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James Doyle Sell Mining Collection

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U. Kral

PRELIMINARY LISTING OF OPERATING MINES AND PROSPECT,
GLOBE-MIAMI DISTRICT, ARIZONA

R. G. Wiese

October 19, 1970

1. Copper Cities (Miami)
active - disseminated sulfides and supergene sulfides,
in porphyry.
2. Diamond H (Miami)
active - disseminated sulfides and supergene sulfides,
in porphyry.
3. Castle Dome-Pinto Valley
Project (Miami)
pending - disseminated sulfides and supergene sulfides,
in porphyry, Pinal schist, diabase, etc.

Pinto Valley project with published reserves
at 350 million tons.
4. Warrior-Geneva (I.C.C.Co.)
inactive - chrysocolla-oxide, exotic mineralization. In
complex fault system.
5. Black Copper (I.C.C. Co.)
active - chrysocolla-oxide-"black copper" exotic
mineralization. In complex system of faults.
6. Miami (caved area) (Miami)
inactive - disseminated sulfides and supergene sulfides,
in porphyry and Pinal schist.
7. Thornton Pit (I.C.C. Co.)
active - disseminated sulfides and supergene sulfides
in porphyry and Pinal schist. Present pit in
old caved area.
8. Red Hill (I.C.C. Co.)
active - development - chrysocolla, supergene disseminated sulfides
and protore in porphyry and Pinal schist.
Presently in stripping stage.

8a - present drilling east of Bohme-Coryell.
9. Live Oak Pit (I.C.C. Co.)
active - chrysocollar (minor), supergene sulfides and
disseminated sulfides in porphyry and Pinal
schist.
10. East Miami (Miami, I.C.C. Co.)
exploration - drilling - deep ore, in part supergene, east of Miami
fault. Present drilling to depths of more
than 4,000 ft.
11. "Van Dyke" (Occidental Min.)
exploration - drilling - deep ore, in part supergene, present drilling
with city limits of Miami. Reported depth of
drilling \pm 2,500 ft.
12. Bluebird Mine (Ranchers
Expl. & Dev.)
active - chrysocolla, oxide, exotic ore in Schultze
granite and Pinal schist. Published reserves
 \pm 15 million tons.

13. Oxhide Mine (I.C.C. Co.)
active - chrysocolla, oxide, exotic ore in Schultze granite and Pinal schist. Published reserves ± 15 million tons.
- 13a. Lower Oxhide Mine (I.C.C. Co.) - ditto (not developed)
pending
14. Cactus Mine-Pinto Creek
Project (Miami)
inactive - exploration - part oxides, part sulfides and supergene sulfides. Possibly in upper plate of thrust. In Pinal schist. Published reserves ± 15 million tons (conservative).
15. Santa Anna (Humble)
exploration - thin ($\pm 25'$) supergene blanket in granite and Pinal schist. Depth $\pm 600'$, approximate grade 0.6% Cu. Probably low tonnage.
16. Gibson (inactive) - chalcopryrite veins/lenses in Pinal schist.
17. Old Dominion (Miami)
inactive - fissure/replacement sulfides and oxides in Paleozoic limestones. Large areas with copper oxide ores in limestone - requires metallurgical technique.
18. Iron Cap-Gray Mines (Miami)
leasors - mining flux - Gray mine leased to I.C.C. Co. Copper sulfide veins in Dripping Springs and Pioneer fms. Silica fluxing ore.
19. - northeast projected extension of silver veins in Globe-Dominion area. Prospect owned by Rocky Miller. Recently drilled. Host rocks quartzites.

SUPPLEMENTARY INFORMATION ON OPERATING STATISTICS (UNAUDITED)

Statement of Financial Accounting Standard No. 39 requires enterprises that own mineral reserves other than oil and gas to disclose relevant quantity and price information for each of their five most recent fiscal years except that disclosure of this information for fiscal years ended before December 29, 1980 is encouraged but not required.

Ore Reserves

Operations were suspended at the Company's Christmas Underground Mine in 1966. Although preliminary mining plans and conceptual metallurgical plant design for the Sanchez Mine near Safford, Arizona are complete, the Company has suspended development work.

For the foregoing reasons, the Company's copper ore reserves are stated separately for the Company's currently active and inactive mines. Also stated separately are the reserves of Black Pine Mine. The reserves are based on estimates by the Company's geologists and mining engineers.

	At December 31				
	1980	1979	1978	1977	1976
	(tons and pounds in thousands)				
Active Mines:					
Inspiration area mines, (including Ox Hide):					
Dry short tons	265,333	274,533	*	*	*
Grade (% copper)	0.55	0.55	*	*	*
Pounds recoverable content	2,307,807	2,360,438	2,475,909	1,797,849	1,825,996
Christmas open pit mine:					
Dry short tons	11,613	13,735	*	*	*
Grade (% copper)	0.62	0.73	*	*	*
Pounds recoverable content	115,778	133,252	219,927	219,927	232,401
Inactive Mines:					
Christmas underground mine:					
Dry short tons	20,131	20,131	*	*	*
Grade (% copper)	1.78	1.78	*	*	*
Pounds recoverable content	567,605	567,605	567,605	567,605	567,605
Sanchez:					
Dry short tons	79,362	79,362	*	*	*
Grade (% copper)	0.36	0.36	*	*	*
Pounds recoverable content	285,703	285,703	285,703	285,703	285,703
Other:					
Black Pine Mine:					
Dry short tons	1,809	1,593	*	*	*
Grade (% copper)	0.45	0.43	*	*	*
" -(oz/ton silver)	5.85	6.19	*	*	*

* Disclosure not required.

Estimates of ore reserves are limited to proven tonnages, with the exception of the Christmas Underground Mine, which includes 195 million pounds of recoverable copper in the probable category. Probable reserves are those which are reasonably assured but not as certain as proven reserves. Estimates of ore reserves may vary as development and mining progress. Changes may also result from major changes in cost-price relationship, or the development of new mining and metallurgical techniques.

The Company owns a deposit of low-sulfur bituminous coal at Ferron Canyon near Price, Utah. Further development of this property depends upon the outcome of feasibility studies.

Review of Operations

	<u>Year ended December 31</u>				
	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
	(tons in thousands)				
Summary of mining:					
Inspiration area mines:					
- ore	10,127*	6,105	5,630	4,039	6,800
- waste	12,062	19,810	15,742	6,366	9,687
Christmas mine:					
- ore	1,292	920	-	950	1,558
- waste	4,011	2,461	-	4,183	4,806
Black Pine Mine:					
- ore	76	74	77	64	68
- waste	25	38	32	38	13
Total - ore	<u>11,495</u>	<u>7,099</u>	<u>5,707</u>	<u>5,053</u>	<u>8,426</u>
- waste	<u>16,098</u>	<u>22,309</u>	<u>15,774</u>	<u>10,587</u>	<u>14,506</u>
(pounds in thousands)					
Copper production and deliveries:					
Inspiration area mines	72,266	81,552	74,211	39,772	71,871
Christmas open pit mine	12,306	12,224	-	10,387	13,942
Ox Hide mine	557	1,178	4,147	4,639	7,915
Total mine production	<u>85,129</u>	<u>94,954</u>	<u>78,358</u>	<u>54,798</u>	<u>93,728</u>
Changes in inventories from mine production	<u>20,919</u>	<u>(11,234)</u>	<u>3,989</u>	<u>29,280</u>	<u>(8,335)</u>
Deliveries (sales) from:					
- mine production	106,048	83,720	82,347	84,078	85,393
- purchased copper	32,187	9,987	5,989	6,498	5,000
Total deliveries	<u>138,235</u>	<u>93,707</u>	<u>88,336</u>	<u>90,576</u>	<u>90,393</u>
Black Pine Mine deliveries	<u>512</u>	<u>1,272</u>	<u>1,018</u>	<u>297</u>	<u>200</u>
(amounts in thousands)					
Other metals produced:					
Silver (ounces)	421	624	612	366	450
Gold (ounces)	3	1	1	3	3
Molybdenum (pounds)	185	208	62	-	-
Selenium (pounds)	13	13	25	16	12
Average market price:					
Copper (\$ per pound)	99.63	88.85	64.96	67.72	69.48
Silver (\$ per ounce)	18.94	14.16	5.49	4.68	4.27
Gold (\$ per ounce)	611.47	394.90	189.33	154.51	120.78
Molybdenum (\$ per pound)	5.03	16.10	12.75	-	-
Selenium (\$ per pound)	10.85	12.87	13.50	15.69	16.00

* Includes 5,944 tons of ferric cure material.

JDS

Leon Watley 8-3-72



Leon Watley

Mr. John J. Ellis, Inspiration Mines, Lucasville

Standby Cost of \$32,000/year, includes:

5 men

Power - pumping 1500 gpm to keep ^{up} working closer.

Lease payment on 15 pieces of equipment, some of which
are being used elsewhere

Taxes etc.

Some repair items

IME is receptive to a Jt. Vt arrangement. They are stymied at present of doing some work to prove the viability of the area.

Indications suggest that ARDREC could do this type of study which would earn some percentage of the royalties or guarantee on a % of the future concentrates etc. Full available data base is open for our study. Perhaps a time demand will be placed on the items so that evaluation does not drag out.

Some items.

1) In the present pit, an oxidized fault on the south side needs to be drilled on closer intervals to determine the amount of oxide and the distribution behind the fault. The "ore" is indicated, but if not sufficient, then total viability ^{of present pit} is questioned.

2) Metallurgy of "intrusive" zone

3) Marginal evaluation of big pit

4) UG mining method evaluation

5) Expl in mole intrusive & deep carbonate on east

John Suttle

Dec 31 1981

Wednesday is UG
day at Christmas

Edm Jan 1963
Christmas UG start

Basic proposal - JV type. time/A for part

Stigging ratio, internal work, control grade. 1.31/1
Au-Ag, Mo 3% Ag 0.10% Au / in concentrates. to moly 0.1% Zn head

Variations in pit designs Report 1 thru 14. - have sent

Resumption of Xmas pit N-S. Costs - sequence - see sheets.

Parameters of UG non-minerals - see "reserves" - see sheet

Big pit vertical/horiz variations.

Dung room - skin problem. lots of room to south across road
ex/sep distubutions #4 kept flat on dig and made the ratio
nearly. see x-section.

Act pattern

x-section availability UG 50'
100' overall

density of drilling 200 in Area 1500 in drill pit.

1978

Recent pit operations - new drilling when - old drilled 1980-1981

no reserve seen Diff in tonnage grade change?

X-Section 17725 E 1980 mined all other not available

X-Section 16200 Left side on schedule 1980-1981; right side
1980 OK; 1981 about 1/2 of plus 1/2 of 1982 was mined on
top part plus bottom 1981.

NS EW
3000 x 5000 "see well pit"

UG bu \approx CP
Ag \uparrow Au \uparrow

metallurgical work needs to be done
samples available (4 holes) HQ

oxyd/slide drilling control. 2200'
verify or behind feet;
well pit outlines etc (computer)

		Tidal	non/tidal	
D221 center housing	0/83	0.36	0.28	
E Center	83/545	0.40	0.31	die
old mill big pit.	545/635	0.57	0.07	vok
	635/682	0.17	0.05	
	682/732	0.63	0.09	
	732/783	0.18	0.01	
	783/973	0.52	0.03	

D-198	0-179	0.24	0.01	all in vok
SE corner	179/290	0.17	0.01	
big pit.	290/437	0.24	0.01	
	437/502	0.14	0.01	
	502/602	0.30	0.01	
	602/850	0.74	N/A	

D-186	0/521	0.17	0.02) vok
N Center	521/779	0.24	0.01	
	779/803	0.47	0.01	
	803/876	0.15	0.01) Lms
	876/891	0.79	0.71	
	891/911	0.12	0.01	die

D-222	44/289	0.78	0.49) die.
Center	289/769	0.45	0.37	
	769/1109	0.20	0.10	

just out of Joke field



INSPIRATION MINES, INCORPORATED
P.O. BOX 1559
CLAYPOOL, ARIZONA 85532

John J. Ellis
Vice President

*John Eastlick,
Dave Cook, Op.
John Seattie, OG*

(602) 473-2473

December 8, 1982

File Note:

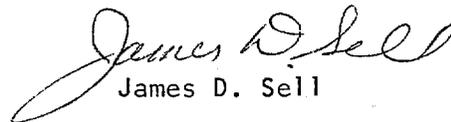
Discussions with ICC
Gila County, AZ

I have contacted Hugh Olmstead (Phone 473-4251) of Inspiration Development Company and set up the date of Thursday December 16, 1982 to review the Power's Gulch drill data as a possible joint venture. Power's Gulch is adjacent to our Superior East Project. *would like to set-up \approx to resolve agreement.*

Ellis
I have contacted John ~~Alice~~ (Phone 473-3461) of Inspiration Consolidated Copper Company to review the re-evaluated Christmas deposit(s) data. This review will take place on Wednesday, December 15, 1982. *any thoughts on proposal.*

Ellis
~~Alice~~ has called to confirm the above date.

Mr. H. G. Kreis and I will review the data.


James D. Sell

JDS/cg

cc: WLK
HGK

Note: HGK is also setting up an underground tour of the Miami leach block-cave operations for Friday, December 17th. *cancelled til '83*

Single room reservations have been guaranteed for J. D. Sell and H. G. Kreis at the Copper Hills Inn, Miami, AZ, Phone 425-7151 - rate \$34/night + tax.

December 2, 1982

To: F. T. Graybeal

From: J. D. Sell

Christmas Deposit
Gila County, AZ

Ellis
I have contacted a Mr. John ~~Alice~~ *Alice* of ICC, Claypool, Phone 473-3461, who is in charge of reevaluating the Christmas deposit for possible disposal by Hudson Bay Mining and Smelting Company. HBM&SCO is the owner of ICC and Alice states that "they are interested in almost any kind of deal" on the property. *Wed 15th*

The week of December 13 is open for a discussion with Mr. John ~~Alice~~ *Alice* of ICC concerning disposal, and the evaluation, of the Christmas deposit. *Ellis*

In a telephone conversation with ~~Alice~~ *Alice* on November 29, 1982, he stated that their present reserve is now estimated as follows:

- Open Pit of 7,500,000 tons/ore @ 0.63% copper (or equivalent of 94,500,000 pounds copper);

Underground of 15,400,000 tons/ore @ 1.89% copper (or equivalent of 582,000,000 pounds copper).

The above reserve is the present open pit skarn and old underground reserves (Escabrosa & Martin limestones), which they place in a "mining" reserve.

There is a new underground reserve of 317,000,000 tons @ 0.393% copper in the igneous-volcanic sequence units to the east.

The Christmas ores contain little moly or silver but have been running 12-14 cents per ton in gold credits.

Production from the Christmas deposit is estimated to be:

<u>Year</u>	<u>Type</u>	<u>Tons/Ore</u>	<u>Pounds/Mined Copper</u>
1880-1954	UG	1,600,000	55,000,000
1962-1966	UG	<u>3,000,000</u>	<u>89,500,000</u>
TOTAL	UG	4,600,000	144,500,000 (≅ 1.57% Cu)
1966-1980	OP	19,400,000	270,500,000 (≅ 0.70% Cu)

473-4257
79 Mine Area

December 2, 1982

Inspiration has operated the Christmas Mine from the early 1960's, first as the underground operation and then the open-pit skarn ores.

Our files have an ERS report (Attachment I) on a mine tour during 1977 when part of the new igneous-volcanic mineralization-alteration was being released to the exploration public. Attachment II is a copy of the abstract from R. A. Koski's dissertation (1978) concerning this area of mineralization in the igneous rocks. ICC's Annual Report of 1974 had a note on the leach tests on the oxidized surface ores from this low grade reserve and the note is submitted as Attachment III.

Koski did not discuss the amount of drilling or the economic results but did have some sketch sections and plans of the alteration-mineralization zoning, similar to that shown in Attachment I.

I have no knowledge at the present time on the density of drilling to establish the 317 million ton reserve nor of the distribution of the mineralization which makes up the 0.393% copper grade. Alice also stated that a higher grade portion is within the above low-grade reserve. He further stated that both open-pit and underground evaluation studies are still underway, but that he (ICC) is willing to show ASARCO the data base and, further, that they are open for discussion on someone acquiring a part or all the property.

ASARCO should acquire this Christmas data so as to evaluate the possible securing of additional captive feed for the nearby Hayden Smelter. The Christmas Mine has been closed since January 2, 1982.


James D. Sell

JDS/cg

Attachments

REVIEW OF OPERATIONS

<u>PRODUCTION AND DELIVERIES</u> (in pounds of copper)	<u>1976</u>	<u>1975</u>
INSPIRATION AREA MINES		
Ores processed in-plant	51,193,000	68,527,000
Waste dump leaching	20,678,000	21,267,000
	<u>71,871,000</u>	<u>89,794,000</u>
OX HIDE MINE	7,915,000	10,107,000
CHRISTMAS MINE	13,942,000	11,729,000
BLACK PINE MINE	200,000	1,000
Total mine production	93,928,000	111,631,000
Change in inventories	(8,335,000)	(24,206,000)
Deliveries (sales)—from mine production	85,593,000	87,425,000
— from purchased copper	5,000,000	—
— total deliveries	<u>90,593,000</u>	<u>87,425,000</u>

OTHER METALS

Silver—ounces produced	450,000	369,000
Gold—ounces produced	2,700	2,200
Selenium—pounds delivered	16,000	38,000

<u>SUMMARY OF MINING</u> (in tons)	<u>1976</u>		<u>1975</u>	
	<u>Ore</u>	<u>Waste</u>	<u>Ore</u>	<u>Waste</u>
INSPIRATION AREA MINES				
Thornton	850,000	1,056,000	2,500,000	4,363,000
Live Oak	—	6,000	290,000	1,255,000
Red Hill	3,695,000	867,000	3,501,000	8,787,000
Joe Bush	65,000	6,912,000	—	5,205,000
	<u>4,610,000</u>	<u>8,841,000</u>	<u>6,291,000</u>	<u>19,610,000</u>
OX HIDE MINE	2,190,000	846,000	2,302,000	873,000
CHRISTMAS MINE	1,558,000	4,806,000	1,404,000	4,815,000
BLACK PINE MINE	68,000	13,000	54,000	8,000
Total	<u>8,426,000</u>	<u>14,506,000</u>	<u>10,051,000</u>	<u>25,306,000</u>

ORE RESERVES (in pounds of copper)

Production statistics, and ore reserves as estimated by company engineers, at December 31:

	<u>1976</u>		<u>1975</u>	
	Production To Date	Estimated Recoverable Content of Ore Reserves	Production To Date	Estimated Recoverable Content of Ore Reserves
INSPIRATION AREA MINES @ 11.104% ² /ton recover.	4,761,003,000	1,825,996,000	4,681,217,000	1,885,557,000
CHRISTMAS MINES:		<i>± 164,500,000 tons</i>		
Underground (operations suspended) ...	75,327,000	567,605,000	75,327,000	567,605,000
Open-pit @ 8.949% ² /ton recover. <i>± 24,000,000 reserves</i>	158,267,000	232,401,000	144,325,000	251,395,000
SANCHEZ MINE (under development)....	—	285,703,000	—	285,703,000
	<u>4,994,597,000</u>	<u>2,911,705,000</u>	<u>4,900,869,000</u>	<u>2,990,260,000</u>

Ore reserve estimates are limited to proven tonnages, excluding probable ores, with the exception of the Christmas underground mine which includes 195,000,000 pounds of recoverable copper in probable reserves. Probable ore reserves are those which are reasonably assured but not absolutely certain. Ore reserve estimates may vary as development and mining progress. Changes may also result from major changes in cost-price relationship, or by development of new mining and metallurgical techniques.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

September 18, 1972

TO: W. L. Kurtz

FROM: J. D. Sell

Tour Notes
Miami District
Gila County, Arizona

Some notes on the tour of September 11-13 of the Miami District with A. J. Giesecke, J. A. Staargaard, and yourself, concerning various facets are here recorded.

Miami Deposit. It was confirmed that Miami wants back the housing area now leased (for thirty more years!) to ICC which lies west of the old cave ground. Ore grade material is present in the caved fringes as well as unworked material. Alteration extends northwest to Moonshine Hill and underlies all of the Upper and Lower Circle Housing areas.

Live Oak Pit. The repetition of leached capping-oxide-sulfide several times in a single drill hole was reiterated but the location undisclosed. The drill hole was 1000 feet deep and from the "original surface". It is evident that the Live Oak fault does curl under the ore body at some depth. Several drill rigs were noted west of the pit area and it was stated that 400-600 feet of Gila gravel, then dacite, then sometimes Whitetail, underlain by oxide and sulfide ore is found in the drill holes. The ore body is apparently terminated by the Live Oak fault. Inspiration has recently stripped southward to the boundary line with Bluebird.

Bluebird Pit. The new reserves dip westward into the Live Oak-Barney fault under the section of Gila conglomerate. As expressed by Potter, the grade (overall 0.5%) is less next to the Live Oak pit boundary where minor remnant sulfides are present and increases southward where only oxides are known. The entire new reserve of 75 million tons is oxide and open ended as drilling has not progressed westward to the terminating fault.

Potter reaffirmed that the north-south Live Oak fault swings into the east-west (south boundary) fault and both curl under the pit area where they become flat toward the east. Both Schultze granite and porphyry occur in the pit as well as the mapped schist. The Schultze south of the south boundary fault is barren as is the Schultze under the flat fault.

Oxhide Pits. The upper (schist) pit presently being mined originally contained 15-20 million tons of 0.4% oxide copper; whereas the lower (granite) deposit contains 20-25 million tons of 0.4% oxide copper. The upper Oxhide contains a minor amount of porphyry which is essentially barren of mineralization. The lower Oxhide is underlain by a flat fault structure with barren rock below the fault. The lower Oxhide does contain numerous sulfide-bearing fractures and contains abundant quartz-sericite seams and veinlets as well as incipient quartz-sericite in the feldspar groundmass.

Barney-Montezuma Area. The Barney oxide copper exposed west of the Live Oak fault and pit apparently grades into a mineralized zone of oxide over sulfides to the south. Inspiration has a good IP anomaly in the area and several encouraging holes at nominal depths after drilling a few in a deeper graben block. The sulfide area is completely covered by Gila Conglomerate. Inspiration is very encouraged through their drilling and will continue to test the potential. (Note: this is the Needle Mountain segment of map 2552b.)

Copper Cities Pit. Recent drilling from the bottom of the pit shows mineralization ranging from 0.5-0.7% to lie at least to the 2500-foot elevation or some 1400-1500 feet below the original surface. Stripping economics prohibit going after the deeper material at this time. No suggestion of a flat fault at this time. Grade and alteration to some extent wrap outward from the barren plug of granite porphyry which expands with depth. Mineralization is in veinlets for the most part in quartz-sericite alteration phase.

Diamond H Pit. Similar to Copper Cities but contains much more brecciated rock, some of which is premineral. Both pits will terminate by 1974. The mineralization is in breccia vugs as well as veinlets in contrast to Castle Dome (Pinto Valley) which is predominantly disseminated at depth with veinlets more prominent in the upper exposures.

Occidental Area. All the values are oxide with probably some mixed near the boundary with the Miami East ore mineralization which is oxide and sulfide.

J. D. Sell
J. D. Sell

JDS:lad

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

January 17, 1974

FILE MEMORANDUM

Bluebird Mine
Arizona

Following information obtained from Steve Potter:

Ore Reserves: 75-125 million tons @ 0.5% oxide copper

Waste:Ore: \approx 1.6:1

Ore dips west at approx. 45° and cutoff on west by 45° eastward dipping fault.

Present Heap Leaching recovers about 40-50% of the copper on a running basis. (No estimate of what ultimate overall recovery may be with heap leaching.)

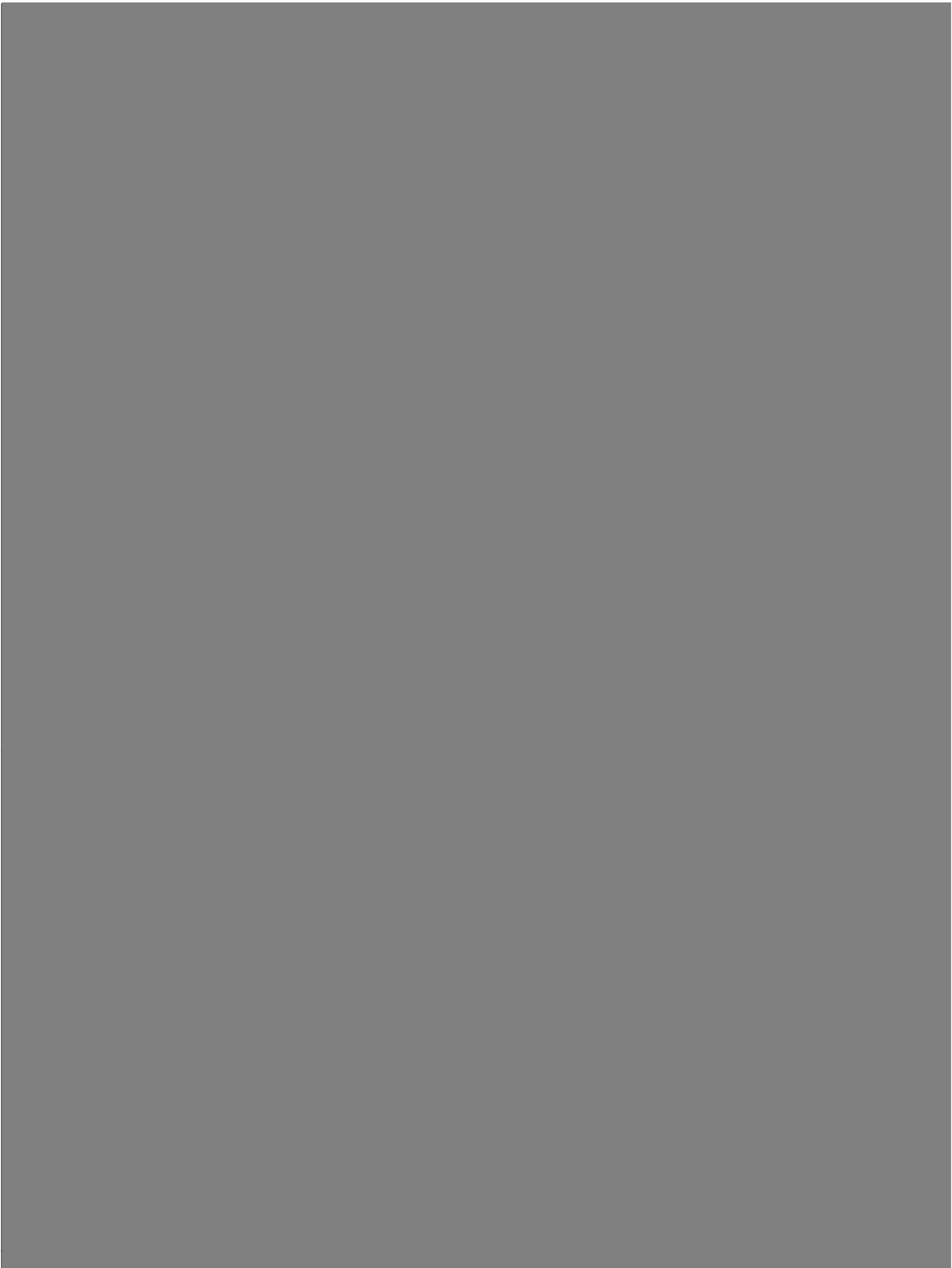
Deposit is rippable to bottom, so cheap mining cost can be obtained through life of the mine.

Ranchers would consider partner if partner would study feasibility of going to some type of vat leaching -- hopefully leading to 90% recovery and increased daily tonnage mined.

W. L. Kurtz
W. L. Kurtz

WLK:1b
Attach.

cc: TCOsborne - w/attach.
JHCourtright "
RBCrist "
JDSe11 ✓ "
NVisnes "
RBMeen "



Pinal Ranch Quad. *Supp.*

Claims: Norma #4, Norma #5, & Roadside (Sec. 10).
 with drill hole & ± 50 plastic (Leatherhead) rocks of cuttings in essentially
 fresh granite. Loc Mon on Norma #5: No date but signed
 by Joseph M. Santa Anna.

W

• VH, all red 4x4, some with notices, some not. Notices are
 Humble Oil Co. Crow claim - all east-west.

In south canyon drains, below "ng" of Copper Springs Canyon,
 are two red VH which overlap the C-36 & C-37 claims (Sec. 15).

• VH, ~~C-16~~ C-16. (red post w/ vial). ... between April 17, 1969
 and Aug. 11, 1969, did drill hole ~~710'~~ Leon L. Seilba,
 Denver, Signed 10 Sept 69. C-16, Trevor Thomas,
 Depth 140', completed 8-10-69. Loc approx 505 feet
 on bearing N 88° 30' E from SW corner of claim Crow-43.

	Crow-47	-85?
	-45	-84
C-16	-43	-82
	-41	-80
Humble	-39	-78

Crow-39 thru -47, Nov. 261, p. 120-128.
 Crow-78 thru 85, Nov. 261, p. 159-166.

• VH, C-6. Depth 159, completed 7-17-69, approximately
 1145 feet on bearing N 70° 45' E from SW corner of Crow-62.

	-64	-67
	-64	-65
C-6	-62	-63
	-60	-61
	-58	-59

Crow-58 thru -67, Nov. 261, p. 139-148.

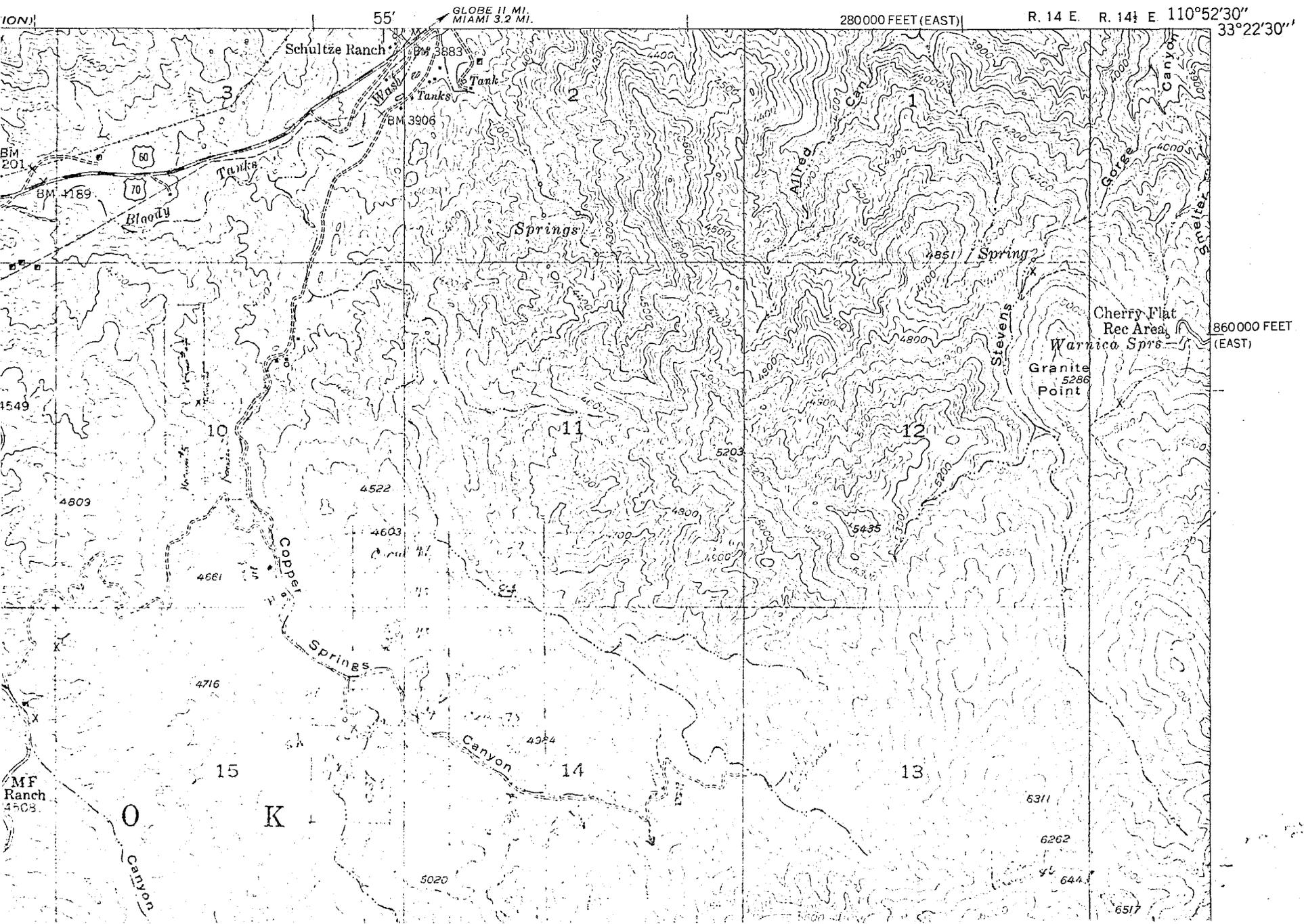
• VH, C-1 24', 6-7-69, approx 500' N 37° 20' E from SW Crow-17

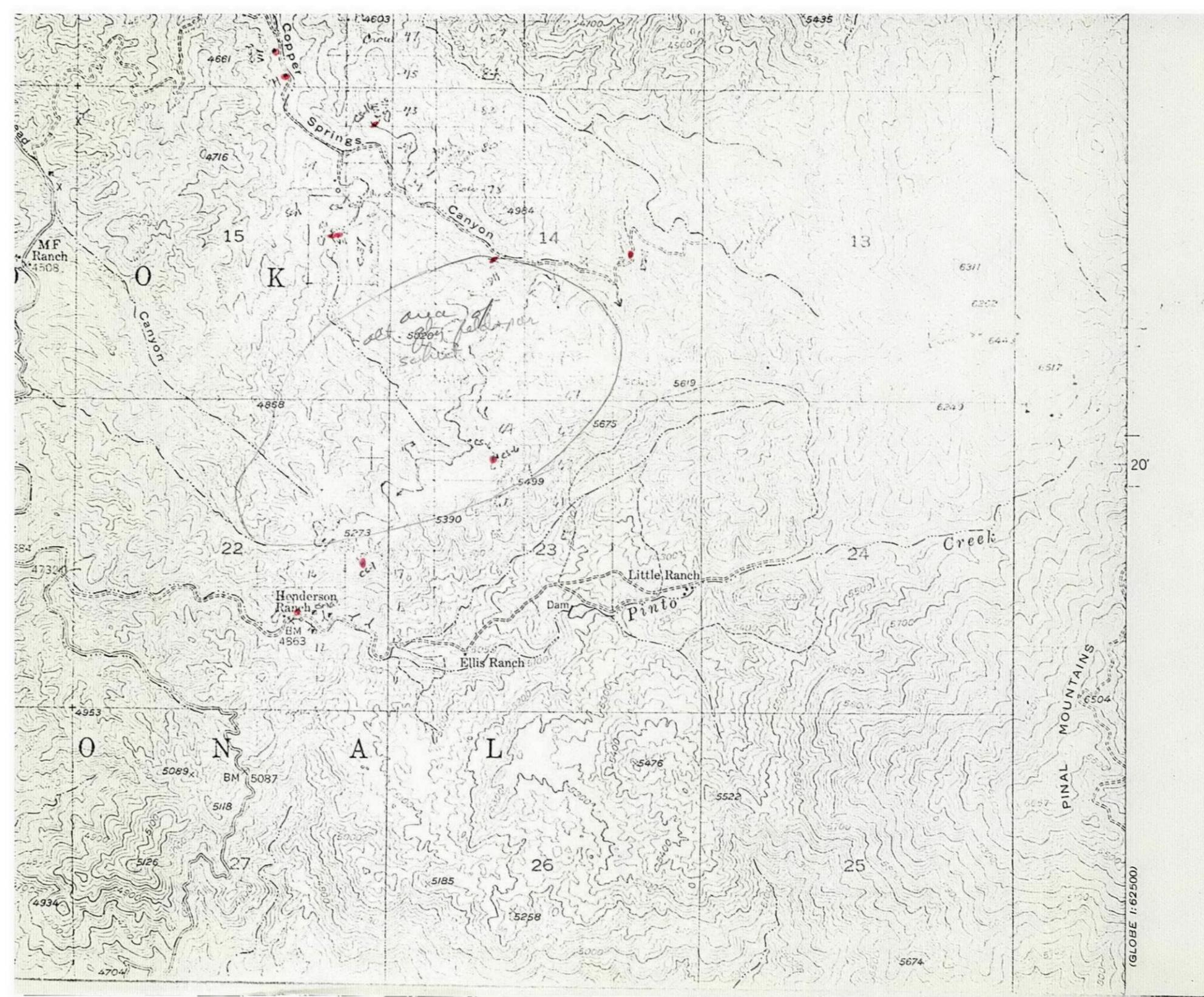
	C-1A 187'	6-15-69,	" 710' N 73° 40' E "	" "	Crow-14
	-16	C-1	-17		
C-1A?	-14		-15		
	-12		-13		
	-10		-11		
	-8		-9		

Crow 8 thru 17, Nov. 261, p. 89-98.

PINAL RANCH QUADRANGLE
ARIZONA
7.5 MINUTE SERIES (TOPOGRAPHIC)

(GLOBE)





(GLOBE 1:62500)

February 10, 1958

Mr. James Dudley
c/o Cyrus Lawrence & Sons
115 Broadway
New York, N. Y.

Dear Mr. Dudley:

MIAMI COPPER, ARIZONA

I have given some thought to your questions of January 31, 1958, in regard to the above.

Miami Copper has always been famous for its excellent technical organization. The staff is closely knit and loyal. The management keeps future plans for leaching ore in place under cover, and therefore nobody talks.

Robert W. Hughes, until recently General Manager of Miami Copper and now a Director, and John H. Ffolliott, Vice President, at 61 Broadway, New York City, could answer authoritatively all your questions. Likewise competent to do so would be J. W. Still, up to recently Mine Superintendent at Miami and now residing as a consultant at Prescott, Arizona. Jack Still is in Chile at present, but may return home by the end of this week. I telephoned his son, with whom I am well acquainted, and gained the impression that Jack Still would hardly be willing to answer questions without authorization of the Miami management.

I have been interested in Miami for several years and am in possession of some information thereon gathered on recent trips to Arizona. I telephoned friends in Tucson, one of whom sent me some valuable details, and I have reviewed the recent literature including an article by Jack Still in the Mining Congress Journal of April 1955.

For more specific information than contained in the following you will have to consult the men connected with the management or Jack Still. I expect to be in Europe until March 27th.

Question 1 - "When will underground mine be exhausted or permanently shut down? Is it profitable now?"

According to the 1956 Annual Report, the last available, Miami treated 3,812,165 tons of sulphide ore in 1956. The ore assayed .67% Cu, and 31,911,120 lbs. copper were produced. Movable ore reserves on January 1, 1957, were estimated to be 12,840,000 tons exclusive of material to be leached.

Miami Copper, Arizona

2/10/58

The daily mill rate at Miami is now 12,000 tons, whereas the old mill is rated at 17,000 tons daily capacity. In 1957, about 4,000,000 tons of ore were treated. By the beginning of 1960, therefore, all ore will have been exhausted.

Miami underground mining operations have been losing money for several months but are being continued (a) in order to prepare some of the ground for future leaching in place, and (b) because some ore blocks in which development work has already been done are doing a trifle better than breaking even if development costs are not considered.

The grade of the underground ore has been averaging in recent months .5% Cu, part of which is non-sulphide copper. Annual production from underground mining at the present time is estimated at about 30,000,000 lbs. copper.

At the most, underground mining could continue two years, probably it will be a good deal less. It is expected that any operating losses incurred now will be recouped by later leaching operations.

The operation is being helped also by the production of low cost copper recovered from leaching in place, which has been practiced at Miami for several years and is expected by the management to continue long after underground mining operations are ended. Somewhat over 40,000 tons of copper have been recovered in this manner to date. In 1956, 1,541,014 tons of copper solutions pumped from the mine, containing .216% Cu., yielded 6,652,909 lbs. copper.

Enlargement and modernization of the precipitation plant to increase production of low cost copper by leaching the oxidized ore in place was started in 1956. One section of the new plant was put in service in March, 1957, presumably increasing cement copper production above the 1956 figure. The second section of the precipitation plant to further increase cement copper production, is said to be planned for the current year. Likewise, improvements and additions to the underground pumping plant and the building of the underground ditches to carry the pregnant solutions to the pumping plant, were started in 1957. Miami has been continuing investigations to treat the oxide ores in its mill, but this work is said to have led so far to no notable success.

Question 2: "What tonnage of cement copper can be produced, once the old mine quits? Could 50 tons per day be achieved?"

The pregnant copper solutions at Miami contain a very high percentage of copper in solutions (.2% Cu and more). Under the circumstances the grade of the cement copper recovered should be high. Presumably it will be 60% Cu or better. I am advised that the present expectancy is that 1,000,000 lbs. of fine copper will be produced per month. This, at a 60% Cu grade of the cement copper would equal 28 tons of cement copper per day. It is presumed that

W.S. Cloud
4/24/59

Miami Copper, Arizona

2/10/58

this production will gradually increase, but apparently 50 tons of cement copper per day are not now expected.

Question 3: "How long can one reasonably count on getting this supply?"

How long the mine will continue to produce cement copper is anybody's guess, but it is believed by those acquainted with the operation that it will last for a long time, measurable in decades.

Question 4: "If 50 tons of cement copper is capable of achievement on a sustained basis, what is an approximation of cost of copper thus obtained in cement form (not after treatment, etc.)?"

At 1,000,000 lbs. of fine copper per month, it has been estimated that the cost of such copper should equal two-thirds of their current underground mining and development costs per lb. of copper. About $1\frac{1}{2}$ lb. of scrap iron and 2 lbs. of sulphuric acid are consumed per lb. of copper recovered as cement copper, and the approximate cost of 1 lb. of copper obtained as cement copper might be estimated as between 8¢ and 11¢ per lb. - Cerro de Pasco's cement copper costs 14¢ per lb. fine copper.

Question 5: "Would there be any important loss (at 30¢ copper) if the underground mine were shut down permanently at the end of 1958, and could it be at least partially recovered by leaching?"

The answer to this question is covered under Question 1, (a) and (b).

Question 6: "Is there any leaching value at Castle Dome?"

At the time of my visit to the Globe area in December I was told that leaching at Castle Dome was successful and that an appreciable quantity of cement copper was being produced monthly. The mine dumps are being leached here. The 1957 Report, when published, will give you the figures. Production in 1956 was approximately 5,800,000 lbs. of copper and is now about 6 million lbs. of copper per year.

Question 7: You have omitted any question under this number. -

Question 8: "What is the maximum volume of water available to Miami on a sustained basis?"

Miami is pumping at present 1200 gallons of water per minute from the 2000 Level of the old Dominion Mine. If pumping continues at this rate, the water is lowered a few feet per month, but since the mine is carried on a five day basis, the water is now rising at the rate of 30 ft. per month in the old Dominion Mine.

When leaching in place, water is being recirculated, and less water will be used when underground mining is abandoned. The Miami management is not worried about not having enough water to carry out their planned leaching program.

Miami Copper, Arizona

2/10/58

Question 9: "If the underground mine is closed, could part of the mill be sold and if so, what would it bring at a bargain sale?"

The Miami mill is an old mill, obsolete in parts. Presumably it will have value only as junk - scrap metal.

Question 10: "What is the cash flow expectancy from Copper Cities, life, etc., at 30% copper? Is its life all covered by Government contracts? Is it a valuable property?"

On January 1, 1957, ore reserves of Copper Cities were 36,600,000 tons assaying .79% Cu. In 1956, 4,167,147 tons of ore were mined, yielding 55,264,337 lbs. copper. In addition thereto, 388,304 lbs. copper were produced from the Burch Water Treating Plant.

Copper Cities is an open cut mine with a low stripping ratio, and at 30% copper this property should be a valuable mine since it is reputed to break even at the present price of 25% copper. A life of two years seems indicated.

No copper is being delivered to the Government, and all contracts between Miami Copper and the Federal Government regarding deliveries of copper ceased and became void in 1956.

Question 11: "Brief description of the methods and problems and advantages of the leaching process at Miami."

A vertical column of 550' to 600' of ore has been mined by block caving at Miami in two lifts, from the 720' level and the 1,000' level. The last 18,000,000 tons of the low grade ore body bottomed just above the 1,000' level. Above the sulphide ore to surface lies a column of 350' to 400' of capping and oxide copper ore, which was drawn into the empty stopes, and together with the pillars left between the original block caving stopes form the material to be leached in place. The pillars between the stopes were 15' thick in the upper level, and 30' to 50' thick in the lower level, but some of the pillar material is recovered when pulling the stopes.

Jack Still, in his paper (April 1955) mentions that in the low grade ore body alone 134 block caving stopes, measuring individually 250' by 350' in square area, were mined up to June 1, 1954. The No. 1 or High Grade ore body originally mined, and the No. 3 ore body now being extracted, should account for another 35 stopes. A large part of the mine was worked on two levels, and the exact area of the broken ground I do not know, but it must be close to 200 acres. The area to be peached in place, therefore, is very large.

The leaching process, which dates from the 14th century and is being extensively practiced at Rio Tinto in Spain since the 16th century, is relatively simple: The mine water containing copper in acid solution is being pumped over scrap iron, tin cans, and similar material in launders. The iron is dissolved and replaced by cement copper, which in addition to copper contains largely oxygen and such impurities as were contained in

Miami Copper, Arizona

2/10/58

the mine water and precipitated.

1½ to 3 lbs. of crude sulphuric acid are added per ton of leaching water. The acidified solution is well distributed over the broken capping on the surface of the mine area, and in less fractured ground through 4' deep holes drilled at 25' centers. The acid water filters through the open copper bearing ground, and will be recovered at Miami on the 1000' level and led in acid resisting concrete lined ditches to pump stations which will pump the pregnant solutions to the precipitation plant. Charging the precipitating launders with scrap iron and recovering the cement copper is being done mechanically.

At Miami the ground on the bottom level is very heavy, and the main haulage drifts on this level have been driven well outside of the area influenced by caving and weight taking. It should be easy, therefore, to keep the bottom level open as far as the gathering ditches for the pregnant solutions and the ditches to the pumping plant are concerned.

Channelling of solutions is frequently a problem, or clogging of the ground by ferro hydro oxides. The Miami management has years of experience in leaching broken ore in place. Rejuvenation of copper recovery in areas where extraction has decreased is done by putting no water on the ground for six months or one year. Channelling and clogging can also be overcome by shaking up the ground with explosives or sudden release of compressed air. Owing to their long experience with leaching caved ground, it seems highly unlikely that the Miami technical staff will be confronted with any technical uncertainties when underground mining stops and the entire mine goes over to leaching in place.

Question 12: "What are the future prospects of purchasing cement copper from Inspiration in any quantities?"

Inspiration, I believe, uses some of its cement copper in its leaching process, and it seems very unlikely that this company would sell any cement copper.

An interesting side light is the fact that Inspiration is permitted to dump substantial tonnages of waste from its open pit on Miami caved area as long as the copper content of this waste material is maintained above a certain point. This material will be available later for leaching by Miami.

Question 13: "What are the future prospects of leaching at Copper Cities and when?"

A small amount of cement copper is now being produced at Copper Cities, and there may be an opportunity to leach later strip dumps and low grade material broken during mining operations. As Copper Cities is an open cast mine, the chances of leaching there exist only in regard to waste dumps and will be less than at Miami, where a tremendous volume of broken copper bearing ground above the 1000' level is going to be leached.

Miami Copper, Arizona

2/10/58

Question 14: "What is your candid opinion of the ability of the present staff to conduct a major leaching program?"

As said in the beginning, Miami has had one of the most competent mine staffs and excellent supervision in its operations. The Miami staff has many years' experience in solving the problems connected with leaching of broken low grade ore in place. Since March 1957, half of the new leaching plant is in operation, affording further experience. I would think it difficult to find more competent men for this work anywhere.

Question 15: "Would the grade of cement copper be fairly consistent?"

The expectation is that it will be. The grade expected I do not know. Presumably it will be better than 60%.

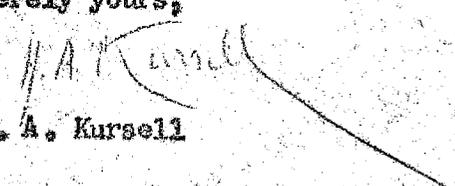
Question 16: "What physical circumstances might lead to intermittent production of cement copper? What does one look out for?"

The greatest danger in leaching of ore in place is channelling of solutions. It is believed that the Miami management will have ample experience in overcoming this difficulty.

Shortage of scrap iron or unreasonably high prices might be another difficulty at times, but since the leaching plant can use any kind of scrap, preferably find scrap, and offal from can factories, etc., it is believed that ample material of this type will be available from the Pacific Coast. Furthermore, the steel industry does not like some types of scrap, such as, for instance, old tin cans, because this scrap is contaminated with solder. The constituents of solder, by the way, might become an undesirable impurity in the cement copper.

Attached hereto I am returning your penciled notes.

Sincerely yours,


H. A. Kursell

February 11, 1958

Mr. Robert C. James
Arizona Exploration Unit
Cerro de Pasco Corporation
3656 E. Speedway
Tucson, Arizona

Dear Mr. James:

This is to thank you for your telegram
of February 10th.

Should you have occasion later on to
obtain some information on anticipated
annual copper production of the old Miami
mine when all underground work will have
stopped and only leaching in place is
practiced, I would greatly appreciate
your sending it to me.

I am leaving for Europe tomorrow
and expect to return to New York on
March 27th.

With best regards,

Sincerely,

H. A. Kirsell

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM (56)

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

=SYB034 LA075

1958 FEB 10 PM 12 17

L TSB021 PD=TUCSON ARIZ 10 940AMM=

HERBERT A KURSSELL=

12 MURRAYHILL RD SCARSDALE NY=

UNABLE GET ANY RELIABLE INFORMATION ANSWERING YOUR
QUESTIONS MAY BE ABLE TO DO SO LATER IF YOU STILL
INTERESTED=

BOB JAMES=

35346

TELEPHONE No.

COMM. No.

McLester

February 11, 1958

Dear Kenyon,

Many thanks for your notes which have been very helpful to me. As I am off for Rome, Italy, tomorrow, they reached me just in time.

Hoping to see you again in summer,

Sincerely,

H. A. Kursell

Mr. Kenyon Richard
215 So. Nema Place
Tucson, Arizona

Kusson ①
2/7/58

Dear Herbert:

Miami's underground mining has been operating at a loss for at least several months. The reasons for continuing are: (1) breaking up the ground for the leaching program, and (2) in some blocks in which development work is already in, they are doing a trifle better than breaking even, if development costs are not considered. This suggests that their underground overall ^{cost} rate on the order of 30¢/lb. or higher. At the most they will continue underground mining no more than 2 yrs. Probably, it will be a good deal less. The grade of underground ore has been averaging .5% Cu, of which a substantial portion is non-sulfidic Cu. Their production rate of ^{copper from} underground ore is ± 30 million lbs.

They have been leaching ⁽²⁾
caved areas successfully for
several years. When they
abandon underground mining
and go entirely to leaching
the caved blocks in place
they will produce "about
12 million lbs./yr. ^{from this source} at a cost
of two thirds their current
underground mining and
development costs per lb.

They are pumping 1200 gpm
from the Old Dominion 2000 level
at this rate continuously the
water lowers a few feet/mo.
But on their current 5-day
week, the water is rising about
30'/mo. was unable to get
detail on their other water
sources; but anyway, they
will use less water when
they abandon the underground
mining, and they are not
worried about having enough
water to carry out their planned
leaching program.

I did not get details on current production of cement by from caved areas and Cattle Dome dumps, but I believe these figures will appear in annual reports. The situation on these items would not have changed within the past year or more.

an interesting side light: Inspiration is permitted to dump ^{substantial tonnage of} waste from their open pit on Miami's caved area as long as the Cu content of this material is maintained above a certain point. This material is available, then, for leaching by Miami. They have several geologists on regional exploration for copper in the southwest. They know what to look for and might find something.

Currently, Miami underground ore production is 17,000 tpd and Copper City's ^{open pit} is the same. The latter has a 10-yr. life.

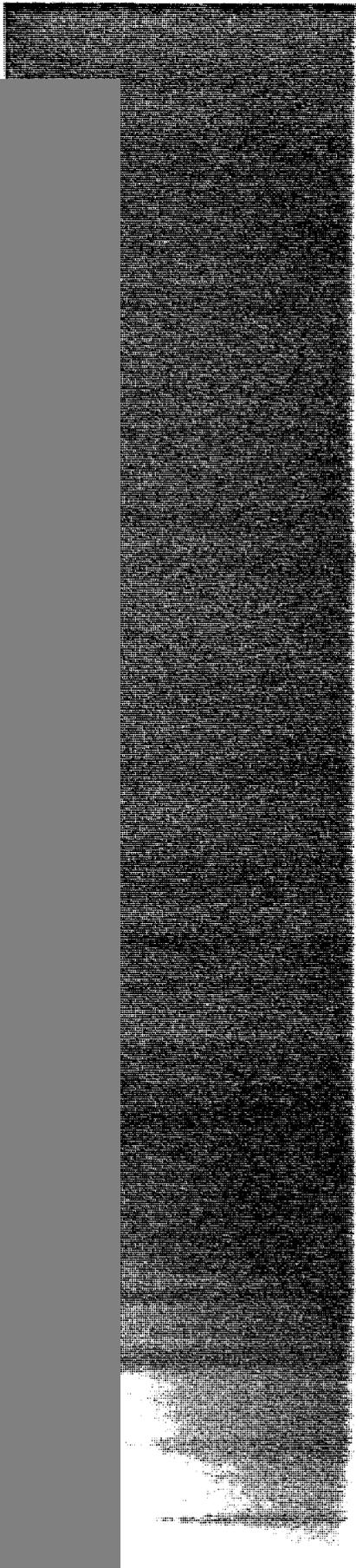
The cost of acid added to the leach water is not high. In cost per lb. of cement produced, it is equal to that of the tin can iron. I do not have accurate data on these costs, but presume that each is on the order of 4¢/lb. cement.

I might add as my opinion that, due to prior experience in leaching caved ground, the Miami people will not be confronted with many technical uncertainties when they go to full scale leaching. Such procedures as introduction of the water (through holes 4' deep and 25' apart) and rejuvenation of copper recovery, in a block by putting no water on it for 6 mos. or 1 yr. are all pretty well known. It should be successful.

The above data were obtained casually, but from a reliable source. Hope it will be of help to you.

Best regards,
Kenyon

JDS



He has held senior management positions with North West Life Assurance Company and most recently, Fidelity Life, both of Vancouver, B.C.

ASARCO

Exploration Department
Southwestern United States Division

July 30, 1986

Mr. R.A. Moon
Accounting Manager
ASARCO Incorporated
Hayden, Arizona 85235

CKG CLAIMS
Gila County, AZ

Dear Mr. Moon:

Reference is made to our telephone conversation concerning filing of the 1986 assessment work on the CKG-1 thru CKG-19 Placer Claims and the CKG-1 thru CKG-19 Lode Claims.

Enclosed are copies of the paper work for the recording of the 1985 assessment work.

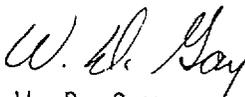
The format is straight forward. The first step is the recording of the Affidavits in Gila County. The recorder will return the original signed Affidavit certified and stamped with Docket and Page numbers. Then make a copy of the original Affidavit which you will retain in your file, and mail the copy with a transmittal letter to the BLM in Phoenix. The BLM will return a copy stamped "received" with date. Also, send a copy of your BLM memo with copy of the recorded Affidavit to H.E. Kelshaw in New York Office.

The only change from 1985 is that the Arizona counties are now allowed to charge up to five (5) dollars more for recording fees. You can check with the Recorder of Gila County on the current fee.

Assessment work must be completed by September 1, although the deadline for filing the Affidavit with the BLM is December 30, 1986.

If you need any more information, please call.

Sincerely,


W. D. Gay
Land Engineer

WDG:mke
encs.

cc: J.D. Sell

ASARCO Incorporated P. O. Box 5747 Tucson, Az 85703-0747
1150 North 7th Avenue (602) 792-3010

ASARCO

Exploration Department
Southwestern United States Division.

CERTIFIED MAIL
RETURN RECEIPT

October 25, 1985

Mr. Dean Bibles
State Director
Bureau of Land Management
Department of the Interior
P.O. Box 16563
Phoenix, AZ 85011

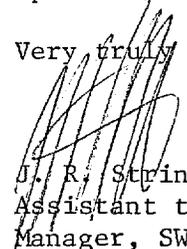
Mining Claim Annual Recordation
CKG-1 thru CKG-19 Placer Claims
Christmas Mining District
Gila County, AZ
A MC Serial Numbers
126443 thru 126461

Dear Sir:

In accordance with the Federal Land Policy and Management Act (43 CFR, Part 3833.2), enclosed is an exact reproduction of the affidavit of assessment work, with mining claim serial numbers, as recorded in the Gila County Recorder's office in Book 655, Pages 538 and 539, for the assessment year ending September 1, 1985.

Please send acknowledgement in the enclosed, stamped envelope.

Very truly yours,


J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
enc.

cc: R. L. Brown
H. E. Kelshaw (w/enc.)
J. D. Sell
A. J. Robles

AFFIDAVIT OF LABOR PERFORMED
AND IMPROVEMENTS MADE

STATE OF ARIZONA)
) ss
County of Pima)

J. R. Stringham, being first duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one (21) years of age and resides in Tucson, County of Pima, State of Arizona, and is personally acquainted with the mining claims situated in the Christmas Mining District, Gila County, Arizona, the names and docket and pages of record in the office of the County Recorder of Gila County, Arizona, and the Bureau of Land Management serial number of the Notices of Location whereof are as follows:

<u>Name of Placer Claim</u>	<u>Docket</u>	<u>Pages</u>	<u>BLM Serial Number</u>
CKG-1 and CKG-19	529	144 thru 181	A MC 126443 thru 126461

That all of said mining claims are owned by ASARCO Incorporated, the mailing address for which is P.O. Box 5747, Tucson, Arizona 85703; that between September 1, 1984 and August 31, 1985, in excess of \$2,500 worth of work and improvements were done and performed for the benefit of the aforementioned claims. Work and improvements consisted of road building and repair performed by ASARCO Incorporated under the direction of Pedro Guzman.

Said labor was performed and improvements made at the expense of ASARCO Incorporated for the benefit of each and all of said mining claims comprising said contiguous groups as part of a general plan of exploration, improvements and development, and they tend to explore, improve and develop each and all of said mining claims. The amount expended for and the value of said labor and improvements is more than One Hundred Dollars (\$100.00) for each of the mining claims and at least said amount was allocated to each of the mining claims. Said expenditure was made in good faith for the purpose of exploring, improving and developing said contiguous groups of mining claims, and was intended as annual labor and improvements for

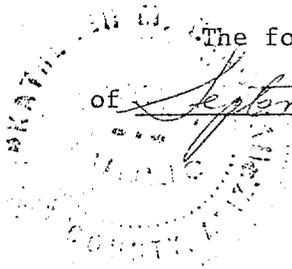
each and all of the above-described unpatented placer mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1985.

ASARCO Incorporated

By [Signature]
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 26th day of September, 1985, by J. R. Stringham.



Kathleen Ferguson
Notary Public

My Commission Expires:
My Commission Expires July 7, 1988

\$5.00 Env.
11:45 ch # 23805
M

527283

STATE OF ARIZONA, County of Gila, ss;
I do hereby certify that the within instrument was filed and recorded at request of ASARCO Incorporated

Date Sep 30, 1985 Time 11:45 A. M., Docket 655 Official Records Page S. 538 & 539
Records of Gila County, Arizona.

WITNESS my hand and official seal the day and year first above written.

Mr. J.R. Stringham
ASARCO Incorporated
PO Box 5747
Tucson, AZ 85703

MICROFILMED
COMPARED

MARY V. DE PAOLI, County Recorder

By Mary V. De Paoli, Recorder.

10/21/85

RECORDER SYSTEM
GILA COUNTY

9:72

FEE NUMBER 527283
DKT./PAGE-TO PG 555/ 538- 539

DATE RECORDED 09/30/85
TIME RECORDED 11:45

INSTRUMENT :
AFF LABOR PERF & IMPROVE MADE
CLAIMANT OR LESSEE
CLAIM

FEES PAID:
FEE POST/HANDL
3.20
ASARCO INCORPORATED
CK3 1

PAID BY : /ASARCO INCORPORATED
P O BOX 5747
TUCSON, AZ

85703

CK #23805

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

October 25, 1985

Mr. Dean Bibles
State Director
Bureau of Land Management
Department of the Interior
P.O. Box 16563
Phoenix, AZ 85011

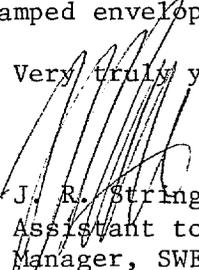
Mining Claim Annual Recordation
CKG-1 thru CKG-19 Lode Claims
Christmas Mining District
Gila County, AZ
A MC Serial Numbers
126462 thru 126480

Dear Sir:

In accordance with the Federal Land Policy and Management Act (43 CFR, Part 3833.2), enclosed is an exact reproduction of the affidavit of assessment work, with mining claim serial numbers, as recorded in the Gila County Recorder's office in Book 655, Pages 536 and 537, for the assessment year ending September 1, 1985.

Please send acknowledgement in the enclosed, stamped envelope.

Very truly yours,


J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
enc.

cc: R. L. Brown
H. E. Kelshaw (w/enc.)
J. D. Sell (w/enc.)
A. J. Robles (w/enc.)

AFFIDAVIT OF LABOR PERFORMED
AND IMPROVEMENTS MADE

STATE OF ARIZONA)
) ss
County of Pima)

J. R. Stringham, being first duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one (21) years of age, and resides in Tucson, County of Pima, State of Arizona, and is personally acquainted with the mining claims situated in the Christmas Mining District, Gila County, Arizona, the names and docket and pages of record in the office of the County Recorder of Gila County, Arizona, and the Bureau of Land Management serial number of the Notices of Location whereof are as follows:

<u>Name of Lode Claim</u>	<u>Docket</u>	<u>Pages</u>	<u>BLM Serial Number</u>
CKG-1 thru CKG-19	529	182 thru 219	A MC 126462 thru 126480

That all of said mining claims are owned by ASARCO Incorporated, the mailing address for which is P.O. Box 5747, Tucson, Arizona 85703; that between September 1, 1984 and August 31, 1985, in excess of \$2,500 worth of work and improvements were done and performed for the benefit of the aforementioned claims. Work and improvements consisted of road building and repair performed by ASARCO Incorporated under the direction of Pedro Guzman.

Said labor was performed and improvements made at the expense of ASARCO Incorporated for the benefit of each and all of said mining claims comprising said contiguous groups as part of a general plan of exploration, improvements and development, and they tend to explore, improve and develop each and all of said mining claims. The amount expended for and the value of said labor and improvements is more than One Hundred Dollars (\$100.00) for each of the mining claims and at least said amount was allocated to each of the mining claims. Said expenditure was made in good faith for the purpose of exploring, improving and developing said contiguous groups of mining claims, and was intended as annual labor and improvements for

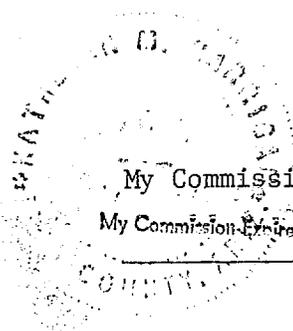
each and all of the above-described unpatented lode mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1985.

ASARCO Incorporated

By [Signature]
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 26th day of September, 1985, by J. R. Stringham.



Kathleen Herrigan
Notary Public

My Commission Expires:
My Commission Expires July 7, 1988

\$5.00 Env.

11:45 A.M. Ch. # 23805
M

527282

STATE OF ARIZONA, County of Gila, ss; ASARCO Incorporated
I do hereby certify that the within instrument was filed and recorded at request of

Date Sep. 30, 1985 Time 11:45 A. M., Docket 655 Official Records Pages 536 & 537
Records of Gila County, Arizona.

WITNESS my hand and official seal the day and year first above written.

Mr. J. R. Stringham
ASARCO Incorporated
P.O. Box 5747
Tucson, A.Z., 85703

MICROFILMED
COMPARED

MARY V. DE PAOLI, County Recorder
By Mary V. De Paoli, Recorder.

10/21/85

RECORDER SYSTEM
GILA COUNTY

9:71

FEE NUMBER 527282
DKT./PAGE-TO PG 655/ 536- 537

DATE RECORDED 05/30/85
TIME RECORDED 11:45

INSTRUMENT :
AFF LABOR PERF & IMPROVE MADE
CLAIMANT OR LESSEE
CLAIM

FEES PAID:
FEE POST/HANDL
3.20
ASARCO INCORPORATED
CKG : THRU CKG 15

PAID BY : /ASARCO INCORPORATED
P O BOX 5747
TUCSON, AZ

85703

CHECK #23825

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

September 27, 1985

Mrs. Mary V. De Paoli
Recorder of Gila County
1400 East Ash St.
Globe, AZ 85501

Affidavits of Labor
CKG-1 thru CKG-19 Lode Claims
CKG-1 thru CKG-19 Placer Claims
Christmas Mining District
Gila County, AZ

Dear Mrs. De Paoli:

Enclosed is Asarco's check for \$10.00 as the recording fee for the attached Affidavits of Labor. Also enclosed is a self-addressed return envelope.

Very truly yours,

Original Signed By,
J. R. STRINGHAM

J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
encs.

cc: J. D. Sell
A. J. Robles
W. F. Cummins - Hayden

AFFIDAVIT OF LABOR PERFORMED
AND IMPROVEMENTS MADE

STATE OF ARIZONA)
) ss
County of Pima)

J. R. Stringham, being first duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one (21) years of age and resides in Tucson, County of Pima, State of Arizona, and is personally acquainted with the mining claims situated in the Christmas Mining District, Gila County, Arizona, the names and docket and pages of record in the office of the County Recorder of Gila County, Arizona, and the Bureau of Land Management serial number of the Notices of Location whereof are as follows:

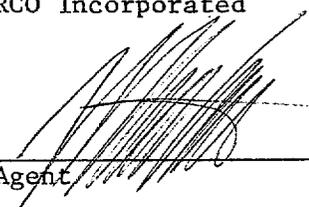
<u>Name of Placer Claim</u>	<u>Docket</u>	<u>Pages</u>	<u>BLM Serial Number</u>
CKG-1 and CKG-19	529	144 thru 181	A MC 126443 thru 126461

That all of said mining claims are owned by ASARCO Incorporated, the mailing address for which is P.O. Box 5747, Tucson, Arizona 85703; that between September 1, 1984 and August 31, 1985, in excess of \$2,500 worth of work and improvements were done and performed for the benefit of the aforementioned claims. Work and improvements consisted of road building and repair performed by ASARCO Incorporated under the direction of Pedro Guzman.

Said labor was performed and improvements made at the expense of ASARCO Incorporated for the benefit of each and all of said mining claims comprising said contiguous groups as part of a general plan of exploration, improvements and development, and they tend to explore, improve and develop each and all of said mining claims. The amount expended for and the value of said labor and improvements is more than One Hundred Dollars (\$100.00) for each of the mining claims and at least said amount was allocated to each of the mining claims. Said expenditure was made in good faith for the purpose of exploring, improving and developing said contiguous groups of mining claims, and was intended as annual labor and improvements for

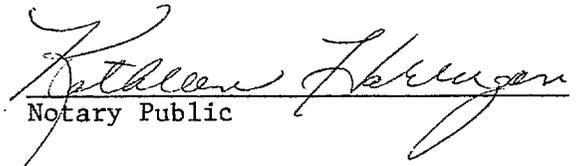
each and all of the above-described unpatented placer mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1985.

ASARCO Incorporated

By 
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 26th day of September, 1985, by J. R. Stringham.


Notary Public

My Commission Expires:
My Commission Expires July 7, 1988

AFFIDAVIT OF LABOR PERFORMED
AND IMPROVEMENTS MADE

STATE OF ARIZONA)
) ss
County of Pima)

J. R. Stringham, being first duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one (21) years of age, and resides in Tucson, County of Pima, State of Arizona, and is personally acquainted with the mining claims situated in the Christmas Mining District, Gila County, Arizona, the names and docket and pages of record in the office of the County Recorder of Gila County, Arizona, and the Bureau of Land Management serial number of the Notices of Location whereof are as follows:

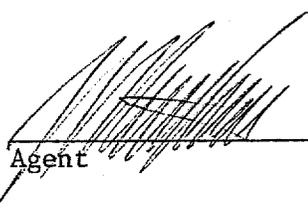
<u>Name of Lode Claim</u>	<u>Docket</u>	<u>Pages</u>	<u>BLM Serial Number</u>
CKG-1 thru CKG-19	529	182 thru 219	A MC 126462 thru 126480

That all of said mining claims are owned by ASARCO Incorporated, the mailing address for which is P.O. Box 5747, Tucson, Arizona 85703; that between September 1, 1984 and August 31, 1985, in excess of \$2,500 worth of work and improvements were done and performed for the benefit of the aforementioned claims. Work and improvements consisted of road building and repair performed by ASARCO Incorporated under the direction of Pedro Guzman.

Said labor was performed and improvements made at the expense of ASARCO Incorporated for the benefit of each and all of said mining claims comprising said contiguous groups as part of a general plan of exploration, improvements and development, and they tend to explore, improve and develop each and all of said mining claims. The amount expended for and the value of said labor and improvements is more than One Hundred Dollars (\$100.00) for each of the mining claims and at least said amount was allocated to each of the mining claims. Said expenditure was made in good faith for the purpose of exploring, improving and developing said contiguous groups of mining claims, and was intended as annual labor and improvements for

each and all of the above-described unpatented lode mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1985.

ASARCO Incorporated

By 
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 26th day of September, 1985, by J. R. Stringham.


Notary Public

My Commission Expires:
My Commission Expires July 7, 1988

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

October 1, 1984

Mr. Dean Bibles
State Director
Bureau of Land Management
Department of the Interior
P.O. Box 16563
Phoenix, AZ 85011

Mining Claim Annual Recordation
CKG-1 thru CKG-19 Placer Claims
Christmas Mining District
Gila County, AZ
A MC Serial Numbers
126443 thru 126461

Dear Sir:

In accordance with the Federal Land Policy and Management Act (43 CFR, Part 3833.2), enclosed is an exact reproduction of the affidavit of assessment work, with mining claim serial numbers, as recorded in the Gila County Recorder's office in Book 620, Pages 517 and 518, for the assessment year ending September 1, 1984.

Please send acknowledgement in the enclosed, stamped envelope.

Very truly yours,

J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
enc.

cc: H. E. Kelshaw (w/enc.)
J. D. Sell (w/enc.)
A. J. Robles (w/enc.)

#501
4:35
m

511131

STATE OF ARIZONA, County of Gila, ss;
I do hereby certify that the within instrument was filed and recorded at request of ASARCO Incorporated

Date Aug. 2, 1984 Time 4:35 P. M., Docket 620 Official Records Page s 517 & 518
Records of Gila County, Arizona.

WITNESS my hand and official seal the day and year first above written.

M. J. R. Stringham
ASARCO Inc - U
P.O. Box 5747 - Tucson, AZ 85703

INDEXED
PAGED

MARY V. DE PAOLI, County Recorder
By Mary V. De Paoli, RECORDER.

AFFIDAVIT OF LABOR PERFORMED
AND IMPROVEMENTS MADE

STATE OF ARIZONA)
) ss
County of Pima)

J. R. Stringham, being first duly sworn, deposes and says that he is a citizen of the United States and more then twenty-one (21) years of age, and resides in Tucson, County of Pima, State of Arizona, and is personally acquainted with the mining claims situated in the Christmas Mining District, Gila County, Arizona, the names and docket and pages of record in the office of the County Recorder of Gila County, Arizona, and the Bureau of Land Management serial number of the Notices of Location whereof are as follows:

<u>Name of Placer Claim</u>	<u>Docket</u>	<u>Pages</u>	<u>BLM Serial Number</u>
CKG-1 thru CKG-19	529	144 thru 181	A MC 126443 thru 126461

That all of said mining claims are owned by ASARCO Incorporated, the mailing address for which is P.O. Box 5747, Tucson, Arizona 85703; that between Septemeber 1, 1983, and July 31, 1984, in excess of \$5,000 worth of work and improvements were done and performed for the benefit of each of the aforementioned claims. Work and improvements consisted of a limestone mining operation performed by McFarland and Hullinger, P.O. Box 238, Tooele, Utah 84074.

Said labor was performed and improvements made at the expense of ASARCO Incorporated for the benefit of each and all of said mining claims comprising said contiguous groups as part of a general plan of exploration, improvements and development, and they tend to explore, improve and develop each and all of said mining claims. The amount expended for and the value of said labor and improvements is more than One Hundred Dollars (\$100.00) for each of the mining claims and at least said amount was allocated to each of the mining claims. Said expenditure was made in good faith for the purpose of exploring, improving and developing said contiguous groups of mining claims, and was intended as annual labor and improvements for

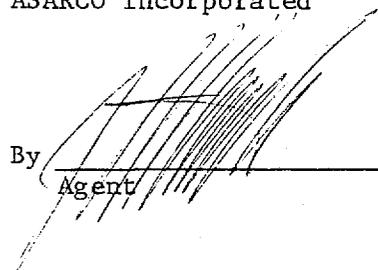
ASARCO Incorporated

SEP 27 1984

SW Exploration

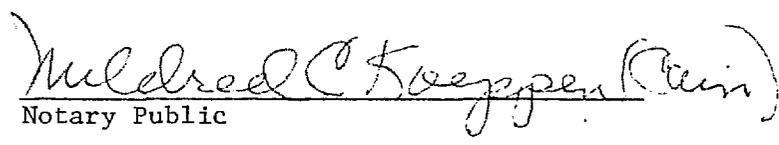
each and all of the above-described unpatented placer mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1984.

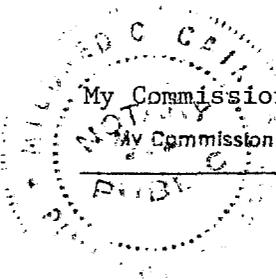
ASARCO Incorporated

By  _____
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 1st day of August, 1984, by J. R. Stringham.


Notary Public



My Commission Expires:
My Commission Expires Nov. 28, 1984

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

October 1, 1984

Mr. Dean Bibles
State Director
Bureau of Land Management
Department of the Interior
P.O. Box 16563
Phoenix, AZ 85011

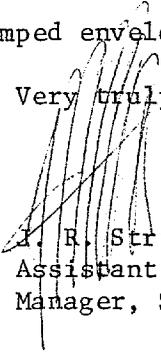
Mining Claim Annual Recordation
CKG-1 thru CKG-19 Lode Claims
Christmas Mining District
A MC Serial Numbers
126462 thru 126480

Dear Sir:

In accordance with the Federal Land Policy and Management Act (43 CFR, Part 3833.2), enclosed is an exact reproduction of the affidavit of assessment work, with mining claim serial numbers, as recorded in the Gila County Recorder's office in Book 620, Pages 515 and 516, for the assessment year ending September 1, 1984.

Please send acknowledgement in the enclosed, stamped envelope.

Very truly yours,


J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
enc.

cc: H. E. Kelshaw (w/enc.)
J. D. Sell (w/enc.)
A. J. Robles (w/enc.)

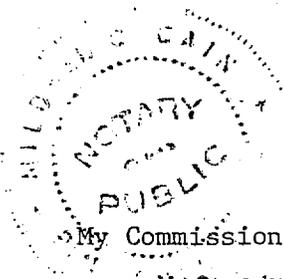
each and all of the above-described unpatented lode mining claims for the assessment year ending at 12:00 o'clock Meridian, September 1, 1984.

ASARCO Incorporated

By [Handwritten Signature]
Agent

STATE OF ARIZONA)
) ss
County of Pima)

The foregoing instrument was acknowledged before me this 1st day
of August, 1984, by J. R. Stringham.



Mildred C. Koepfen (Cain)
Notary Public

My Commission Expires:
My Commission Expires Nov. 23, 1984

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

August 1, 1984

Mrs. Mary V. De Paoli
Recorder of Gila County
1400 East Ash St.
Globe, AZ 85501

Affidavits of Labor
CKG-1 thru CKG - 19 Lode Claims
CKG-1 thru CKG - 19 Placer Claims
Christmas Mining District
Gila County, AZ

Dear Mrs. De Paoli:

Enclosed is Asarco's check for \$10.00 as the recording fee for the attached Affidavits of Labor. Also enclosed is a self-addressed return envelope.

Very truly yours,

Original Signed By
J. R. STRINGHAM

J. R. Stringham
Assistant to the
Manager, SWED

JRS:mek
encs.

cc: J. D. Sell
A. J. Robles

ASARCO

Exploration Department
Southwestern United States Division

CERTIFIED MAIL
RETURN RECEIPT

October 8, 1984

Mr. Dean Bibbles
State Director
Bureau of Land Management
Department of the Interior
P.O. Box 16563
Phoenix, AZ 85011

MINING CLAIM ANNUAL RECORDATION
Rawhide Project (Gila County)
Conto et al
Re: A MC Serial Numbers
45401 thru 45521
47296

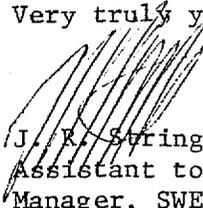
Dear Sir:

In accordance with the Federal Land Policy and Management Act (43 CFR, Part 3833.2), enclosed is an exact reproduction of the affidavit of assessment work, with mining claim serial numbers, as recorded in the Gila County Recorder's office in Book 623, Pages 161 thru 163, for the assessment year ending September 1, 1984. (Attached affidavit is also recorded in Pinal County.)

Please return in the enclosed envelope.

JRS:mek
encs.

Very truly yours,


J. R. Stringham
Assistant to the
Manager, SWED

cc: H. E. Kelshaw (w/enc.)
J. D. Sell
A. J. Robles

ASARCO

From: Margie A. Hinton

To: Jim Sell

12-5-84

Mr. Clay Thorne called today to see if you might be interested in going to his property between December 11th and 14th. An independent placer geologist will be running an extensive test for Au and Ag. The material is in layers.

Attached is a copy of our file to date.

ASARCO

Southwestern Ore Purchasing Department

A. J. Kroha

Manager

M. A. Hinton

Assistant to Manager

November 29, 1984

Mr. Clay Thorne

Southwestern States Investment Corp.

P. O. Box 392

Payson, AZ 85547

Dear Mr. Thorne:

Our Hayden, Arizona, plant has assayed your sample and reports the following results:

<u>Oz. per Ton</u>		<u>Percent</u>							
<u>Gold</u>	<u>Silver</u>	<u>Lead</u>	<u>Copper</u>	<u>Zinc</u>	<u>Silica</u>	<u>Iron</u>	<u>Lime</u>	<u>Sulfur</u>	<u>Alumina</u>
--	--	.01	.02	0	87.6	1.8	4.1	.4	4.3

Due to the low metal value, this is to advise that Asarco has no interest in this material. However, thank you for considering us.

Yours very truly,

A. J. Kroha

AJK:sp

SOUTHWESTERN ORE PURCHASING DEPT.
Tucson, Arizona

Office visit

Telephone call

FILE MEMO

Date: 11-9-84

Name: Clay Thorne

Shipper's Name: Southwestern States Investment Corp

Address: PO Box 392
Payson AZ 85547

Telephone: (602) 474-5963

Mine Name: Sand & gravel operation

Location of Mine: Winslow, AZ city limits
near Payson AZ

Loading Station: Trucks

Assays: Au 0.2 silica sand
As 1.2

Hayden HS 3525	Au	Ag	Pb	Cu	SiO ₂	Fe	CaO	Zn	S	Al ₂ O ₃
-	-	-	.01	.02	87.6	1.8	4.1	0	.4	4.3

Tonnage Available:

Requested sample be forwarded to: Jay McCloskey
RAMoon/Hayden

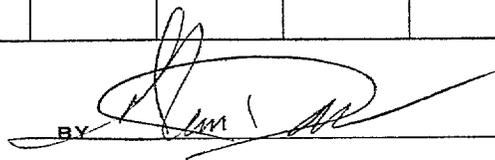
McCloskey

ASARCO INCORPORATED
HAYDEN PLANT
ASSAY CERTIFICATE

DATE ASSAYED 11-28 1984

MARKED Hand Sample #38.25

LOT NO.	GOLD OUNCES PER TON	SILVER OUNCES PER TON	LEAD %	COPPER %	SiO ₂ %	FE %	CaO %	Zn %	S %	Al ₂ O ₃ %	
	----	----	.01	.02	87.6	1.8	4.1	----	.4	4.3	
						As %	Sb %	Bi %	Cd %	Ni %	

BY 

CHEMIST

KIMBALL LABORATORIES AND CONSULTING

600 EAST 11600 S.C. 4
DRAPER, UTAH 84020
Telephone 571-3695

Certificate of Analysis

*Samples Taken
by Jim Pruden
of Salt Lake*

*Don't trust
Kimball Labs
JES*

Date: August 29, 1984
Client: EADAC, Inc.
Suite 200
255 East 400 South
Salt Lake City, Utah 84111
Sample Number: 18337 - 18352
Date received: August 28, 1984
Submitted by: Buck Wilkerson
Samples analyzed for: As below indicated

Results	Sample Weight and Type of Treatment	Sample No.	Your Sample No.	Gold (oz/t)	Silver (oz/t)	Platinum
recovery	163.000 gms std flux	18337	480720	0.215 (1.201 mg)	1.180 (6.594 mg)	
	26.427 gms std flux	18338	480721	0.461 (0.417 mg)	0.654	
	20.678 gms std flux	18339	480722	0.369 (0.261 mg)	0.456	
	42.758 gms std flux	18340	480723	0.189 (0.278 mg)	0.639	
	24.850 std flux	18341	480724	0.058 (0.049 mg)	0.250	trace
	30.305 gms std flux	18342	480725	0.034 (0.035 mg)	0.195	
	63.102 gms std flux + 3½ oz extra litharge	18343	Black Mountain Con	0.037 (0.079 mg)	2.914	trace
std flux + extra litharge	18344	Black Mountain	0.113	0.099		
std flux + extra litharge	18345	480726	0.016	0.125		
marks	"	18346	480727	0.022	0.128	
"	"	18347	480728	0.077	0.338	
"	"	18348	480729	0.036	0.224	
	Thiourea Leach			0.026	0.191	
	Cyanide Leach			0.032	0.121	(5 lb CN/ton)

G. Lynn Kimball
G. Lynn Kimball, Manager

ALL VALUES REPORTED AS INDICATED

ATL Testing Laboratories

A Division of R & D Engineering Associates, Inc.
Engineers • Geologists

Boyd Smith, P.E.

Donald E. Green, P.E.

REPORT OF LABORATORY TESTS

For: SOUTHWESTERS STATES INVESTMENT COL Date: MAY 25, 1984
P.O. BOX 392
PAYSON, ARIZONA 85547 Lab No.: 6866

Project: QUALITY CONTROL Material: FINE SAND

Source of Sample: PIT Sampled By: SSIC/CLAY THORPE

Source of Material: PIT Date Received:

MECHANICAL ANALYSIS:

Sieve Size	% Retained (Indiv.)	% Passing (Cumul.)	Specifications
4"			
3 1/2"			
3"			
2 1/2"			
2"			
1 1/2"			
1"			
3/4"			
1/2"			
3/8"	0	100	
1/4"	0	100	
#4	0	100	
8	0	100	
10	0	100	
16	0	100	
30	1	99	
40	5	94	
50	33	61	
100	47	14	
200	9	5	

Liquid Limit _____
Plastic Limit _____
Plasticity Index _____
Soil Classification _____
Specific Gravity _____
Moisture _____ %
Absorption _____ %
Weight/Cu.Ft. Rodded _____ lbs.
Loose _____ lbs.
Fineness Modules _____
Organic Impurities _____
Abrasion (L.A.)% wear 500 rev.,
Loss _____ %
Soundness (Sodium, Magnesium
Sulphate) _____
cycles _____

Asphalt Content:
(% of Total Sample)= _____
(% of Dry Aggregate)= _____
Moisture-Density Relationship:
Maximum Dry Density _____ pcf
Optimum Moisture _____ %

ADOT SECTION 1006

1. AASHTO T-176
AVERAGE EQUIVALENT 59 (75 MIN)
2. FINNESS MODULES 1.26
3. SILICA CONTENT 79.3%
(AS SILICON DIOXIDE)

Respectfully Submitted,
ATL TESTING LABORATORIES

Donald E. Green
DONALD E. GREE, P.E.



Southwestern States Investment Corporation

Dear Mr Moon

I am sending you this sample by
direction from Mr Tony KROHA

The Silica content is in excess of 80%

The Iron will run less than 5 lbs
per ton of ore, it is running approximately
.03 to .04 in AU and .2 in silver per ton
of ore. Attached is a report on the
Mott. This come out of the left layer
that we have in the pit.

Sincerely
Clay F. Thorne

Report on the
McMILLEN-STONEWALL MINING CO.

GLOBE, ARIZONA, MAY 5, 1912

To the Directors of the McMillen-Stonewall Mining Company:

I have completed a month's examination of your property and, upon your request have prepared a full report on the property, recounting its past history, the importance of developments to date, and its future possibilities. In the course of the examination 200 samples were taken and assayed to aid in drawing my conclusions.

Before entering into details, the conclusions resulting from the examination may be summarized as follows:

First—The Stonewall Ledge was mineralized by rich copper-silver sulphides which originally filled the net-work of limonite stringers that characterize the ledge wherever it outcrops.

Second—The ore mined in the early days of the district (1872 to 1882) was formed by the oxidation, without leaching, of these sulphides.

Third—There is sufficient evidence at hand to warrant the belief that when permanent water-level is reached and these sulphides are encountered, ore bodies, rich in value and of considerable lateral extent, will be found.

LOCATION OF PROPERTY:

The property, consisting of thirty-four mining claims, is situated in Gila County, Arizona, about sixteen miles northeast of the town of Globe.

ACCESSIBILITY:

The property is connected by wagon road with Globe and also with Rice, a station on the Arizona Eastern Railroad. This latter is the road used for haulage purposes and is about twenty-one miles in length. A surveyed line for a railroad showed a uniform grade of about 1-2 of one per cent from Rice to the property.

PHYSICAL CHARACTERISTICS OF STONEWALL LEDGE:

Eleven of the thirty-four claims of the company are located lengthwise on the Stonewall Ledge—giving the company a length of about three miles on the vein. This ledge extends in a northeast-south westerly direction and lies in a large flat basin, about fifteen miles wide, in the heart of the Apache Mountains. The ledge is strongest near the center of the basin; to the northeast it soon passes under the silt, but it can be traced to the southwest, by occasional outcrops, for six miles to a point about a mile west of the western rim of the Apache Mountains. This basin and the surrounding mountains are remarkable for their undisturbed condition; as far as is known this ledge is the only large fault in the basin. It may be more correctly described as an immense shear zone, with very little displacement, extending across the basin, and caused by great stress in the earth's crust. The ledge has a dip of about 70 degrees to the northwest and varies in width from 25 to 115 feet.

HISTORY OF PROPERTY.

During the period from 1872-1882 about a mile's length of the ledge was being explored and operated by the mines known at that time as the Stonewall Jackson, Hannibal, Little Mack, Washington, Irene and Golden Eagle. Of these mines only the Stonewall Jackson would be called a mine in the present sense of the word; the others were merely shallow shafts in the ledge with very little cross-cutting or drifting. These shafts are of extreme importance, however, in that they all produced silver ore—indicating that the ledge was very generally mineralized.

The total production of the ledge to date, as far as can be ascertained, is about \$750,000 worth of silver ore. Of this amount the Stonewall Jackson alone produced about \$600,000.

During the early period mining was carried on under great difficulties and enormous operating costs; the nearest shipping point was Yuma, Arizona (300 miles

distant), and the nearest mining-supply house was in San Francisco. Only the very richest ore could be mined; in 1880 a five-stamp mill was erected and even then no ore containing values less than \$50.00 per ton could be treated profitably. Today, ore worth one tenth that amount, can be treated very profitably by the cyanide process.

In order to gain an idea of the character of the ore found in protected pockets in the vein I will insert a few statistics on these high grade ore shipments:

Two hundred and fifty tons of ore produced \$53,000. 516 tons produced \$55,000. 800 tons produced \$120,000. 4387 pounds of ore yielded the gross amount of \$10,500 and 712 pounds yielded \$8,500.

In 1881 the shaft encountered sulphides at a depth of 550 feet. Sulphides are not amenable to pan-amalgamation, and as a result the company was forced to make other plans for the treatment of their ore. They accordingly began work preparatory to roasting the ore before amalgamating it. This roasting alone, was estimated, would cost \$12.00 a ton.

Up to this time the White Mountain Indian Reservation had never been surveyed. When the survey was made, it was found that the entire ledge was on the Reservation and therefore could not be treated as U. S. Mining Land. This stopped operations at the mine, but preparations were made to present a bill to Congress setting aside this ledge from the Reservation. After a delay of ten years the bill was finally passed by Congress on the recommendation of J. W. Brown, director of the U. S. Geological Survey.

The Stonewall, Hannibal and Little Mack were then patented but work was never resumed at the mine until 1907. In that year the present company (The McMillen Stonewall Mining Co.) was organized to take over all these old properties, sink a new shaft to sulphide depth and erect a concentrator to treat the sulphides.

In the midst of operations, when the shaft had only reached a depth of 300 feet (still 250 feet above sulphide level, as determined from the old workings) the company ran short of funds; work was stopped and has not been resumed since.

GEOLOGY OF LEDGE:

The ledge has diabase for both foot and hanging walls; the matrix of the ledge itself is an altered diabase except in those portions of the vein in which a granite intrusion has wedged itself in between the diabase walls. This intrusion is strongest on the extreme western end of the property (on the Arizona claim.) On the Stonewall claim, while the matrix is almost entirely diabase, the dump shows an occasional portion of the intruded granite. The granite is of the pegmatite type.

By a week's careful study of the dumps I was able to get a complete connection of the various stages through which the ore passed from its primary sulphide form to the thoroughly leached and oxidized condition of the limonite stringers in the outcrops on surface. This investigation showed the following chain of events to have taken place:

After the shearing (which produced the ledge) a period of leaching followed; as the result of this leaching from above, calcite stringers were deposited all through the diabase matrix.

Then came the intrusion of the granite. In portions of the ledge this granite broke through in massive form; in other places the granite came up only in small stringers. Wherever the granite failed to come up in massive form its heat decomposed the diabase in the ledge to such an extent that, together with its previously leached condition, the diabase was in a very favorable condition to receive the mineralization.

When this mineralization came, either in gaseous form or as a hot solution under pressure, it shot itself into innumerable little cracks and fissures all through the ledge. These (at one time) sulphide-filled stringers now filled with limonite, vary from the minute width of a hair to a foot or more in thickness.

Then followed a period of leaching and oxidation of the sulphides above water level. The ledge served as a water-channel for a large amount of descending water—the diabase walls on either side being in themselves almost impervious. In some por-

tions of the ledge the descending water failed to reach protected pockets of sulphides, in which case the sulphides oxidized without leaching to native silver, or to cyrargyrite (horn silver) wherever sufficient chlorine (originally in the form of Manganese Chloride) was present to form the chloride of silver. This is the reason for the rich pockets of ore encountered in the mine above water-level. The same explanation applies to the formation of the ore that was taken from stringers that ran into the foot or hanging walls. These offshoots originally contained rich sulphides that were oxidized in place and escaped the leaching that the sulphides in the ledge were subjected to. The Little Mack is such an offshoot; it yielded \$70,000 from one small pocket.

When the sulphides decomposed, they left as a residue a fine-grained limonite. Eighty samples, taken every twenty feet along the old workings, at tunnel level and above, showed these limonite stringers still to contain between one and two ounces of silver.

With increase of depth the decomposition of sulphides seems to have been less complete and more silver is present. This is evident also in the appearance of the stringers which are filled with greasy red hematite instead of limonite. The drift along the footwall at the bottom of the new shaft is faced in this character of ore,—the face averaging 6.5 ounces per ton. This same character of material can be seen on that portion of the old dump that came from the lower levels—these levels have been inaccessible for twenty years owing to the caved condition of the shaft.

COMMERCIAL ORE ABOVE WATER LEVEL:

The old dumps were sampled with a view toward getting an idea of the grade of ore in the levels below tunnel-level. The work below this level consisted of drifting and crosscutting with very little stoping. Thomas Price, the engineer who examined the property in 1881, while the workings were still accessible, writes of these lower levels as follows: "It is not necessary that I should give an elaborate description of the five other levels; the general character of vein matter is the same as in the levels above where ore was found, and in places very rich. Large quantities of low grade ore, assaying from 5 to 15 ounces per ton exist in all these levels."

The dumps consist of a mixture of ore from the ledge, solid diabase from the foot, and waste from the hanging wall. Fifty twenty-five pound samples were taken which gave an average of 4.1 ounces of silver per ton. Considering the fact that these dumps have been hand-sorted four or five times and contain so much waste, the statements of Mr. Price are borne out to a considerable extent by these results. The drift along the foot-wall on the 300 foot level of the new shaft, as stated previously, is also in ore averaging 6.5 ounces per ton. The face of this drift is about two hundred and fifty feet east of the old workings described by Mr. Price.

While the dumps point to commercial ore below, they are not of any great commercial importance in themselves, as they only represent a computed tonnage of 16,000 tons. With a large cyanide plant on the property the dumps could be treated at a profit of about one dollar a ton.

I would place the average width of the ledge—as far as commercial probabilities are concerned—at from 30 to 35 feet. The actual width of the ledge varies from 25 to 115 feet, but where the vein is exceptionally wide its width is due to a horse of diabase in the ledge. On the 300 foot level of the new shaft this horse shows evidence of being in itself commercial at sulphide depth. Diabase boulders, taken from the horse at this depth, showed the decomposed sulphides as limonite specks with still a few sulphides present. Wherever a few sulphides were still present in a leached specimen, the lowest assay obtained was 18 ounces per ton.

CHARACTER OF SULPHIDES BELOW WATER LEVEL:

While the property has an excellent chance to develop a considerable tonnage of "cyanide ore" between the thoroughly oxidized zone on surface and the sulphide zone at water-level, the future of the property as a large mine depends on the character of the sulphides below. Owing to the leached condition of the ledge, sulphides are

very rare, but in the horse encountered on the 300 foot level I was able to find sulphides that were formed in the calcite stringers and preserved by the hardness of the calcite. Also in some of the finer-grained portions of the intruded granite sulphides were still preserved.

In every case I found the sulphides to be either rich silver-bearing chalcopyrite, associated in some cases with black sulphides closely approaching argentite. The pure concentrates of chalcopyrite I found to contain 1300 ounces silver per ton, and 30 per cent copper. Other pure concentrates, containing varying amounts of chalcopyrite and black sulphides, contained from 1300 to 3000 ounces per ton of silver.

If this chalcopyrite is the primary sulphide, the possibilities of developing a large and very rich mine at depth are excellent. The untarnished condition of these sulphides when found in the center of a freshly broken piece of calcite or granite seems to indicate that they are primary. Also I have found the chalcopyrite in crystallized form (truncated tetragonal sphenoids) which also argues well for chalcopyrite as having been the primary carrier of the silver. Finally, when the sulphides, that entered offshoots into the hard diabase walls oxidized, they formed native silver and cyrrargyrite. I have been unable to find any way in which these sulphides could have been enriched, and consequently must conclude that these rich offshoots are due to the oxidation of the primary ore.

The first sulphides that will be encountered below water-level will probably be the black sulphides of silver—that is, the chalcopyrite enriched by leaching from above.

In no instance did I find any evidence of low grade copper-bearing iron pyrites, as ever having been present in the ledge. Specimens containing small streaks of sulphide in a stage of decomposition sufficient to give the red streak of hematite still contained 300 ounces of silver per ton.

While the assays of the sulphides show a high copper content, there is very little copper present in the oxidized zone. Occasionally a copper-stain is found; when such is the case, high silver values are also present, indicating that the products of the decomposition of the sulphides have not been thoroughly leached.

It is known that at a depth of 550 feet, 20 feet above the bottom of the old winze, sulphides were encountered. The statement is made by old miners who worked in that winze that at the bottom where the ledge was exposed for 12 feet, assays made on the sulphides gave values ranging from 40 to 80 ounces per ton for the full 12 feet. These statements cannot be considered as authentic, but the high silver values in all specimens containing a little sulphide lends credence to some extent to these statements.

RECOMMENDATIONS FOR FUTURE DEVELOPMENT WORK:

The new shaft should be continued until the sulphide zone is reached. Judging from conditions in the old workings this zone is between 200 and 400 feet below the bottom of the new shaft.

The drift along the foot-wall should also be continued as it is developing ore at present. I think it advisable to continue this drift to the old workings and investigate the grade of ore that is blocked out there by the old drifts and crosscuts. This work will not be costly and the drift has a good chance of developing a large tonnage of commercial ore.

Respectfully Submitted,

(Signed)

~~R. B. WAGNER~~



To JDS
 Date 3/28 Time 1:35
WHILE YOU WERE OUT
 M Jack Kuhn
 of _____
 Phone _____
 Area Code Number Extension

TELEPHONED	<input checked="" type="checkbox"/>	PLEASE CALL	
CALLED TO SEE YOU		WILL CALL AGAIN	
WANTS TO SEE YOU		URGENT	
RETURNED YOUR CALL			

Message Said the Cowboy Mine you mentioned* is not the same is a different mine than the Cowboy Mine he talked about. *Mary*
 Operator



AMPAD
EFFICIENCY®

23-000 50 SHT. PAD
23-001 250 SHT. DISPENSER BOX

*ie, Cowboy Prospect for Valentine
 Mining Journal London, Feb 19, 1988.

same Cowboy of JG Kuba? at AGS 3/1/88, Jack was not aware of any lease.!

sent Jack a copy 3/2/88

THE COWBOY MINE
GILA COUNTY, ARIZONA

1. INTRODUCTION

The Cowboy Mine, located in the Dripping Springs Mining District in southern Gila County, has a history of production of approximately 1250 ounces of gold equivalent as gold, silver, copper, and lead. All production was before 1939 and most before 1920 according to the rather sparse historical data available.

The Cowboy property is currently available for lease or joint venture.

The vein type ore from the Cowboy Mine is siliceous and the silica, along with an established gold, silver, and copper content, make it a possible source of flux for the ASARCO smelter at Hayden, Arizona, which is about eighteen miles away via highway, and for the San Manuel smelter of Magma Copper Co., which is an additional thirty miles away.

2. LOCATION

The Cowboy Mine is in the east half of Section 31, T.3 S., R.15 E in the Dripping Springs Mining District. It is on the north slope of the Dripping Springs Mountains at an elevation of about 3500 feet.

The mine area can be reached by taking Dripping Springs Road., which is marked by a sign, southwest from Arizona State Highway 77 just before it leaves the Dripping Springs Valley about fifteen miles northwest of Winkelman, Arizona. Take Dripping Springs Road over two ranges of hills and into the main valley of Dripping Springs Wash. The road makes a corner to the right at the Bearup Ranch headquarters so continue to the right past a church and over a cattleguard to a side road which goes toward the mountains to the south. Take this side road to a new, rather pretentious house and then go up the hill to the left on a jeep road to the mine. See the attached index map, Figure 1.

The road from the valley to the claims is very narrow, steep, and rough. If any production were to be shipped from the mine, there is a much superior road alignment which could be reestablished. It is the original road which came in from the northeast.

3. PROPERTY

The mine is held by location of seven unpatented mining claims. The claims are monumented on the ground and allegedly have been recorded in the Gila County courthouse and with the Bureau of

Land Management, although the recording data has not been verified by the writer.

The surrounding ground to the east, west, and south is believed to be open. The ground to the north is Arizona state land which could be leased if needed.

4. HISTORY AND PREVIOUS WORK

Very little is known of the history of the Cowboy Mine. The extent of workings on the veins indicate that a considerable amount of development and mining was done.

The only known reference on the mine, which is a "MINE OWNER'S REPORT" dated December 1, 1939 in the Arizona Department of Mines and Mineral Resources files (1), indicates that prior to the end of 1939 a total of five hundred feet of development work, a fifty foot timbered shaft, and a 250 foot long tunnel had been completed. Observation of the amount of workings indicates that at least this amount of work was done with possibly additional work after 1939 also being accomplished.

A small mill including crusher, grinder, camp housing, blacksmith shop, etc. was on the site in 1939 according to (1). The ruins of one house and the mill foundations are still there. Apparently the mill ground the ore and recovered the gold and other valuable metals by gravity. Grade control apparently depended on panning the ore as it came from the mine.

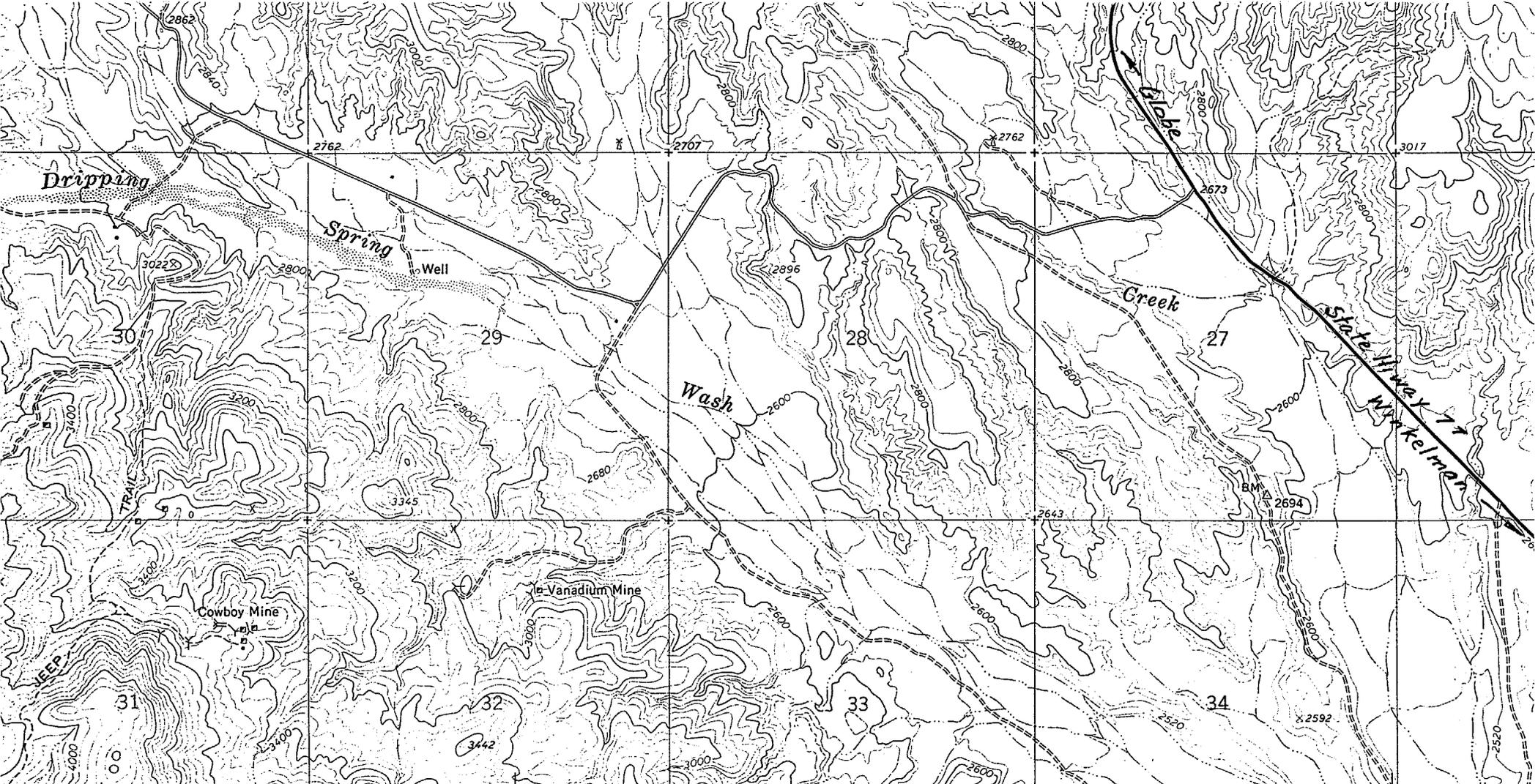
According to (1) a production of more than \$25,000 was taken from shallow workings, all within fifty feet of the surface. The ore shipped contained gold, silver, lead, zinc, and copper with gold the predominating metal of value. At the then current price of about \$20 per ounce this equates to about 1250 ounces of gold equivalent production. In addition two car loads of lead ore averaging about 30% lead were also shipped.

In 1939 the mine was owned by C.W. McGraw who had held it at least since 1913, according to data gleaned from (1).

No published work covering the area of the Cowboy Mine has been found.

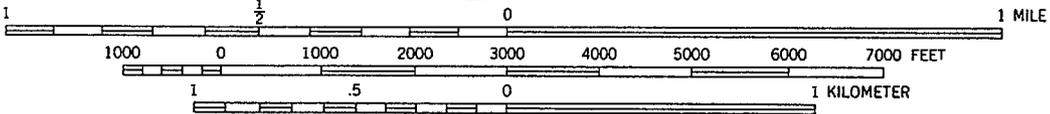
5. GEOLOGY

The Cowboy Mine comprises two or more generally east-west trending, steeply dipping fissure veins which cut Mescal limestone. Quartz mica diorite and diabase also occur in the general mine area.

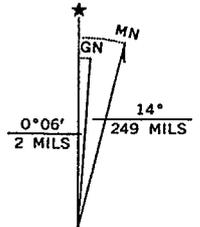


290 000 FEET 1515 50' 1516 (HAYDEN) 3850 III SE 1518 1519 47'30" 1520

SCALE 1:24 000



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



UTM GRID AND 1964 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

al Survey

east zone

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Fig. 1

5.1 STRATIGRAPHY

The Cowboy Mine is situated in a block of Mescal limestone. The Mescal limestone is near the top of the Apache Group and is of younger Pre-Cambrian age. It varies between one hundred and three hundred feet in thickness in the general area of the mine.

The limestone in proximity to the veins at the Cowboy Mine is thin bedded, somewhat impure, and sandy in nature which is characteristic of the Mescal limestone unit throughout the general area.

Immediately below the Mescal limestone in the section is the Dripping Springs quartzite; however this unit has not been identified as outcropping in the Cowboy Mine area which is not to say it is not exposed, either in outcrop or in the underground workings, since the area has not been studied or mapped in any detail.

Reference (1) states that the veins extend into quartzite rocks which implies that the veins go into the Dripping Springs quartzite below the Mescal limestone.

5.2 INTRUSIVE ROCKS

An irregular outcrop of quartz mica diorite has been observed in close proximity to the veins and the occurrence of intrusive quartzdiorite and porphyry was noted in (1). This intrusive rock is probably Laramide in age and likely has some relationship to the mineralization although this is only conjecture.

The area also has outcropping diabase which also was noted in (1). The diabase is thought to be late Pre-Cambrian in age since it intrudes only up to the Mescal limestone unit and apparently does not extend into the overlying Troy quartzite throughout the Dripping Springs mountains.

Reference (1) states that the ore occurs in close proximity to the diorite and diabase.

5.3 ALTERATION

Very close to the veins the limestone has been silicified and somewhat silicated; however the amount of alteration of the limestone drops very rapidly as you go away from the veins.

In a few areas replacement of the limestone with mineralized silicified material a short distance away from the veins has occurred.

In general, the alteration is confined to the wall rocks very close to the vein structures and it decreases rapidly away from the veins. The alteration is not a significant feature of the area as a whole.

5.4 STRUCTURE

Insufficient study has been done to develop an idea of the structure involved in the area. A small scale geologic map indicates that there are a number of fault blocks comprising the area; however no thoughts can be presented on the significance of structure.

It is likely that the drainage at the east end of the veins is a reflection of a fault which may cut off or offset the eastern extension of the veins.

5.5. ORE DEPOSITS

The ore deposits occur in at least two steeply dipping, more or less east-west trending veins which cut the bedding of the Mescal limestone wall rocks. These two veins are reported to be three thousand feet long and are reported to be connected by cross veins (1). About one thousand feet of the North Vein have been developed to shallow depths only.

The North Vein, which has sustained most of the development and apparently all of the production, averages about four feet in thickness and consists of oxidized metallic mineralization in a massive quartz matrix. The minerals noted include manganese and iron oxides, copper silicates, azurite, malachite, and free gold. The gold is coarse and free milling and favors the manganese oxide zones according to (1). No sulfides were noted.

From the distribution of the underground workings it is apparent that the gold occurs in shoots in the vein. In certain areas irregular stoping areas extend above and below the drift levels. These are assumed to be areas where high grade gold mineralization was encountered. This irregularity of the gold distribution is borne out by the limited sampling done.

Reference (1) presents some assay results from samples taken from 1913 to 1916 which show extremely high gold and silver values. The significance of these assays is minimal since the details of their collection are missing. Suffice to say that at a gold price of \$20 per ounce the average gold equivalent content for the gold and silver combined was reported to be about eight ounces per ton for eleven

samples. One select sample ran over 3,700 opt gold and 1,000 opt silver.

Several years ago an Inspiration Mines Inc. geologist, D.W. Johnston, cut a random sample in one of the workings on the North Vein while working on a nearby copper property for Inspiration. The sample assayed 3.12 opt gold which was a great surprise to Mr. Johnston and which stimulated the writer's initial interest in the area. The claims were unavailable at that time and gold was not yet a high priority exploration target so nothing further was done by Inspiration.

In the summer of 1987 the writer took five samples from the Cowboy as follows:

C.B. 1: Taken across limestone beds in replacement area away from vein in shallow working near top of hill.

opt Au	opt Ag	%Cu	%SiO ₂
.005	1.63	.35	51.4

C.B. 2: Random dump sample of silicified manganese-iron oxide bearing vein material.

opt Au	opt Ag	%Cu	%SiO ₂
.015	1.66	N.A.	72.6

C.B. 3: Cut across shaly area of vein in shallow underground working. Very little silicification and apparent mineralization.

opt Au	opt Ag	%Cu	%SiO ₂
Trace	.11	N.A.	N.A.

C.B. 4: Cut across pillar in vein in shallow underground working.

opt Au	opt Ag	%Cu	%SiO ₂
Trace	.13	N.A.	N.A.

C.B. 5: Select dump sample with visible free gold.

opt Au	opt Ag	%Cu	%SiO ₂
7.925	3.79	N.A.	N.A.

Panning of two samples of fines from an old dump yielded a significant amount of free gold in both cases. The samples were initially panned to determine why "snipers" were loading up the old dumps and carrying them off. It is now known why they were stealing the dump material.

Obviously, a great deal more sampling must be done. A significant area of the North Vein is opened up to shallow depths by the old workings which are still largely accessible which would permit sampling of a significant

portion of the vein near the surface with minimum cost. The only cost would be the cost of collecting the samples, mapping the underground workings and the surface, and assaying the samples for gold, silver, copper, silica, and alumina.

If the initial sampling is encouraging a series of inclined diamond drill holes drilled north from the surface south of the North Vein to intersect the vein about one hundred feet below the lowest workings would serve to extend the ore zone down dip and additional holes drilled higher to fill gaps in the sampled area would prove up reserves.

Not much is known of the South Vein. It has a few workings on it but no geologic or assay data is available. It is, however, at least as persistent and as extensive as the North Vein and, with some development work, could add to the available reserves. The present owner encountered a zone of high grade lead mineralization while cleaning out an old shaft on the vein.

There is a good possibility that a drainage going through the property at the east end of the veins could yield gold from a relative small deposit of placer gravels. Water can be obtained from natural springs higher up in the Dripping Springs mountains, which is what gave them their name.

Several other veins are known to exist in the area. They all have essentially the same characteristics as the Cowboy veins but are largely undeveloped. The Jessie Claims, owned by the owner of the Cowboy and located some distance to the west, allegedly have produced high grade silver-gold ores and the owner states he can cut twenty ounce silver ore from the vein on the Jessie at the surface.

6. ORE RESERVES

Obviously, there are no ore reserves at the Cowboy. There is an indication that a modest amount of siliceous flux ore with a significant precious metal and copper content might be developed. Assuming the vein structure is 3,000 feet long, four feet thick, and three hundred feet down the dip, the tonnage (at 12.5 cubes per ton) would be 288,000 tons for one vein. The distribution of metal in the vein is not available currently.

7. SILICA FLUX

The ASARCO smelter currently uses tailings from the old Tiger Mine near Mammoth, Arizona as a source of flux. This supply is almost exhausted and they are actively looking for a new supplier.

Their requirement is for about 240 tons per day of flux at a size of all minus ten mesh for use in their flash furnace. This means that a crushing circuit to produce ten mesh product would be required for any operation designed to supply flux ore for the ASARCO or any other flash smelter.

A common flux payment contract might provide payment per ton of flux as follows:

Pay eight to ten dollars plus cost of transportation to smelter for the silica,

Pay for seventy five percent of the silver at agreed upon standard price authority quote (Handy and Harmon for example), and

If gold is over .01 opt, pay for 85% of gold at agreed upon standard price authority quote.

These terms might be improved upon by negotiation, especially since the transportation cost would be so low due to the proximity of the Cowboy Mine to the smelter.

The San Manuel smelter will have a similar flux requirement in about a year when their new facility is operational.

8. OPERATIONS

The owner of the Cowboy Mine is an experienced small miner, having operated small mines in Arizona for his own account for the past twenty plus years.

He is willing to enter into a joint venture agreement whereby he would operate the mine and another venturer would put up the capital. He is willing to reduce his share of the profits until the other venturer recovers all capital invested. He is also willing to consider other proposals for dealing the property.

The mine operation would involve underground mining of the vein. The broken ore would be crushed and screened in closed circuit to produce minus ten mesh material for shipment to the smelter by independent contract hauler.

9. CONCLUSION

The Cowboy Mine has a history of production of a relatively small amount of gold from the mined portions of the North Vein. That the system contains gold and that there are locally very high grade ore shoots is quite well established. Whether or not the entire vein could sustain a profitable mining operation has not been established.

The ore controls and the mode of emplacement, etc. have not been studied. A great of geological and development work remains to be done on the Cowboy and adjacent properties before any conclusions about the possibility of establishing a mining operation can be made.

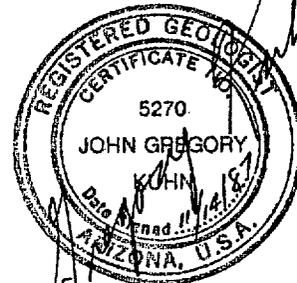
The mine has not been available for promotion in the past and therefore it has not been "shopped" extensively. It offers a relatively virgin area newly made available for development. No major has looked at the property in the past.

The Cowboy Mine's proximity to the ASARCO smelter and its indicated worth as flux ore which might be in demand by ASARCO, and possibly eventually San Manuel, is a big plus. This reduces the need for expensive capital plant and higher operating costs. If the high silica flux ore with precious metal and copper credits can be developed, capital requirements to place the mine in operation should be nominal. This is not to say that a milling operation to produce bullion is not possible, only that there are many advantages to shipping to a smelter on a flux contract. The gold apparently is quite coarse and this fact, plus the fact it is in close association with manganese oxide, indicates that cyanide leaching would probably not yield good recoveries and any plant should probably be a gravity type operation.

10. REFERENCES

1. McGraw, C.W., 1939, Mine Owner's Report, Cowboy Mines: Unpublished report to Arizona Department of Mineral Resources.

John G. Kuhn Geologists, Inc.
Box 159
Kearney, AZ 85237
602/363-5326



Received Jan. 5, 1988

The Cow Boy Mines are located in the East 1/2 of Section 31, in Township 3, South of Range 15 East in the Dripping Springs Mining District in Gila County, Arizona, about 24 miles south of Globe, 17 miles north and west of Winkelman, 10 miles west of Christmas, a station on Southern Pacific Railroad. It consists of six unpatented mining claims, an area of about 115 acres.

The country rock consists of lime quartzite cut by quartzdiorite, porphyry and diabase. Two well defined fissure veins extend nearly east and west the length of the property, or about 3000 feet, and numerous cross veins connecting the fissures.

The ores are gold, silver, lead, zinc and copper, gold predominating and high grade. A production of more than \$25,000.00 has been taken from shallow workings less than 50 feet from the surface.

About two car loads of lead has been shipped, which averaged about 30%. No other minerals have been produced in commercial quantities.

The gold occurs along a monzonite intrusion, and so far exploratory work has been done covering only about 1000 feet along the vein. The character of the ore may best be shown by some receipts from the United States Mint and Assay Certificates, some of which are as follows:

"Memorandum of Gold Bullion deposited at the Mint of the United States at San Francisco."

By		
C. W. McGraw		
Jan. 3rd, 1916,	Bar Weight 70.28 oz.	\$1179.76
By		
C. W. McGraw,		
Jan. 3rd, 1916	Bar Weight 56.84 oz.	938.29
By		
C. W. McGraw,		
Sept. 15, 1916	2 Bars Weight 48.45 oz.	785.94
By		
C. W. McGraw,		
June 22, 1917	Bar Weight 33.73 oz.	562.12
By		
C. W. McGraw,		
June 22, 1917	Bar Weight 4.53 oz.	72.30
By		
C. W. McGraw		
June 21, 1919	Bar Weight 70.72 oz.	1193.00

Many other sales of gold made are not herein reported, receipts having been lost.

ASSAY CERTIFICATES
DENVER SCHOOL OF MINES

Sample No. 1	Gold	\$6.20	Silver	.65	\$ 6.85
" " 2	"	2239.50		31.80	2271.40
" " 3		8.27		.11	8.38

J. D. SELL.

Jim.

Here with the data
on the Cowboy Mines

ASARGO Incorporated

NOV 13 1987

SW Exploration

SAL

Nov. 5, 1914, Assay Certificate by Baverstock, Staples & Payne,
Los Angeles, Cal.

Sample No. 1	Gold and Silver	- - - - -	\$ 102.55
Sample No. 2	" "		97.60
Sample No. 3	" "		99.65

Nov. 7, 1914			
Sample No. 1	Gold and Silver		\$ 562.25
Sample No. 2	" "		560.19

June 5, 1912 Baverstock & Payne, Select Sample			
Sample No. 1	Gold	\$74,587.36)	
	Silver	879.00)	\$75,466.36

Dec. 29, 1915, Baverstock & Payne				
Sample No. 1	Gold	\$74.40	Silver 1.50	\$ 75.90
Sample No. 2	Gold	\$75.25	Silver 1.50	\$ 76.75

Oct. 29, 1913, Baverstock & Payne				
Sample No. 1	Gold	\$25.20	Silver - trace	\$ 25.20
Sample No. 2	Gold	19.00	Silver - trace	19.00

June 14, 1915, Baverstock & Payne				
Sample No. 1	Gold	\$169.05	Silver \$1.40	\$ 170.45

Many Assay Certificates showing small values are not shown here. All gold ore deposits of commercial value have been found in one fissure vein in and near Monzonite in lime and diabase, and consists of iron Manganese and quartz. Gold is free milling, coarse and easily recovered.

Prospecting and panning ores found in other veins shows same character of ore and free gold.

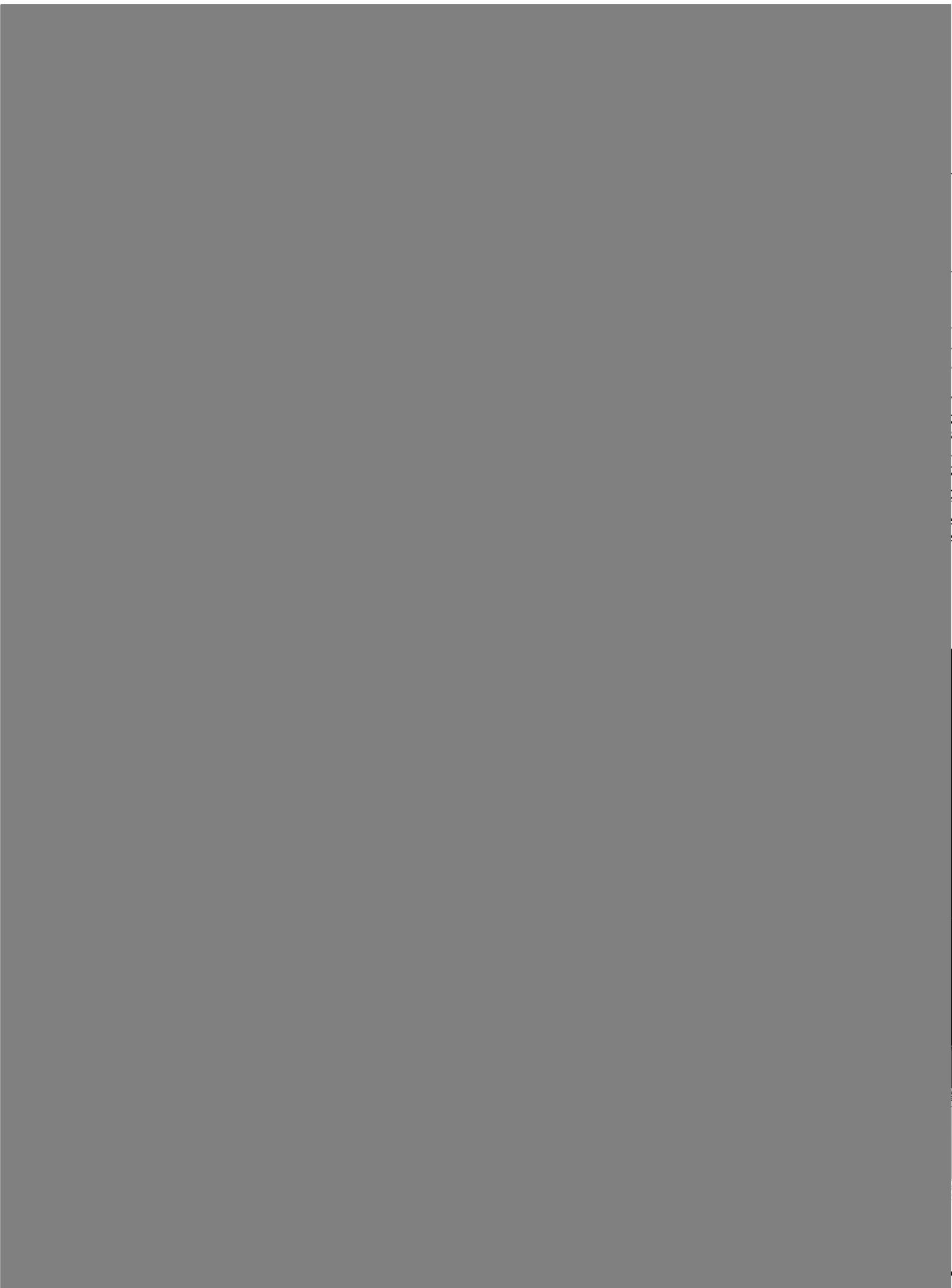
About 500 feet of development work has been done, consisting of shafts, tunnels, drifts and open cuts. One shaft double compartment 50 feet deep, head frame and timbered; one tunnel 250 feet with track and car. A mill of small capacity has been built, a 50-ton breaker, a grinder, one concentrating table, 2 gas engines; Blacksmith shop, hammers and drills, picks, and shovels, wheel barrows, all necessary tools for hand work. Two good camp houses, cooking utensils, beds, etc., to accommodate small crew of men.

A passable road has been built from the mine to the public highway traversing Dripping Springs Valley, which gives good easy travel to all points in Central Arizona.

Any further information may be had by addressing

C. W. McGraw,
5522 Carleton Way,
Los Angeles, Calif.

ASARCO Incorporated
NOV 13 1987
SW Exploration



August 10, 1988

FILE NOTE

Velasco Claims
East of Chilito Deposit
Gila County, AZ

Mr. Bob Holt, Tucson, phone 602/575-2792, called to say that he was in possession of a company's assay data in the Abrigo skarn on the approximate 170 claim area east of the Asarco (Ray Mines) Chilito deposit, which show anomalous gold values. The company wanted 20 million tons at 0.15 ounces/ton gold and though that might be available as an underground target, they were not interested in underground operations.

I referred Bob to Sal Anzalone as it is within the Ray Mines area of operations.

I request H.G. Kreis to follow-up, after his vacation time, by contacting Sal to see their interest and if Sal secured the data. If Sal has not, then Hank should re-contact Bob Holt to acquire any information possible.

JDS:mek

James D. Sell /mek
James D. Sell

cc: W.L. Kurtz
H.G. Kreis

ASARCO

Keystone Mine
Gila Co., AZ

JDS

Exploration Department
Southwestern United States Division
James D. Sell
Manager

February 12, 1990

Mr. Harold Downey
1803 E. 10th St.
Tucson, AZ 85719

Dear Harold:

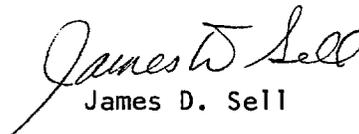
Al Kinnison brought by a packet of stuff on the Keyston mine, and in the back was a three page sheet saying return to Downey.

I believe part of the material had been gathered by John E. Kinnison as he was trying to bring the Keystone back into public view.

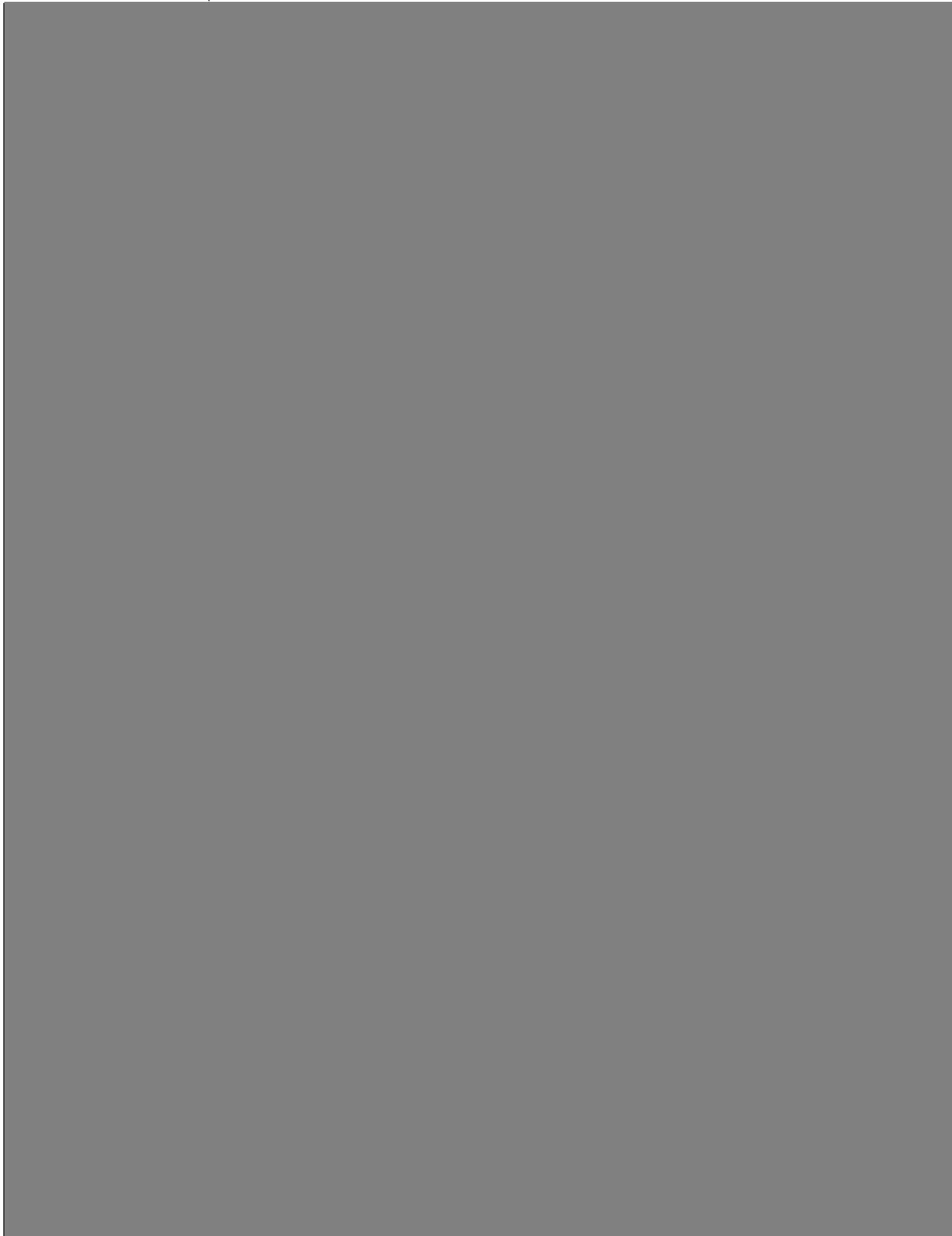
I've taken the liberty of copying all that was in the folder and sending you the originals as I feel he probably borrowed most of it from you.

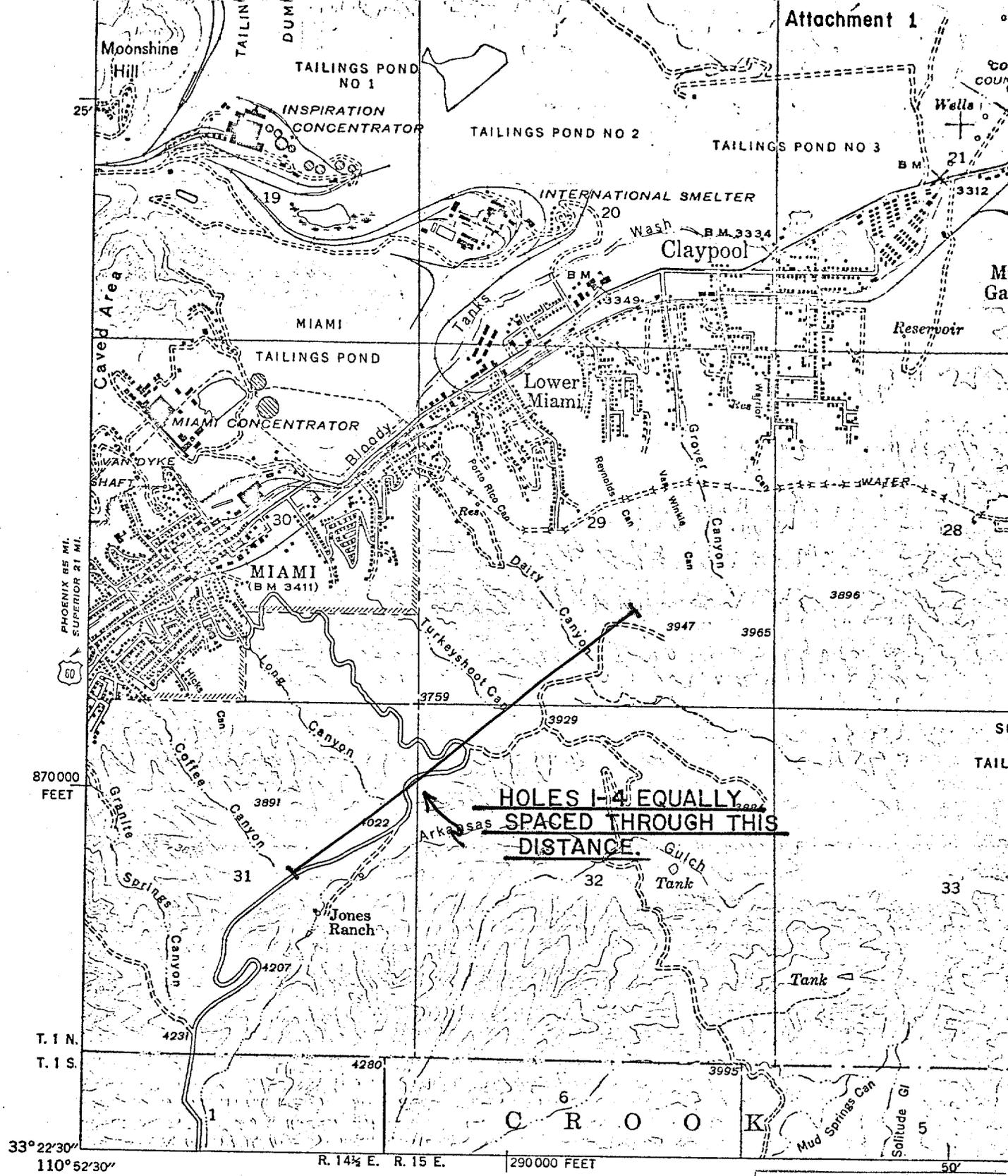
Thanks for the input.

Sincerely,


James D. Sell

JDS:mek



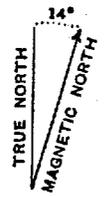


(Globe)
1:62,500

Mapped by the Geological Survey
1945

Gray tint indicates area in which
only landmark buildings are shown

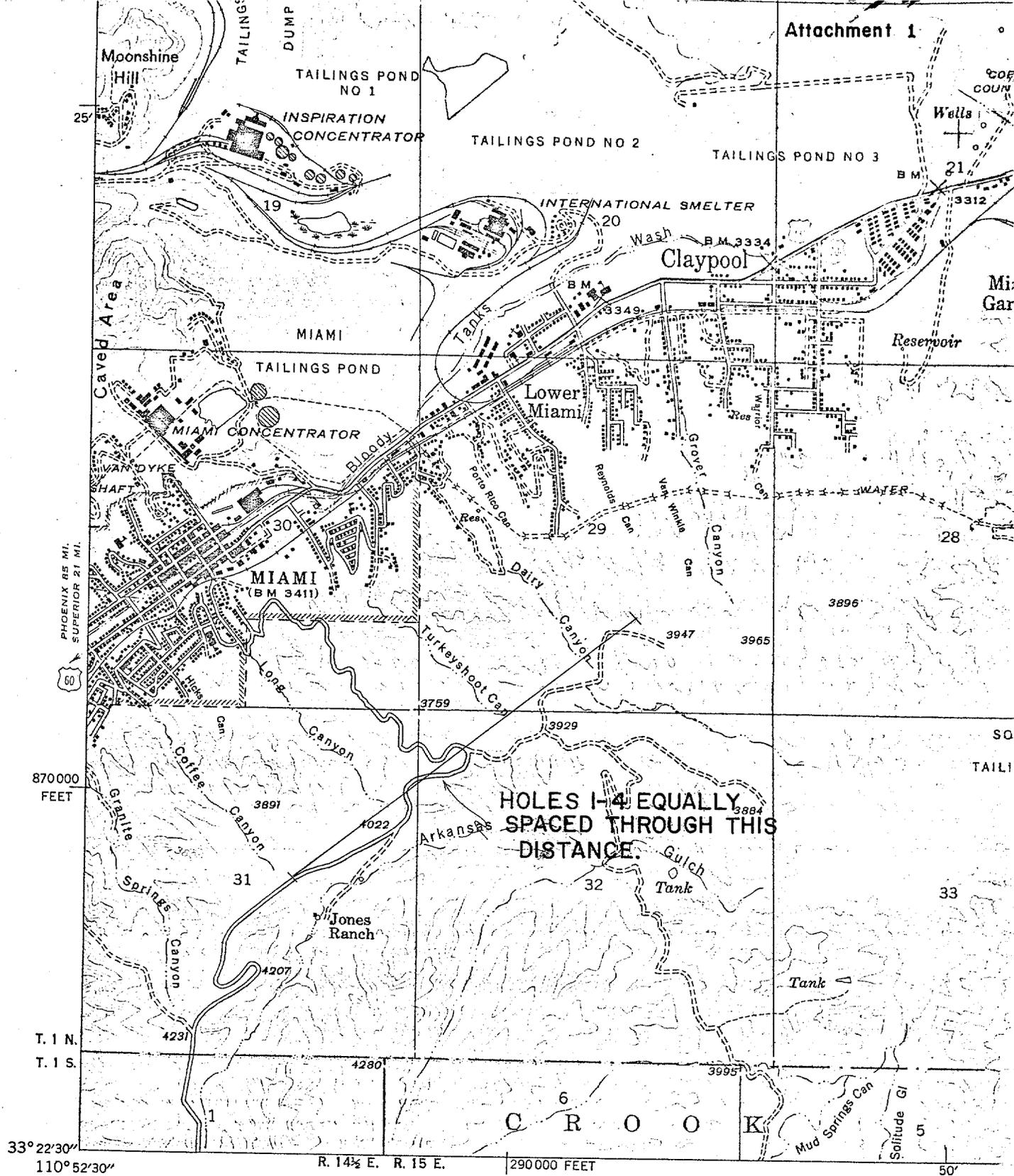
ROAD CLASSIFICATION		
19-47		
Dependable hard surface	—————	Dry weather roads
heavy duty road	—————	Loose surface graded
Secondary hard surface	—————	Unsurfaced, graded
all weather road	—————	Dirt road
More than two lanes indicated along road with tick at point of change		State Route 26
		U S Route 15
		State Route 26



APPROXIMATE MEAN
DECLINATION, 1946

TO ACCOMPANY *Memo*
DATED _____
BY *R. B. Cummings*

AIMCO DRILL HOLES MIAMI DISTRICT

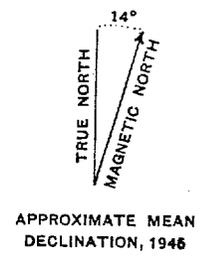


(Globe)
1:62,500

Mapped by the Geological Survey
1945

Gray tint indicates area in which
only landmark buildings are shown

ROAD CLASSIFICATION 1947		
Dependable hard surface	Dry weather roads	U. S. Route 15
heavy-duty road	Loose-surface graded	
Secondary hard surface	Unsurfaced, graded	
all weather road	Dirt road	Slate Route 26
More than two lanes indicated along road with tick at point of change		



**AIMCO DRILL HOLES
MIAMI DISTRICT**
R.B.Cummings Nov. 1971