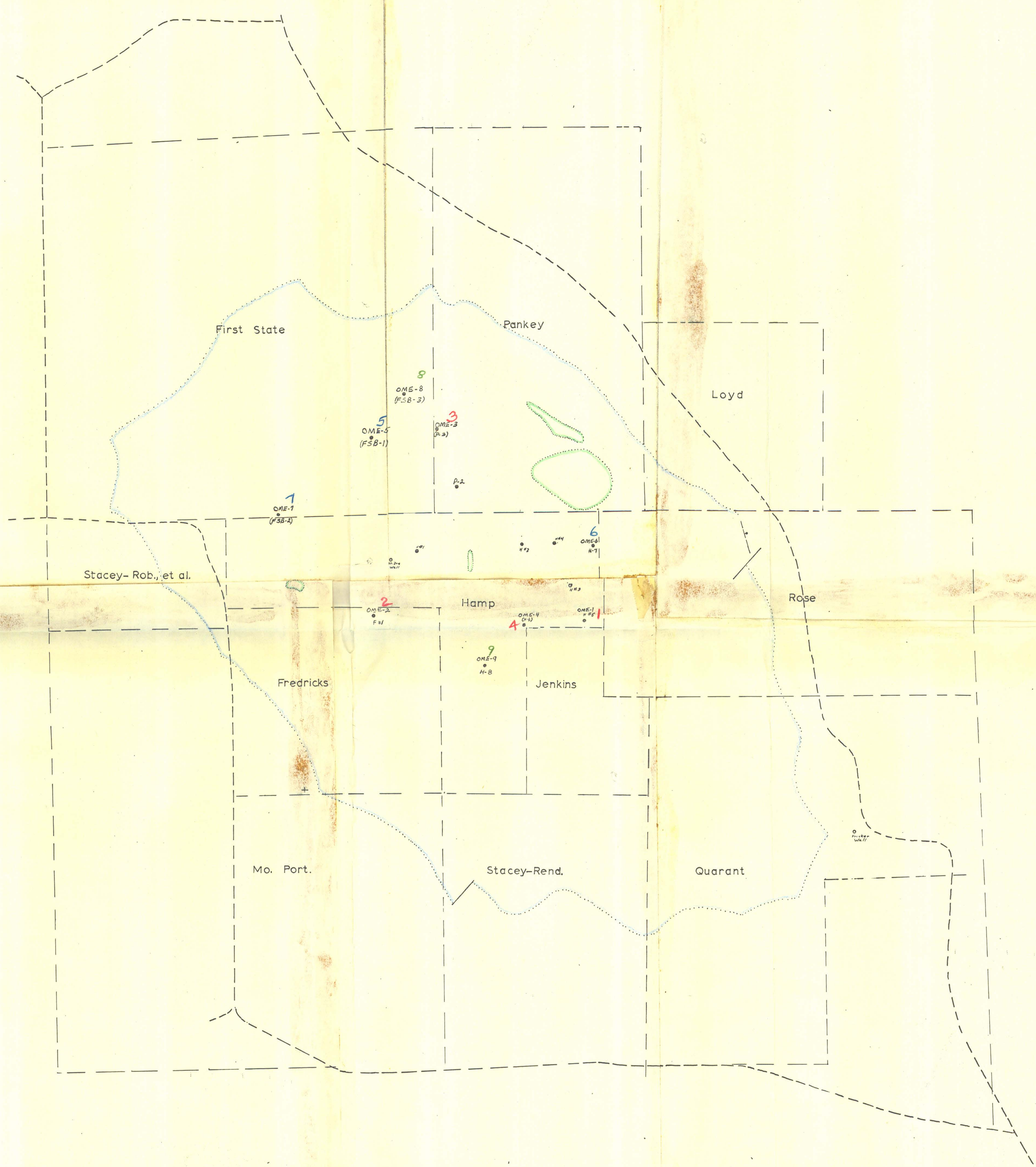
STATE OF
DEPARTM



SURFICIAL GEOLOGY OF THE HEROD AND THE ILLINOIS PART OF THE SHETLERVILLE QUADRANGLES

Topographic base surveyed by the U. S. Geological Survey in cooperation with the Illinois State Geological Survey in 1957-1959

Geologically surveyed by George A
Deskborough, Chester W. Shaw, and
James W. Baxter in 1961 and 1962



HICKS DOME ACCT. - OME
DIAMOND DRILL HOLES

- drill holes
- property line
- breccia outcrop
- base, New Albany shale

1N 1" = 400' 11/19/73