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March 16, 1975

TWM	<i>Jan</i>
JEK	✓
DMM	✓

Mr. M. B. Mehrtens, Manager
 Rioamex
 Petroleum Club Bldg., Suite 565
 110 Sixteenth Street
 Denver, Colorado 80202

Dear Mike:

The attached report by John Kinnison sets forth the salient facts concerning the Sanchez property controlled by Inspiration Copper. I have reviewed John's excellent summary and am in complete agreement with the conclusions drawn on page eight of his report.

If there is serious interest on Rio's part the joint venture approach, which Inspiration appears willing to consider, could be the route to take. Depending on Rio's forecast of the price of copper over the next 15 years, the present depressed state of the market probably makes this a good time to approach a project of this nature.

If CF&I does not acquire Inspiration via their tender offer our first step, as suggested by Kinnison, should be to have the economics of the project updated. This could be done by Jack Still as suggested or, alternatively, by Rio's mining staff. If after this there is continuing interest, Inspiration should be approached in order to ascertain the probable terms of participation and the possibility of reducing the Carpenter et al. royalty which amounts to 7% at 70 cent copper.

*No
0.7%*

Sincerely,

PANGEA RESOURCES, INC.

EXPLORATION MANAGERS, GEOLOGIC & MINING CONSULTANTS

2002 N. FORBES BLVD., SUITE 101
TUCSON, ARIZONA 85705
(602) 623-6316

March 7, 1975

Mr. A. D. Wandke, President
Pangea Resources, Inc.
7 Carriage Drive
Stamford, CT 06902

Sanchez Copper Property
Graham County, AZ

Dear Sir:

An excellent preliminary analysis of subject property is presented in the attached report (3-2-75) and its supplemental memorandum (3-7-75) by John Kinnison. The property is held by the Inspiration Consolidated Copper Company which, incidentally, is now seriously under a take-over threat by the CF&I Steel Corporation.

By closely spaced drilling, a deposit containing 116 million tons of 0.37% oxide Cu has been outlined on the property as a pitable reserve, with a waste/ore ratio of 1.78/1. Also, sulfide reserves are estimated to be 52.7 million tons containing 0.45% Cu. Further, a fairly good exploration potential is indicated.

Although favorable metallurgical tests and outcome computations are suggested by work to date, uncertainties make further engineering studies mandatory. Copies of a metallurgical report by Hazen Research Inc. and a cost analysis by Pincock, Allen & Holt Inc. are to be forwarded to us by Inspiration. The next step suggested for us is to have these reviewed by qualified consultants.

Inspiration would like repayment, entirely or in part, for its investment to date (\$5 million)--or, as we were informed only this morning, it may consider joint venture.

Very truly yours,



Thomas W. Mitcham
Exploration Manager

TWM/mk
Attachment

PROPERTY & PROSPECT REPORT

TO ACCOMPANY LETTER
 REPORT REVIEWER COMMENT: **BY THOMAS W. MITCHAM**
 DATE 3-7-75

PROPERTY, COMMODITY SANCHEZ COPPER DEPOSIT
 COUNTY, STATE Graham County, AZ
 DATE 3/2/75 BY John E. Kinnison

Examination Data Review

SUMMARY, CONCLUSIONS, ACTIONS RECOMMENDED At a mining rate of 20,000 tpd for 16 years, indicated DCF ROR plus 15% on \$31 Mill capital. Recommend initial appraisal of data by consultant J. W. Still. If Still's review presents an attractive picture financially, complete examination and planning would follow.

SCOPE (TIME, DATES, REASONS FOR EXAM.) Meeting with Jack Kuhns and Jack Eastlick at Inspiration offices in Miami, AZ.

LOCATION & ACCESSIBILITY Ten miles east of Safford, just north of Sanchez School on the Gila River. Deposit is plotted on the Safford area geologic map transmitted with report by Kinnison on Towne Mines property, 1/6/75.

OWNERS & INTERMEDIARIES, ADDRESS, PHONE Inspiration Consolidated Copper Company holds options from private owners. Inspiration contact is Jack Kuhns, 473-2411.

PROPERTY DESCRIPTION, STATUS Federal Mining Claims, minor state lease holdings.

TERMS Lease from Inspiration, with NSR royalty in perpetuity, amount to be negotiated. Purchase of part or all of Inspiration's \$5 Mill investment in land and exploration.

HISTORY (PROD. DATA, DEVELOP., EXPLORATION) Drilling by United Nuclear in early 60's and by Ranchers in late 60's. Acquired by Inspiration in 1969 and further explored. See Inspiration reports attached.

TOPOGRAPHY, WATER, POWER, TIMBER, LABOR, ETC. South edge of Gila Mts. north of Gila River. All facilities available without difficulty, with exception of water, which will require further development. See Inspiration reports attached.

GENERAL GEOLOGY* Monzonite porphyry stock intrudes Cretaceous andesite. See additional description attached.

MINERALIZATION* Oxide zone \pm 1000 feet deep, overlying sulfides. Disseminated; porphyry copper deposit. See additional description attached.

METALLURGY Leaching. See attached discussion.

RESERVES 116 Mill tons @ .37% Cu in oxide zone. Sulfide zone not fully explored.

EXPLORATION & DEVELOPMENT RECOMMENDED, COST & TIME This property, if considered attractive on basis of initial consultant's review, would entail full-scale investigation requiring several months. Cost estimates not made.

ATTACHMENTS: Supplemental memo

*ATTACH GEOLOGIC MAP, SKETCH OR OTHERWISE, INCLUDING EXAMINER'S OBSERVATIONS WITH EMPHASIS ON MINERALIZATION AND ALTERATION AND THEIR RELATIONSHIPS TO OTHER GEOLOGICAL FEATURES. OTHER DESIRABLE ATTACHMENTS: INDEX MAP, PROPERTY MAP, SAMPLE RESULTS, ETC.

PANGEA RESOURCES, INC.

EXPLORATION MANAGERS, GEOLOGIC & MINING CONSULTANTS

2002 N. FORBES BLVD., SUITE 101
TUCSON, ARIZONA 85705
(602) 623-6316

March 7, 1975

MEMO TO: Thomas W. Mitcham

FROM: John E. Kinnison

SUBJECT: Sanchez Copper Deposit, preliminary appraisal
Graham County, AZ

TO ACCOMPANY LETTER
BY THOMAS W. MITCHAM

DATE 3-7-75

GENERAL

Sanchez is a porphyry copper deposit, located about 10 miles ENE of Safford (Attachment A). The location is also shown on the regional geologic map of the Safford district which accompanied my report on the Towne Mines property of 1-6-75. The following is supplemental to and intended to accompany the transmittal property and prospect report form.

The data herein presented were derived from a one day visit to the Inspiration offices at Miami, on February 26. During this initial contact, I spoke with Mr. Jack Kuhns, who is in charge of outside properties, and with Jack Eastlick, who heads up the engineering office. Should we proceed with further examination, reproductions of pertinent data from the map files at Miami can be made available to us for use in Tucson. Computer data are stored at Computing Associates in Tucson. Most of the basic information is in Miami, but the original logs, assay sheets, and core are stored in the company office at the property.

Attachments

- A. Index map
- B. Cross section through ore zone
- C. Primary sulfide reserve
- D. Oxide Pit; operating data and outcome
- E. Outcome calculation (work sheets)
- F. Summary report by Inspiration
- G. Geologic report by Inspiration

GEOLOGY

By reference to the Safford regional geologic map, mentioned above, it will be seen that the Sanchez deposit occupies the southeastern edge of the known zone of alteration/mineralization, which extends from Sanchez northwest towards the Phelps Dodge deposit. The host rocks consist of Cretaceous andesite correlated with the Silverbell formation, and of intrusive monzonite and quartz monzonite porphyries. The central intrusive is about 500 feet in diameter and, as interpreted by drilling, extends in depth as an essentially vertical "pipe-like" mass.

One breccia pipe a few hundred feet in diameter has been mapped, as well as breccia dikes.

Mineralization at higher levels consists of an oxidized zone, 800-1000 feet deep. The basal part of this zone merges into a zone of mixed oxides and sulfides, together with some native copper. Primary sulfides underlie the mixed zone, and extend as far as the deepest drill holes. A generalized cross section through the ore zone is given by Attachment B.

The oxidized zone consists primarily of chrysocolla and tenorite, whereas the sulfide zone consists principally of chalcopryrite, bornite, and pyrite.

I do not yet have a good picture of structural control within the ore zone. Many of the early United Nuclear diamond drill holes are badly deflected, all bearing parallel in a southeast direction, which suggests that a uniform fracture pattern may be present to account for these remarkably parallel drilling deflections.

The northern part of the deposit crops out at the surface, whereas the southern part is submerged beneath a shallow layer (up to 200 feet) of alluvium. Oxide ore values begin at the surface or at the suboutcrop. Andesite is evidently the most favorable host, and the porphyry less so. I noticed, however, many drill hole sections of typical ore grade (.3-.5% Cu) within the monzonite.

EXPLORATION POTENTIAL

Drill holes within the oxide zone are closely spaced (± 100 ft.), and the zone is well delineated laterally. There is, therefore, little chance for additional tonnage to be developed adjoining the known oxide deposit. There is insufficient drilling,

however, to delineate the sulfide zone and its possible extensions. The sulfides may be considered to be "open", particularly to the south and southwest. A small, isolated mineralized outcrop of quartz monzonite has been mapped $\frac{1}{2}$ mile SSW of the presently known oxide deposit, and Eastlick informs me that this outcrop "carries .4% Cu". Also on the SW, 1300 ft. from the center of the oxide deposit, drill hole 467 intersected chalcocite at the 2400 level (1000 feet deep), which ran .8% Cu. Similar grades of copper were encountered in this drill hole for at least several benches in depth below the 2400. Eastlick believes that this represents an unexplored chalcocite blanket, although Inspiration geologists believe that it may be primary chalcocite. In any event, the south and southwest quadrants from the known ore zone appear to offer a chance for further successful exploration.

The deeper holes beneath the oxide deposit do not suggest an increase of grade with depth in the sulfide zone. However, to the southeast one deep hole has penetrated better values containing chalcocite and bornite, and may indicate a vertical zoning change in mineralization in that area.

Based on limited drill hole data, a very conservative sulfide reserve totalling 52 mill tons and grading .45% Cu has been recently worked up by Inspiration personnel (Attachment C). Molybdenum is negligible, but gold and silver are estimated at .007 and .085 oz/ton respectively.

The chances seem excellent that this reserve could be considerably enlarged by more drilling, although the grades so far disclosed seem too low for block caving.

TERMS

Inspiration holds the federal mining claims which cover the oxide orebody by option from private individuals (principally Carpenter), and are obligated to pay a royalty of .5¢/#Cu with a minimum \$100,000 per year. United Nuclear no longer has an interest in the property.

Inspiration has calculated their equity in the property to be approximately \$5 million, invested in land payments, drilling, and feasibility studies. In addition to regaining part or all of this equity, they wish to lease the property on a perpetual NSR royalty basis, the exact amount of which remains to be negotiated. Although an agreement might be reached whereby a short period of exclusive free time (1-2 months?) might be allowed for the preliminary handling and evaluation of data, Inspiration clearly wishes a sizable front payment early in the

game. We, of course, may have access to all data on a non-exclusive basis in preparation to such an agreement. I am informed that Bear Creek and one or two other companies are currently making a "low-key" examination of information on a similar non-exclusive basis.

THE OXIDE PIT

At this time, Inspiration is listing two principle ore reserves, of which they consider # 2 to be the most favorable.

	<u>ORE</u>	<u>WASTE RATIO</u>
Design 1	79,363,000 Tons @ 0.36% Copper	1.49:1
Design 2	116,000,000 Tons @ 0.37% Copper	1.78:1

The pit designed for the 116 mill ton reserve is approximately 800 feet deep and 2500-3000 feet in diameter at the surface. Production costs for the pit have been calculated on the basis of 20,000 tons per day which will yield a life of 16 years and will produce 600 mill #Cu.

Computerized reserve calculations were first initiated in 1969 by Computech, and recently updated by their successor, Computing Associates (Dick Bideaux's group). Pit design has been by Pincock, Allen, and Holt. Both groups are based in Tucson.

Following rather extensive laboratory and on-site testing, it is proposed by Inspiration that the Mangula system of leaching in batches on concrete pads is the most successful. Ordinary heap leaching such as practiced at Ox Hide or Bluebird was less successful, since the rock tended to disintegrate producing clays which blocked circulation. The Mangula system has been tested at the property, on ore mined underground from the Carpenter shaft, by a series of small batch tests, scaled up to a single 5,000 ton test. Recoveries from these on-site leaching runs ranged from 60-63%; fines were discarded for these tests, and the Inspiration people believe that the recovery would be improved in practice when the fines were treated by agglomeration. Last year Hazen Laboratories conducted additional bench tests, yielding a 70% recovery, and this is believed to compare favorably with the projected recovery based on the on-site tests. Acid consumption is estimated to be 11#Acid/#Cu. Leach solutions would be processed through an electrowinning plant to produce cathode copper.

The land situation appears good, except possibly on the south. In all, approximately eight sections of land are under control,

principally as federal claims. One state commercial lease occupies half a section. Land holdings terminate on the south approximately at the Sanchez School road and the beginning of cultivated farm land, and it may be desirable to purchase an additional two sections of land between the present Inspiration south perimeter and the Gila River.

ECONOMIC ANALYSIS

Inspiration and Union Pacific undertook a feasibility study as a prelude to operating as a joint venture, which fell through on the details of participation. Jack W. Still undertook, for Union Pacific, the financial and cost workup, and at the same time Pincock and Allen, with Computing Associates, updated the ore reserve and pit design to include additional drill holes by Union. Hazen Laboratories undertook further leaching studies.

Still's analysis was based on these newest reserves and pit plans, and incorporated Hazen's 70% leach recovery. His workup of operating costs reduced to 41.8¢/#Cu produced, which in addition to all mining and leaching costs, included refining, local taxes, insurance, freight, marketing, and royalty to owners. His capital costs were estimated at \$31.159 mill initial costs, and \$21 mill equipment replacement. Acid was estimated at \$10/ton and fuel oil at 35¢/gal. Using these parameters, his outcome was calculated as follows:

68¢ Cu:	15%	return	on	investment
65¢ Cu:	13.2%	"	"	"
62¢ Cu:	10.6%	"	"	"

It would not be possible, without more details on the method of handling depreciation of replacement capital, and of the method of financing, to closely check these figures. I have, however, for purposes of rough comparison, prepared the outcome given by Attachment D. Depreciation of annual equipment costs was assumed to begin in the 3rd year and to taper off in the 14th, giving an approximate average for the 6-16th year of \$1.9 mill annually, as shown. Equity financing of capital investment is assumed. Initial investment was allowed to earn 10% during the construction, pre-mine period.

Without consideration of royalty and purchase of Inspiration's equity, the results are clearly attractive, providing the mining costs prove to be correct. Returns (Attachment D) as here calculated are:

<u>Cu</u>	<u>CASH FLOW</u>	<u>DCF ROR</u>	<u>PAY BACK</u>
70¢	\$7.8 Mill to 5 yr) 6.9 Mill to 16 yr) <u>14.7</u>	19.5%	4 yrs.
75¢	\$8.9 Mill to 5 yr) 8.0 Mill to 16 yr) <u>16.9</u>	27%	3.5 yrs.

I should stress that these figures are based on the simplest assumptions, and are intended only as general guides to determine our next step. Although I did not make the complete calculation, a simple graph and interpolation shows that 68¢ Cu would yield about 16½%, using my outcome parameters--which is somewhat higher (+1.5%) than that calculated by Still. Further, if improvement of capital at 15% was allowed during the construction period, the DCF ROR at 68¢ Cu would be 15%, which is the same return as that derived by Still.

The method of repayment of investment to Inspiration, and of royalty to be negotiated, will change the return considerably. For purposes of guiding discussion, I have estimated the impact of possible plans in terms of its effect on the effective price of copper.

If royalty is to be paid on equivalent NSR, then we can estimate equivalent freight and smelting charges at, say, 28% of sales price.

Thus, at 70¢ Cu:

(70¢ x .72 x .03)	3% Royalty = 1.5¢/#Cu
	4% Royalty = 2.0¢/#Cu
	5% Royalty = 2.5¢/#Cu

The handling of Inspiration's investment will vary, depending on how it is to be paid. If the total \$5 mill equity were repaid as a capital cost at the beginning of operation, interpolation of ratios which can be derived from my work sheet showing ROR calculations roughly indicates that this would be equivalent to lowering the price of copper 2.4¢/#. If something similar to an installment loan (diminishing annuity) were negotiated (as shown by Attachment E, pg. 2), using a safe rate of 8% and repayment by 16 equal annual installments, it would be equivalent to 1.5¢/#Cu.

Using the above as guidelines, settlement with Inspiration could range between 3.0¢ and 4.9¢/#Cu, with a median of 4¢.

If 68¢/#Cu is considered as a nominal base for a 15-16% return, then a †72¢ forecast price would be necessary to accommodate the Inspiration interest.

DISCUSSION

The Sanchez deposit is obviously interesting, possibly attractive, but it is fraught with many uncertainties.

I view the exploration potential as good, and this alone would be worth considerable further investment. However, Inspiration is looking for production returns in a short length of time, and to this end they are pushing the oxide pit potential. It appears improbable that we could obtain the property, even with considerable downpayment, with the idea of first conducting an extensive exploration program to better determine the full potential of the property.

An additional problem, not heretofore mentioned in this memo, is pending. CF&I is attempting to acquire Inspiration, and if this maneuver proves successful, the property could be removed from the market. CF&I has acquired about 5% of Inspiration stock, and has taken the steps to make a tender offer for the remaining shares. The deadline for this offer is March 15. The move is regarded as a serious threat by the Inspiration personnel, and the outcome is uncertain. Anaconda has not yet made known what stand it will take on this issue (Anaconda owns approximately 25% Inspiration stock). This action could take months to resolve, particularly if court action is taken. It is possible, therefore, that we might be able to obtain a commitment which would bind the property prior to the CF&I takeover--should this occur.

The principal shortcoming of the Sanchez deposit is its low grade, although this is partly offset by the character of the ore--which is amenable to leaching rather than the more costly route of milling and smelting. Notwithstanding, such a deposit necessitates a closely controlled, very neat and tidy operation; there is no margin for inefficiency or miscalculations in projected cost estimates. Such deposits are obviously more susceptible to adverse effects of depressed copper cycles than are the other, higher grade Arizona copper deposits.

It would seem that this is a particularly poor time in which to place such a deposit on stream, because the short term outlook suggests that inflation and accelerating fuel costs may outrun the copper market, which is currently depressed.

March 7, 1975

I would stress, however, that this moderate sized porphyry copper deposit appears to show an acceptable return on investment, based on data available at this time. Chances for developing additional ore by further exploration may be classed as good. I suggest that these factors are sufficiently encouraging to warrant a first step: information gathering.

I would, therefore, suggest that Jack Still, who has previously worked on the deposit, be retained as a consultant to make a summary review of all the factors affecting mining plans and financial analysis, and that he should allow for an estimated increase in construction and operating costs which will accrue during the next 2 years. With these details in possession, Rio Algom may then make an informed decision regarding the property. We may also wish to ask an independent metallurgical consultant to review and appraise the previous test work.

If, as an outgrowth of the preliminary evaluations suggested above, Rio Algom then believes the property is worth the expenditure and time of a full scale property examination, this can be undertaken. An examination of this type, if it is to be done in a reasonable time, in addition to requiring extra short term help for Pangea, also calls for the services of one of the major design and planning firms, such as Utah Construction.

JEK

JEK/mk
Attachs.

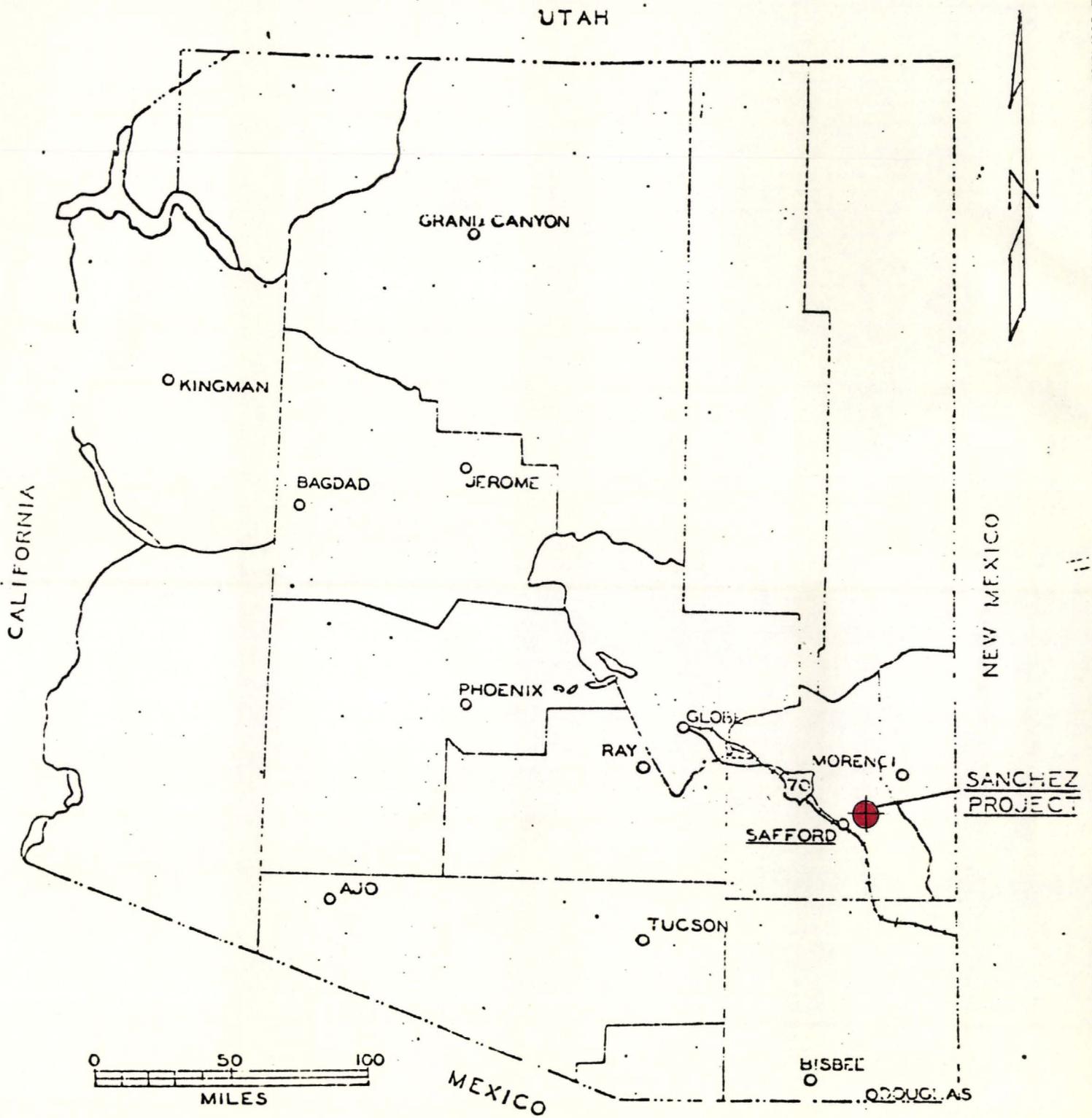
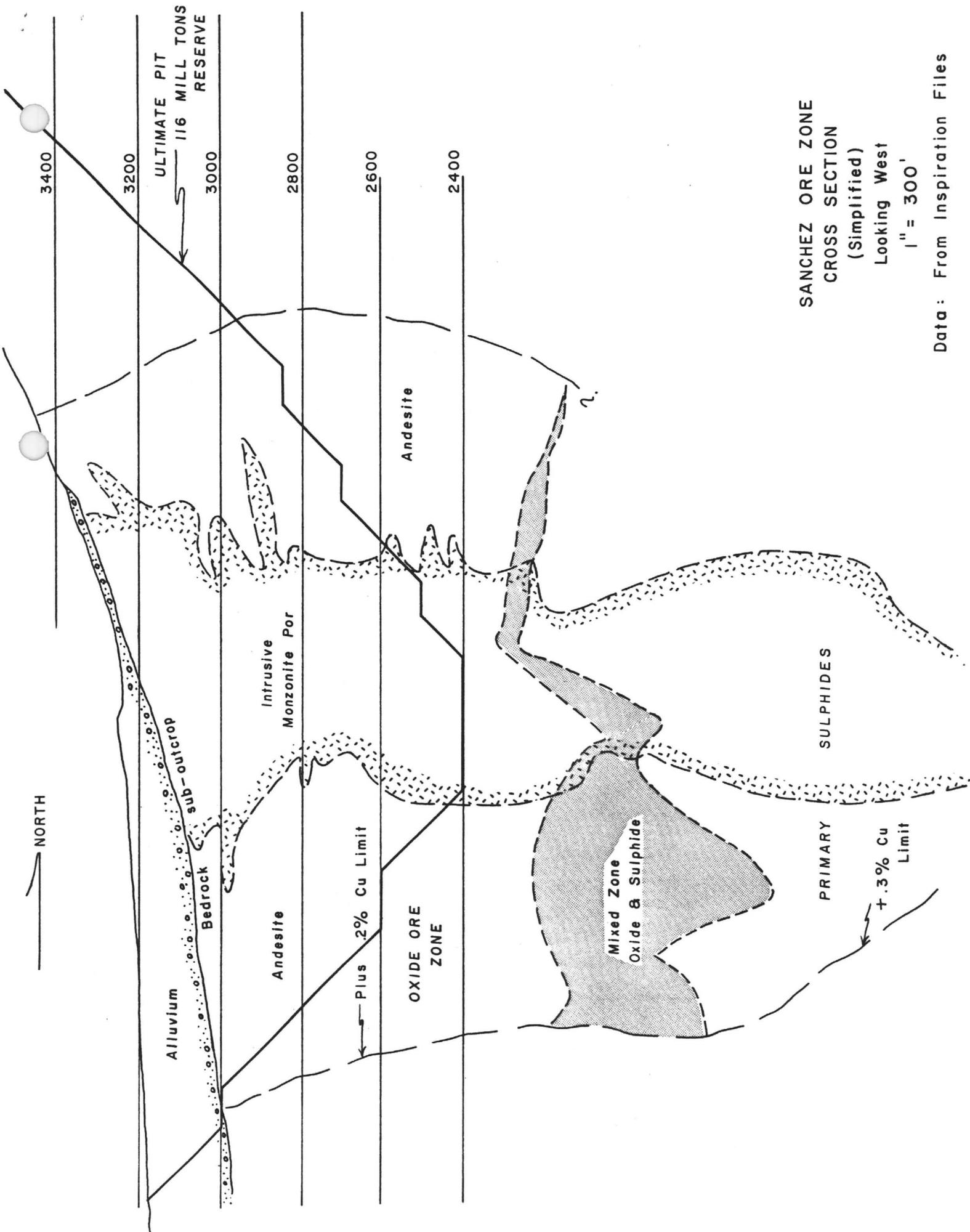


FIGURE NO. 1
 INDEX MAP SHOWING THE LOCATION
 OF THE
 SANCHEZ PROJECT



SANCHEZ ORE ZONE
 CROSS SECTION
 (Simplified)
 Looking West
 1" = 300'

Data: From Inspiration Files

SANCHEZ SULFIDES ONLY

BENCH	0.30-0.40	GRADE	0.40-0.60	GRADE	0.60-0.80	GRADE	0.80+	GRADE	
2600	0.08	0.39	0.75	0.50	0.13	0.63			
	3,333.36		31,250.25		5,416.71				40,000.66 @ 0.508
2550	0.19	0.38	0.74	0.48	0.50	0.70	2.46	2.08	
	7,916.73		30,833.58		20,833.50		102,500.82		162,084.13 @ 1.515
2500	0.20	0.35	0.40	0.53	0.44	0.67	2.99	1.30	
	8,333.40		16,666.80		18,333.48		124,584.33		167,918.01 @ 1.107
2450	0.94	0.35	2.61	0.47	0.78	0.66	2.86	1.43	
	39,166.98		108,750.87		32,500.26		119,167.62		299,585.73 @ 0.856
2400	3.72	0.34	4.03	0.47	3.16	0.69	0.75	1.10	
	155,001.24		167,918.01		131,667.72		31,250.25		485,837.22 @ 0.528
2350	1.78	0.32	5.56	0.50	2.38	0.68	2.08	1.15	
	74,167.26		231,668.52		99,167.46		86,667.36		491,670.60 @ 0.623
2300	4.56	0.32	6.86	0.46	4.07	0.65	2.37	1.15	
	190,001.52		295,835.62		169,584.69		98,750.79		744,172.62 @ 0.559
2250	13.10	0.38	1.05	0.46	4.47	0.64	1.00	0.95	
	545,837.70		43,750.35		186,251.49		41,667.00		817,506.54 @ 0.472
2200	15.48	0.33	16.89	0.44	1.67	0.62			
	645,005.16		703,755.63		69,583.89				1,418,344.68 @ 0.398
2150	25.20	0.32	18.96	0.52	12.44	0.72	1.28	0.83	
	1,050,008.40		790,006.32		518,337.48		53,333.76		2,411,685.96 @ 0.482
2100	26.88	0.34	31.68	0.52	7.20	0.68	0.08	0.80	
	1,120,008.96		1,320,010.56		300,002.40		3,333.36		2,743,355.28 @ 0.464
2050	24.60	0.35	27.72	0.49	11.28	0.71	4.96	0.91	
	1,025,008.20		1,155,009.24		470,003.76		206,668.32		2,956,689.52 @ 0.508
2000	50.72	0.33	34.52	0.49	8.20	0.70	0.76	0.86	
	2,113,310.24		1,438,344.84		341,669.40		31,666.92		3,925,031.40 @ 0.425
1950	25.96	0.33	29.20	0.47	3.24	0.60	3.40	0.92	
	1,915,015.32		1,216,676.40		135,001.08		141,667.80		3,408,360.60 @ 0.415
1900	57.52	0.36	41.56	0.48	0.12	0.62			
	2,376,685.84		1,731,680.52		5,000.04				4,133,366.40 @ 0.41
1850	31.28	0.32	39.16	0.46	3.88	0.55	0.01	0.80	
	1,403,344.56		1,631,679.72		162,084.63		416.67		3,197,525.58 @ 0.408
1800	41.51	0.32	18.34	0.45	3.24	0.65			
	1,729,597.17		764,172.78		135,001.08				2,628,771.03 @ 0.374
1750	29.88	0.34	4.12	0.44	7.08	0.69	1.48	0.89	
	1,245,009.96		171,668.04		295,002.36		61,667.16		1,713,347.52 @ 0.427
1700	23.16	0.36	18.80	0.48	6.00	0.69			
	965,007.72		783,339.60		250,002.00				1,998,349.32 @ 0.448
1650	41.12	0.36	19.44	0.46	3.96	0.66			
	1,713,347.04		810,006.48		165,001.32				2,688,354.84 @ 0.408
1600	13.24	0.36	20.76	0.51	11.40	0.64			
	551,671.02		965,006.92		475,003.80				1,891,681.80 @ 0.498
1550	21.60	0.36	32.88	0.48	4.28	0.63			
	900,001.70		1,370,010.96		178,334.76				2,448,352.92 @ 0.446
1500	23.84	0.34	30.28	0.50	1.80	0.70	0.24	0.84	
	973,341.28		1,261,676.76		75,000.60		10,000.08		2,340,018.72 @ 0.439
1450	15.44	0.34	16.64	0.46	4.36	0.65	0.08	0.81	
	643,338.48		683,338.88		131,668.12		3,333.36		1,521,678.84 @ 0.432

SANCHEZ SULFIDES

BENCH	0.30-0.40	GRADE	0.40-0.60	GRADE	0.60-0.80	GRADE	0.80+	GRADE
1400	10.92	0.34	15.04	0.48	3.44	0.67	0.08	0.82
	455,003.64		626,671.68		143,334.48		3,333.36	1,228,343.16 @ 0.451
1350	18.44	0.35	1.76	0.41				
	768,339.48		73,333.92					841,673.40 @ 0.355
1300	17.76	0.35	9.76	0.50	0.08	0.60		
	740,005.92		406,669.92		3,333.36			1,150,009.20 @ 0.403
1250	19.36	0.35	10.4	0.49	2.72	0.65	4.16	1.42
	806,673.12		436,670.16		113,334.24		173,334.72	1,530,012.24 @ 0.533
1200	5.72	0.35	9.08	0.46	1.84	0.64	4.80	1.10
	238,335.24		336,659.36		76,657.28		200,001.60	851,673.48 @ 0.595
1150	15.04	0.32	5.36	0.45	0.64	0.61		
	626,671.68		223,335.12		26,666.88			876,673.68 @ 0.361
1100	16.44	0.34	2.00	0.44				
	685,005.18		83,334.00					768,339.48 @ 0.35
1050	6.52	0.33	2.68	0.50	1.56	0.71	0.08	0.80
	271,668.91		108,334.20		65,000.52		3,333.36	448,333.92 @ 0.429
1000	3.76	0.33						
	156,667.92							156,667.92 @ 0.330
950	1.04	0.34	2.16	0.50	0.92	0.65		
	43,333.68		90,000.72		33,333.64			171,668.04 @ 0.493
900	1.60	0.34	1.28	0.43				
	66,667.20		53,333.76					120,000.96 @ 0.402

26,291,877.00 @ 0.341 20,061,410.49 @ 0.480 4,887,122.43 @ 0.673 1,496,678.64 @ 1.182

52,737,083.56 tons @ 0.448

waste/ore Ratio

Previous Oxide Tonnage	79,363,000	@ 0.36 Cu	1.49:1
oxide + sulfide	132,100,089	Tons	
Au @ 0.007 oz/T	924,700	ozs.	
Ag @ 0.085 oz/T	1,128,507	ozs	
Previous Oxide Tonnage	116,000,000	@ 0.37 Cu	1:78:1
oxide + sulfide	168,737,089	Tons	
Au @ 0.007 oz/T	1,181,159	ozs.	
Ag @ 0.085 oz/T	14,342,652	ozs	

SANCHEZ
Oxide Pit

*Ore Reserve: 116 Mill tons @ .37% Cu
 *Recovery by Mangula process leach, 70%
 *Production: 20,000 tpd ore
 Life of mine: 16 years

*Inspiration data

<u>Sales</u>	<u>70¢ Cu</u>	<u>75¢ Cu</u>
.37 x .70 x 20 = 5.18 #Cu/ton	\$3.62/ton	\$3.88/ton
less 2% sales tax	.07	.08
Net Sales	<u>\$3.55/ton</u>	<u>\$3.80/ton</u>
	\$25.6 mill/yr	\$27.4 mill/yr

Operating Costs (Still)

41.8¢/#Cu including freight, refining, and marketing		
41.8 x 5.18 =	\$2.12/ton	\$2.12/ton
Operating margin	\$1.43/ton	\$1.68/ton

Capital Costs (Still)

Initial investment	\$31 mill:	<u>0-5 yr</u>	<u>6-16 yr</u>
		\$1.9 mill/yr	\$1.9 mill/yr
Equipment replacement	\$21 mill:	--	<u>\$1.9 mill/yr</u>
	Totals	<u>\$1.9 mill/yr</u>	<u>\$3.8 mill/yr</u>

Financial Outcome--Data in Millions

	<u>70¢ Cu</u>		<u>75¢ Cu</u>	
	<u>0-5 yr</u>	<u>6-16 yr</u>	<u>0-5 yr</u>	<u>6-16 yr</u>
Operating margin	\$10.1/yr	\$10.1/yr	\$12.1	\$12.1
Depreciation (total)	(1.9)	(3.8)	(1.9)	(3.8)
Depletion	(15%) (3.8)	(15%) (3.8)	(15%) (4.1)	(15%) (4.1)
Taxable income	<u>4.4</u>	<u>2.5</u>	<u>6.1</u>	<u>4.2</u>
Fed income tax @ 52%	(2.3)	(1.3)	(3.2)	(2.2)
Operating margin	10.1	10.1	12.1	12.1
Income tax	2.3	1.3	3.2	2.2
Equip. cost	--	1.9	--	1.9
Cash flow	<u>\$ 7.8</u>	<u>\$ 6.9</u>	<u>\$ 8.9</u>	<u>\$ 8.0</u>

*DCF ROR 19.5%

*DCF ROR 27%

*On initial capital investment
 increased 1.5 yrs @ 10% to \$35.7 Mill

JEK
3/1/75

JEK/mk

ATTACHMENT D

SANCHEZ

Discounted Cash flow
Work Sheet

704 (u)

Try 18%

$$0-5 \text{ yr (5yr)} \quad 7.8 \text{ M.11} \times 3.127 = \$ 24.4 \text{ M.11 VP @ 0yr}$$

$$6-16 \quad (11 \text{ yr}) \quad 6.9 \text{ M.11} \times 4.656$$

$$= \$ 32.13 \text{ M.11 discoun for}$$

$$5 \text{ yrs @ } 18\% = 32.13 \times .437 = 14.0 \text{ M.11 VP @ 0 yr}$$

$$\underline{\text{Present Value}} = \underline{38.4 @ 18\%}$$

Try 20%

$$0-5 \text{ yr (5yr)} \quad 7.8 \text{ M.11} \times 2.991 = \$ 23.3 \text{ M.11 VP @ 0yr}$$

$$6-16 \quad (11 \text{ yr}) \quad 6.5 \text{ M.11} \times 4.327$$

$$= \$ 28.13 \text{ M.11 disc. for}$$

$$5 \text{ yrs @ } 20\% = 28.13 \times .402 = 11.2$$

$$\underline{\text{Present Value}} = \underline{34.5 @ 20\%}$$

Int. Capital. Improved $1\frac{1}{2}$ yrs @ 10% = 31 M.11 \times 1.15 = 35.6

Therefore: Return on investment; DCF, ROR about $19\frac{1}{2}\%$

754 (u)

$$\underline{\text{Try 25\%}} \quad 0-5 \text{ yr (5yr)} \quad 8.9 \times 2.689 = \$ 23.9 \text{ M.11 VP @ 0yr}$$

$$6-16 \quad (11 \text{ yr}) \quad 8.0 \times 3.656$$

$$= 29.24 \text{ M.11 disc for 5yr @}$$

$$25\% = 29.24 \times .328 =$$

$$= 9.6 \text{ VP @ 0yr}$$

$$\underline{\text{Present Value}} = \underline{\$ 33.5 @ 25\%}$$

Therefore: by interpolation from tables, rate of return

DCF, ROR (on $\$ 35.6$) is about 27%.

JEK ATTACHMENT E
3/1/75

SANCHEZ
Royalty Costs
Work Sheet

Assume NSR based on 28% of Cu price for charges and Freight

$$70 \text{¢ Cu} \times .72 = 50.4 \text{ ¢}$$

$$3\% \text{ Royalty } 50.4 \times 3\% = \text{\$.015 / \# Cu}$$

$$4\% \text{ " } 50.4 \times 4\% = .020 / \# \text{ Cu}$$

$$5\% \text{ " } 50.4 \times 5\% = .025 / \# \text{ Cu}$$

Inspiration $\$5$ Mill Equity in property and Exploration,

Considered as Cost / $\#$ Cu —

$$\text{Total Cu} = 116 \text{ Mill tons ore} \times (.37\% \text{ Cu} \times .70 \text{ Rec} \times 20^{\text{th}})$$

$$= 116 \text{ MT ore} \times 5.18 \text{ \# Cu / ton}$$

$$= 600 \text{ Mill \# Cu}$$

If it is assumed that the Inspiration investment is to be repaid as an installment loan (Diminishing annuity) and that it is only entitled to a "safe" rate (Inspiration risk being represented by their retained royalty) -- say 8%, then;

$$R^n = \frac{A}{A - P \times r}$$

A = Annual Payment
P = Principal
r = interest rate
R = 1 + r

From Table 1 Parks $(1+r)^n = R^n$
8%, 16yr $R^n = 3.426$

$$\frac{A}{A - \$5 \text{ M.} \times .08} = 3.426$$

$$A = 3.426 A - 1,370,400$$

$$2.426 A = 1,370,400$$

$$A = \text{\$} 565,000$$

Total Payments: $565,000 \times 16 \text{ yrs} = \text{\$} 9.04 \text{ M.}$

$$\frac{\text{\$} 9.04 \text{ M.}}{600 \text{ M.} \text{ \# Cu}} = 1.5 \text{ ¢ / \# Cu}$$

JEK
3/3/75

Summary prepared by Inspiration

SUMMARY: SANCHEZ COPPER PROPERTY

GENERAL

The Sanchez Property is a porphyry-type oxide copper deposit located in the Lone Star Mining District of southeastern Arizona, approximately ten miles northeast of Safford in Graham County. This property lies in Sections 25, 26, 35, and 36; T.65, R 27 E, Salt River Baseline and Meridian. The large, low grade deposit was discovered in 1964 by Harpoon,*Inc., and optioned by Inspiration Consolidated Copper Co. in 1969. Development drilling, metallurgical research, and detailed feasibility studies executed over the past five years have developed plans for a moderate size, low grade, oxide copper leaching operation.

GEOLOGY

The Sanchez Deposit is located on the south end of the Gila Mountains in the Basin and Range Province. Cretaceous andesites are intruded by a tertiary monzonite "pipe-like" mass with many dikes into the andesites. Mineralization in the upper 1200 feet consists of mainly chrysocolla and tenorite, with minor malachite, cuprite, and chalcocite. From 1200 feet down to 3300 feet chalcopyrite and bornite predominate, with chalcocite, pyrite, covelite and molybdenite also present. A mixed oxide-sulfide zone exists with native copper present at the 1000-1200 foot depth contact zone. The alteration is typical phyllic-potassic - propylitic gradation common to porphyry copper deposits. The sulfide zone is largely unexplored, with development focused on surface mining of the upper oxide zone.

*Subsidiary of United Nuclear

DIAMOND DRILLING

A total of 133 diamond drill holes have been drilled on the property by six companies. Complete logs and/or samples are available for approximately 62% of the drilling, with only partial logs or data from the remaining drill holes.

ORE RESERVES

Geologic reserves indicate the presence of 208 million tons of 0.28% copper, of which 166 million tons average 0.33% copper in the vicinity of designed open pits. Gross geologic reserves indicate 250 million tons of 0.25% copper ore in the oxide zone, with an estimated additional 130 million tons of mixed and sulfide ore averaging 0.30% copper underlying the oxides.

Calculated ore reserves from two independent studies on open pit designs show:

	<u>ORE</u>	<u>WASTE RATIO</u>
Design 1	79,363,000 Tons @ 0.36% Copper	1.49:1
Design 2	116,000,000 Tons @ 0.37% Copper	1.78:1

METALLURGY

Comprehensive metallurgical process testing on leaching of Sanchez Ore indicated the Mangula Process to be the most effective system. Recoveries of 60-63% with a 21-day leach cycle were proven feasible. Laboratory testing was scaled up to one 5000-ton batch test on the Mangula system, and a series of 40-ton tests. Dump leaching, vat leaching, and other processes tested were less satisfactory.

LAND STATUS

The Sanchez property includes 368 unpatented lode claims, 89 acres of farmland, 10 acres of leased valley border, and 240 acres of leased state land. Inspiration Consolidated Copper Company owns 257 of the unpatented claims, 89 acres of farmland, and holds lease or lease and option agreements on the remaining property. Patent proceedings on 16 lode claims have been initiated, and a BLM land exchange of 1,265 acres or more for plant and dump sites is being negotiated.

SUPPORT FACILITIES

1. Process Water - 1000 GPM of water could feasibly be generated from wells on the property.
2. Potable Water - Safford municipal water is available within 1500 feet of the property.
3. Electric Power - Graham County Co-op will supply 7500 KVA at 4160 volts for secondary distribution.
4. Access - Access is via two alternate roads from Highway 60-70 at Solomon, Arizona, or two miles east of Solomon via the San Jose Road.

Detailed feasibility studies and Economic Evaluations are available for inspection.

SANCHEZ PROJECT
LONE STAR MINING DISTRICT
Graham County, Arizona

April, 1973

by D. E. Ross

ENCLOSURE
FEB 11 4-4-75
J. H. ...

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GEOGRAPHY

The Sanchez ore body is located in the Lone Star Mining District, Graham County, Arizona about 10.5 miles northeast of the town of Safford (Fig. 1). The deposit, at an average elevation of 3200 feet, is one mile north of the Gila River.

Average annual rainfall is 8.5 inches and temperatures range from 7° to 114°, the average being 82°.

The project is accessible to on-highway freight trucks by a 7.5 mile gravel road. Inspiration's smelter is 98 miles away. A railroad siding, nine miles from Sanchez, could easily be put into service.

Ample power is available for less than 1 cent per kilowatt-hour. Power line and substation construction would cost about \$150,000.

Water consumption for production is estimated at 3,000 gallons per minute. Water-supply potential from Inspiration holdings in the Sanchez area is considered to be excellent. Studies are in progress to locate water-well targets in the side canyons tributary to the main Gila River Valley.

HISTORY

Kennecott Copper Corp. started operations in the district in 1955 and outlined a large low-grade copper deposit, 4.5 miles NW of Sanchez. Presently four companies: I.C.C.Co., Kennecott Copper Corp., Phelps Dodge Corp., and Producers Minerals Corp. have projects in the district that are active. Mining on a miniscule scale at Sanchez dates back to 1899, but it wasn't until 1964

HISTORY CONT'D.

that Harpoon Inc. proved the existence of the large copper ore body. I.C.C.Co. optioned the property in 1969 and initiated an extensive drilling program.

LAND ACQUISITION

The Sanchez property includes 551 unpatented lode claims, 89 acres of farmland purchased from P. Grijalva, 10 acres of valley border leased from M. Sanchez, and 240 acres of state land covered by a prospecting permit (Fig. 2).

There are 16 contiguous lode claims which will be patented, and approximately 1265 acres or more will be acquired through a land-exchange agreement with the Bureau of Land Management (Fig. 3). Waste dumps and plant sites will occupy 532 acres referred to as the West Canyon area. The East Canyon area includes 733 acres to be utilized as waste dumps. Steps have already been taken to initiate patent and land-exchange proceedings.

GEOLOGY

Known copper deposits in the district are confined to the South flank of the Gila Mountains and can be traced to igneous activity along the Butte fault (Fig. 4). Copper metallization accompanied the intrusive rocks and the related phyllic hydrothermal alteration.

The Sanchez deposit is a porphyry-copper type and is centered around monzonite porphyry stocks (Fig. 5). The northwest and eastwest trending structures were responsible for localizing the intrusives and the copper mineralization. The deposit can be divided into three mineralogical zones: an oxide zone, a mixed zone, and a sulfide zone (Fig. 6). The oxide zone consists mainly of

GEOLOGY CONT'D.

chrysocolla and copper pitch, with minor amounts of malachite, cuprite, and chalcantite. Native copper is found in all zones but is most plentiful near the oxide-sulfide contact. The mixed zone contains both sulfide and oxide minerals. In the sulfide zone chalcopyrite and bornite predominate, but chalcocite, purite, covellite, and molybdenite are present.

The core of the deposit exhibits phyllic and minor potassic hydrothermal alteration which grades laterally to a secondary biotite zone, then to a biotite chlorite zone, and finally to a propylitic zone.

The highest grade portion of the ore body is contained almost entirely within the main stock, but the bulk of the copper mineralization is found in the host rock surrounding the main stock (Fig. 5, 6, and 7). One theory for the formation of the deposit is that the intersection of the major faults created a conduit for the old intrusive, which further prepared the ground for the main intrusive. Sometime later a younger, barren intrusive penetrated the area (Fig. 7). The west end of the main stock is relatively unexplored and could produce additional reserves.

ORE RESERVES

The ore body is defined here as that volume of rock containing greater than 0.15% oxide copper or plus 0.20% sulfide copper. It measures 2100 feet in diameter (Fig. 5) and extends to an average depth of over 2000 feet (Fig. 6). The immediate objective, as proposed in this report, is the mining and recovery of about eighty million tons of .36% oxide ore.

Computer calculations are available on the volume of rock in the vicinity

ORE RESERVES CONT'D.

of the 15-year pit. Between August, 1969 and November, 1970 proven oxide ore above the 2400 elevation (bottom bench of 15 year pit) was increased from 142 million tons averaging 0.33% copper to 208 million tons assaying 0.28% copper, of which 166 million tons average 0.33% copper. Eighteen recent drill holes, which were not available for the computer studies, will further increase the size but not the grade of the oxide body. Sparse diamond drilling on the western periphery of the deposit indicates that there is a good possibility of extending the ore body in this direction (Fig. 5). Ore-reserve figures for the total ore body are based on an interpretation of the drilling data.

The total oxide zone has an average thickness of 1000 feet. Oxide reserves are estimated at 250 million tons running 0.25% copper.

Average thickness of the sulfide zone is 1050 feet, which includes 300 feet of the mixed zone. Approximately 95 million tons of sulfide reserves and 35 million tons of mixed reserves, with a grade approaching 0.30% copper, are contained within this zone.

GEOGRAPHY

LOCATION

The Sanchez ore body is located in the Lone Star Mining District, Graham County, Arizona in Sections 25 and 26, R 27 E, T 6 S about 10.5 miles northeast of the town of Safford. The deposit, at an average elevation of 3200 feet, is at the southeast end of the rugged Gila Mountains which reach an altitude of 7298 feet. This range is in the mountain region of the Basin and Range physiographic province. (Fig. 2). Approximately one mile south of the mine the Gila River flows throughout the year at an elevation of 3038 feet. The area is a faulted mesa and exhibits deep canyons joining a large valley which is surrounded by isolated mountains.

CLIMATE

The Safford area is typical of the Mountain region of the Basin and Range province. Average rainfall is 8.54 inches; summer temperatures average 82° with a maximum range of 98-114°, and winter temperatures average 48° with a minimum range of 30-7°.

FACILITIES

Transportation

The Project is accessible by 2.5 miles of gravel road which joins pavement at a Gila River crossing about 4.5 miles northeast of Highway 70. Safford is 7.5 miles from the junction of the paved road with Highway 70. This road is serviceable throughout most of the year except when the river is high, the alternate road crosses a bridge and requires 7 miles of gravel road travel.

GEOGRAPHY CONT'D.

Inspirations smelter is about 98 miles from the deposit and can be reached on either road by on-highway freight trucks.

A railroad siding at the town of Solomon is nine miles from the mine and could easily be put into service.

Power

Up to 40,000 kilowatts at a cost of less than one cent per kilowatt hour could be made available to us. Two substations are located relatively close to the property, one has a capacity of 69,000 volts and is within 3.5 miles, the other is about 12 miles south of here and has a capacity of 115,000 volts or about 60,000 kilowatts. If our needs were in the neighborhood of 4,000 kilowatts the power company would install a substation at the mine. This installation would be at their expense.

Water

Anticipated water consumption for 15,000 tons daily production is 3,000 gallons per minute. Currently on the claim group we have three wells already prepared and three more holes that could be enlarged to produce an estimated total of 1860 gal./min. Possibly another 1275 gal./min. or more could be developed on the property.

Recently we acquired an 89 acre parcel of farmland from P. Grijalva which is contiguous to our property and lies in the Gila River Valley about one mile south of the mine. (Fig. 2). This parcel is on top of a good aquifer and future well production is estimated at 3000-10000 gal./min.

GEOGRAPHY CONT'D.

Two types of water encountered in our area; one is produced from the Gila River Valley gravels and is cool, the other is a thermal water (85-120°) found on our claim group and deep in the Safford basin. Both are suitable for a leaching operation.

HISTORY

LONE STAR MINING DISTRICT

Recorded production from the Lone Star district from 1886-1907 is 110,000 pounds of copper. Production from the San Juan Mine since 1969 is estimated at 5 million pounds of cement copper.

Bear Creek Mining Co. became active in the district in 1955. Their property, the Lone Star Mine, adjoins our property to the west. Bear Creek's drilling program has supposedly outlined 500 million tons of 0.50% copper mineralization. In 1962 Kennecott sunk a 804 foot shaft and completed 3000 feet of crosscuts and drifts. This mine was being considered for an underground atomic blast in conjunction with Operation Sloop of the Atomic Energy Commission. This blast would hopefully make possible a large leach-in-place operation but the project is inactive at this time.

Eight miles west of Sanchez, Producers Minerals Corporation has mined an estimated 1.25 million tons of oxide copper ore averaging 0.78% Cu from the old San Juan Mine. The ore was mined from 1969-1971 in an open pit and leached in unsurfaced canyons. Reserves are said to total 15.5 million tons of 0.52% total copper.

HISTORY CONT'D.

Phelps Dodge Corp. has sunk an 1860 foot shaft nine miles west of Sanchez. Block caving of the large sulfide deposit is expected to start in the near future.

SANCHEZ PROJECT

Mining activity of Sanchez dates back to at least 1899, when four Mexican men located the Esperanza No. 1 and No. 2 claims. These claims were probably worked for gold and silver.

James E. Carpenter gained control of the property in 1913 and expanded the group to include 23 claims. It was about this time that he organized the Esperanza Consolidated Copper Co. In 1917 two carloads of high grade oxide copper ore were shipped to the Old Dominion smelter in Globe. Several years later a two compartment, 225 foot shaft was sunk, various short drifts were driven and an assay office and house were erected. Carpenter finally abandoned the property in the late 1920's after spending an estimated \$500,000.

No further work was done until 1956, when Harold F. Carpenter et. al. located 27 claims over the original Esperanza group. Bear Creek Mining Co. optioned the group in 1957 and after drilling seven holes (9,318') they dropped their option. One of these seven holes progressed through the most highly mineralized portion of the ore body. In 1964, Harpoon Inc. leased the present day 31 claim group from H. F. Carpenter et. al. They completed a 31 hole (56,606') drilling program and delimited a large low grade ore body. Ranchers Exploration and Development Corp. subleased Sanchez from Harpoon for a six month period in 1966. During this period 15 rotary holes (8,863') were drilled which increased the known size of the deposit. Harpoon then enlarged the underground workings by drifting some 1060 feet.

HISTORY CONT'D.

Inspiration Consolidated Copper Co. optioned the property from Harpoon in 1969 and initiated an extensive diamond drill program.

LAND ACQUISITION

Federal

Approximately fourteen square miles are covered by 551 unpatented lode claims which the Company located itself or holds under lease and option agreements.

The principal lease contract is with Harpoon Inc. (a subsidiary of United Nuclear Corp.) covering 31 claims in the Carpenter Group, 124 claims in the Basalt Group and a State Prospecting Permit. The ore body is almost entirely contained within the Carpenter group. In addition to this and the 162 claims owned by I.C.C.Co., we hold lease and option agreements on the following:

Nancy Group	Knox et.al.	109 Claims
Canyon, Last Chance Group	Bellman et.al.	48 Claims
Big Wheel Group	Naylor et.al.	40 Claims
Mesa, Palo Verde, etc.	Carrasco et.al.	32 Claims
Tin Can, Red Robin No. 1 & No. 2	Mrs. McBride	3 Claims
Jerico and Jerico No. 2	Dr. Collopy	2 Claims

Most of the group has been surveyed and claim irregularities resolved. Table 1 shows that by 1976 I.C.C.Co. will have ownership on all the claims in the group except the Carpenter Group. There is no end price in the Carpenter contract, Inspiration will pay a production royalty or a minimum advance royalty as long as the lease is in effect.

LAND ACQUISITION CONT'D.

There are 18 contiguous unpatented lode claims which we hope to patent. Our 1971-72 annual assessment work drilling program will also serve to prove or disprove mineral on nine of these claims which are presently ineligible for patent. We can show immediate use for about 103 millsite claims (utilized for the 15 yr. pit) and another 147 millsites can be justified by a long range plan which includes mining + 0.15% oxide and the + 0.20% sulfide ore bodies. Approximately 90 unpatented lode claims will be converted to about 250 millsite claims. We have already taken preliminary steps to initiate patent proceedings.

State

An Arizona Prospecting Permit for 240 acres located in Sec. 36, T 6 S, R 27 E contiguous to our claim group is included in our contract with Harpoon Inc. This state land has been designated as a dump area by our mining plans. G. H. Ladendorff has informed us that in order to utilize this area for dumping we should obtain a commercial lease from the State of Arizona. Two churn drill holes exist on the parcel and these should be deepened to prove the absence of mineralization if we try to obtain a commercial lease.

Private

To secure a dike which would act as a natural dam in the event that we leach in the West Canyon, we have leased a ten acre parcel from Manuel Sanchez. This ground located in Sec. 35, T 6 S, R 27 E and is contiguous with Inspiration's Gila claims. The dam would prohibit any solutions from entering the Gila River Valley.

A 92 acre parcel previously discussed under "Water", is south of and contiguous to our property. This ground was purchased from Paul Grijalva to insure a

LAND ACQUISITION CONT'D.

steady water supply for the mine. Anticipated water production from the Grijalva land should be more than sufficient for future needs.

If we patent all of the millsites previously discussed both the Sanchez and Grijalva parcels will adjoin I.C.C.Co. patented ground.

GEOLOGY

SANCHEZ PROPERTY

ABSTRACT

The Sanchez deposit is centered around monzonitic stocks which intruded the andesitic host rock. The highest grade portion of the ore body is contained almost entirely within the main stock, but the bulk of the copper mineralization is found in the host rock surrounding the main stock. My hypothesis for the formation of the deposits is that the intersection of the major faults produced a weak zone or channelway for an old intrusive which further prepared the ground for the main intrusive and its accompanying copper mineralization. Sometime later a younger barren intrusive penetrated this area. This theory has been substantiated by the drilling data.

Four alteration zones, which have been useful as an exploration guide, are represented here. The core of the deposit exhibits phyllic and minor potassic alteration which grades laterally to a biotite zone, a biotite-chlorite zone and finally a propylitic zone.

The deposit can be divided into three mineralogical zones which include an oxide zone, a mixed zone and a sulfide zone (Fig. 6). The oxide zone consists

GEOLOGY CONT'D.

mainly of chrysocolla and copper pitch with minor amounts of malachite, cuprite and chalcantite. Chrysocolla occurs lining fractures and sometimes as a replacement of plagioclase phenocrysts. Native copper is found in all three zones but is most abundant as fracture fillings near the oxide-sulfide zone contact. The mixed zone contains a mixture of oxide-sulfide minerals. The primary or sulfide minerals include chalcopyrite, bornite, chalcocite, pyrite, covellite and molybdenite. Chalcopyrite and bornite constitute most of the sulfide zone, they are present as disseminations, fracture fillings and in quartz, calcite or calcite-zeolite veinlets.

Lone Star

Known copper deposits (Fig. 4) in the district are confined to the south flank of the Gila Mountains, one of several northwesterly trending fault-block ranges in the Basin and Range province. Essentially the district is composed of an andesitic host rock intruded by monzonitic stocks and later overlain by volcanics and alluvium.

Mineralization can be traced to igneous activity along the major structure in the area, the Butte fault. This fault with approximately 2000 feet displacement (Fig. 4) tilted the Gila Mountains 10° to 12° N.E. The Butte fault is part of the Texas Structural Zone which intersects two other major structural systems in southeastern Arizona.

Copper, gold, silver, molybdenum, lead and iron mineralization has been reported here. Copper mineralization favored intrusive stocks and fractured contacts between intrusives and the host rock except for the Kennecott deposit where it is related to an intrusive dike swarm and a volcanic vent.

GEOLOGY CONT'D.

The common hydrothermal alteration pattern is one with quartz-sericite-kaolin and minor potash feldspar in the center of the deposit surrounded by a secondary biotite zone which grades out laterally to a biotite-chlorite zone and finally to a propylitic zone containing mainly chlorite and epidote. Calcite and zeolites occur in varying amounts in all zones except the quartz-sericite zone.

Sanchez

Lithology

Alluvium in the immediate vicinity of the mine consists of unconsolidated gravels, fine grained lake bed deposits and conglomerates. Pit stripping will involve mining mainly consolidated conglomerates. Most waste dumps will overlie calcite rich lake bed deposits which should neutralize excess acid.

The young volcanics, which include dark gray vesicular and amygdaloidal basalts with a basal ash bed, unconformably overlie the old volcanic series. These hard resistant basalts contain up to 3 inch vesicles and 1 inch calcite filled amygdules. The ash bed occurs at the base of the basalt and occasionally as thin lenses within the basalt beds.

Intrusive rocks are mainly quartz monzonites but granodiorites and diorites are present. The main stock, composed of quartz monzonite porphyry, is about 1300 feet in diameter being elongated in a northwest-southeast direction. A breccia pipe, 100 feet in diameter, is located at the north edge of the main stock. Most of the copper mineralization can be attributed to the main stock and its related breccia pipe.

GEOLOGY CONT'D.

Lithology Cont'd.

Drilling data indicates at least three periods of intrusive activity. Earliest activity is evidenced by a monzonitic stock approximately 400 feet in diameter which is located near the center of the deposit. Only weak amounts of copper are found in this body but it probably fractured the rocks surrounding it thus preparing the ground for the next intrusive. The second intrusive or the main stock was much larger and more mineralized than the first. The high grade portion of the ore body is contained almost entirely within the main stock. Sometime later a third stock intruded the area northwest of the main stock. Compositions of the first two stocks are monzonitic but the third stock seemend to be more basic, possibly granodiorite or diorite.

The Old Volcanic Series was the host for the intrusives and accompaning mineralization. These rocks are mainly propylitized porphyritic andesites but also include andesites, rhyolites, agglomerates and flow breccias. Near the intrusives, the concentration and size of plagioclase phenocrysts increases. Andesites grade from dark gray near the intrusives to green gray away from the stocks. Color changes can be accounted for by decreasing amounts biotite and increasing amounts of chlorite and epidote away from the intrusives. The series provided a very permeable host and the intrusives penetrated and impregnated these rocks to a remarkable degree.

Alteration

Hydrothermal alteration zones are distinct and can be separated on a broad scale even though they overlap and intermingle. At least four zones are represented here, they are described proceeding outwardly from the center of the ore body and

GEOLOGY CONT'D.

Alteration Cont'd.

intrusive stock.

The inner core or phyllic zone involves replacement of primary minerals by quartz, sericite and potash feldspar. Secondary quartz is found in veinlets, microfractures, silicified veins and as a groundmass filling in which quartz phenocrysts are reabsorbed. Plagioclase phenocrysts are commonly almost completely altered to sericite and clay. Biotite is altered to magnetite and hematite. Potash feldspars are introduced into the groundmass. Intense alteration produces a siliceous bleached rock void of any mafic minerals. Calcite and zeolites usually associated with quartz are locally strong and most prevalent in the sulfide zone.

The secondary biotite zone forms a halo around the phyllite zone, transitional rocks found on the monzonite-andesite contact are most affected by this type. Anhedral biotite is present in clots up to one inch wide, as flakes lining fractures or as an alteration product of other mafic minerals.

The chlorite-biotite zone exhibits biotite and hornblende altering to chlorite. Substantial amounts of chlorite are introduced into the country rock. This zone is almost entirely confined to the old volcanic series.

These three zones together encompass an area nearly one mile in diameter around the Sanchez deposit.

The propylitic zone consisting mainly of chlorite and epidote, is the most extensive. This zone represents a low alteration intensity and spans the entire Gila range. It is probably the result of early widespread hydrothermal activity.

GEOLOGY CONT'D.

Alteration Cont'd.

To my knowledge no economic grade mineralization has been found in this zone.

Structure

At Sanchez the structural trends in order of importance are: a northwest trend which parallels the Butte fault system, an east-west trend located near the high grade portion of the deposit, a northeast trend, and an inferred north-south trend. Undoubtedly the northwest and east-west trends have been active since Cretaceous.

Oxidation penetrated deeper on the east side of the ore body indicating that fracture intensity progressively increases across the deposit from west to east.

The Carpenter fault which strikes N. 60 W. and dips steeply to the southwest has been traced for almost two miles. Average width is less than 6 feet of gouge and 15 feet of attendant bleaching. This is probably the largest and most significant structure on the property in that it acted as a channelway for the main intrusive which is elongated parallel the fault strike. The ore body is bisected by this normal fault and the most intense mineralization occurs at its intersection with the east-west Ross fault.

East-west trending faults are characterized by 1 foot of gouge and up to 40 feet of heavy hydrothermal bleaching. The Ross fault trends almost due east-west and dips steeply to the north.

GEOLOGY CONT'D.

Structure Cont'd.

The northeast trend is exhibited in the outlying area northwest the deposit. Several bleached zones less than 50' wide and small (5 feet) faults are displayed here.

North-south trends have been inferred from aerial photograph studies and differences in the ash bed elevations.

Mineralogy

The major divisions of the orebody are referred to as the oxide zone. Near the oxide-sulfide contact all zones intermingle and sharp contacts are rare.

Oxide copper minerals in order of abundance are: chrysocolla, copper pitch, native copper, cuprite, malachite and chalcantite. Chrysocolla occurs as fracture fillings, in veinlets associated with quartz and occasionally calcite or as a replacement of sericite in plagioclase phenocrysts. Intergrowths of fibrous masses of malachite and chrysocolla have been observed. The majority of the oxide ore consists mainly of chrysocolla and copper pitch. Black chrysocolla or copper pitch is a black manganian variety. It seems to favor deposition along fault zones and in the secondary biotite alteration zone. Copper content in this mineral is extremely variable, copper being replaced readily by iron or manganese.

Native copper is most abundant as fracture fillings near the oxide-sulfide contact. It occurs in the sulfide zone in the form of disseminations or in sulfide-calcite veinlets and as a secondary mineral associated with cuprite and chrysocolla. Native copper seems to favor impermeable zones and areas rich in copper and deficient in oxygen. Apparently the water table in this area fluctuated causing

GEOLOGY CONT'D.

Mineralogy Cont'd.

an alternating oxidizing-reducing environment. This change probably accounts for the secondary native copper enriched zone. Native copper will alter to cuprite which in turn alters to chrysocolla and other oxides.

The sulfide minerals include chalcopyrite, bornite, chalcocite, pyrite, molybdenite and covellite. Compared to other porphyry copper deposits, this ore body interior is deficient in pyrite. Copper sulfides are present as disseminations, fracture fillings and in quartz, calcite or calcite-zeolite veinlets. Chalcopyrite and bornite constitute most of the primary copper mineralization. Chalcocite is relatively scarce and occurs within the sulfide zone, a chalcocite blanket is not present here. Molybdenum mineralization is rare and insignificant.

ORE RESERVES

SUMMARY

Computer calculations for the ore body are available only on that volume or rock in the vicinity of the 15 year oxide pit. Ore reserve figures for the total ore body are based on interpretation of the drilling data. The ore body is defined as that volume of rock containing greater than 0.15% oxide copper and plus 0.20% sulfide copper.

It measures 2100 feet in diameter (Fig. 5) and extends to an average depth of over 2000 feet (Fig. 6).

Between August, 1969 and November, 1970 proven oxide ore above the 2400 elevation (bottom bench of 15 year pit) was increased from 142 million tons

ORE RESERVES CONT'D.

averaging 0.33% copper to 208 million tons assaying 0.28% copper, of this 166 million tons averaged 0.33% copper. Eighteen recent drill holes, which were not available for the computer studies, will further increase the size but not the grade of the oxide body.

The total oxide zone has an average thickness of 1000 feet. At the present, oxide reserves are estimated at 250 million tons running 0.25% copper. Sparse diamond drilling on the western periphery of the deposit indicates that there is a good possibility of extending the orebody in this direction (Fig. 6). If this area develops as expected it would increase the oxide zone in excess of 25 million tons.

Average thickness of the sulfide zone is 1050 feet which includes 300 feet of mixed zone. Approximately 95 million tons of sulfide "reserves" and 35 million tons of mixed "reserves" with a grade approaching 0.30% copper are contained within this zone.

COMPUTER STUDY

Basis for Calculation and Results

All pertinent drilling data was compiled into a key punch format. The computer then processed this data and produced interpolated bench plans and cross sections. The total amount of stored information for the volume of material under consideration is termed the "geologic reserve". This includes the location, elevation, average grade, ore type, rock type and nearest drill hole number for each 50 foot cube of rock.

Various parameters such as pit slope, cutoff grade, and bottom bench configuration were fed into the computer. The machine was programmed to generate a pit

ORE RESERVES CONT'D.

and determine the tonnage, grade and stripping ratio for that particular design.

An economic analysis was completed for many of these designs.

Results for the most practical design are as follows:

Total Ore	79,362,000 Tons @ 0.360% Cu
Total Waste (Rock)	78,210,450 Tons
Total Alluvium	39,905,550 Tons
Total Waste	118,106,000 Tons
Total Tonnage	197,468,000

ORE/WASTE RATIO	1:1.49
-----------------	--------

PIT LIFE @ 15,000 tons/day	14.7 Yrs.
----------------------------	-----------

DRILLING

The primary objective of the diamond drill program was to determine the location, size and grade of the oxide ore body. One hundred and fourteen holes, drilled by I.C.C.Co. and previous lessees, have penetrated this body. The interior of the deposit has received adequate drilling. The oxide zone extends to an average depth of about 1,050 feet below the surface. Between August, 1969 and November, 1970 proven oxide reserves above the 2400 elevation (800 ft. depth) was increased from 142 millions tons of .33% Cu to 208 million tons of .28% Cu of which 166 million tons assayed .33% Cu. Sulfide drilling consists of thirty-one holes which progressed to 1400 feet or more below the surface and eighteen holes reached a depth in excess of 1800 feet. Possible extensions of the ore body exist in the western portion.

A rotary drilling program designed to disprove mineral below future dump and plant sites was completed. These holes were located south and southwest

ORE RESERVES CONT'D.

of the deposit and proved the non-mineral character of the ground. We developed the capability of obtaining an 80% reliable sample from a rotary drill utilizing an Elenburg cyclone sampler. Rotary drilling costs are less than one half of diamond core drilling costs, but rotary applications are limited.

Our current diamond core drilling program will serve three purposes, these are: 1) provide expenditures applicable as annual assessment work; 2) prove or disprove mineralization on nine unpatented lode claims which we hope to patent; 3) define possible extensions of the ore body.

In general our drilling has increased the mineable oxide body and decreased stripping ratios, but the overall grade of the deposit has remained unchanged.

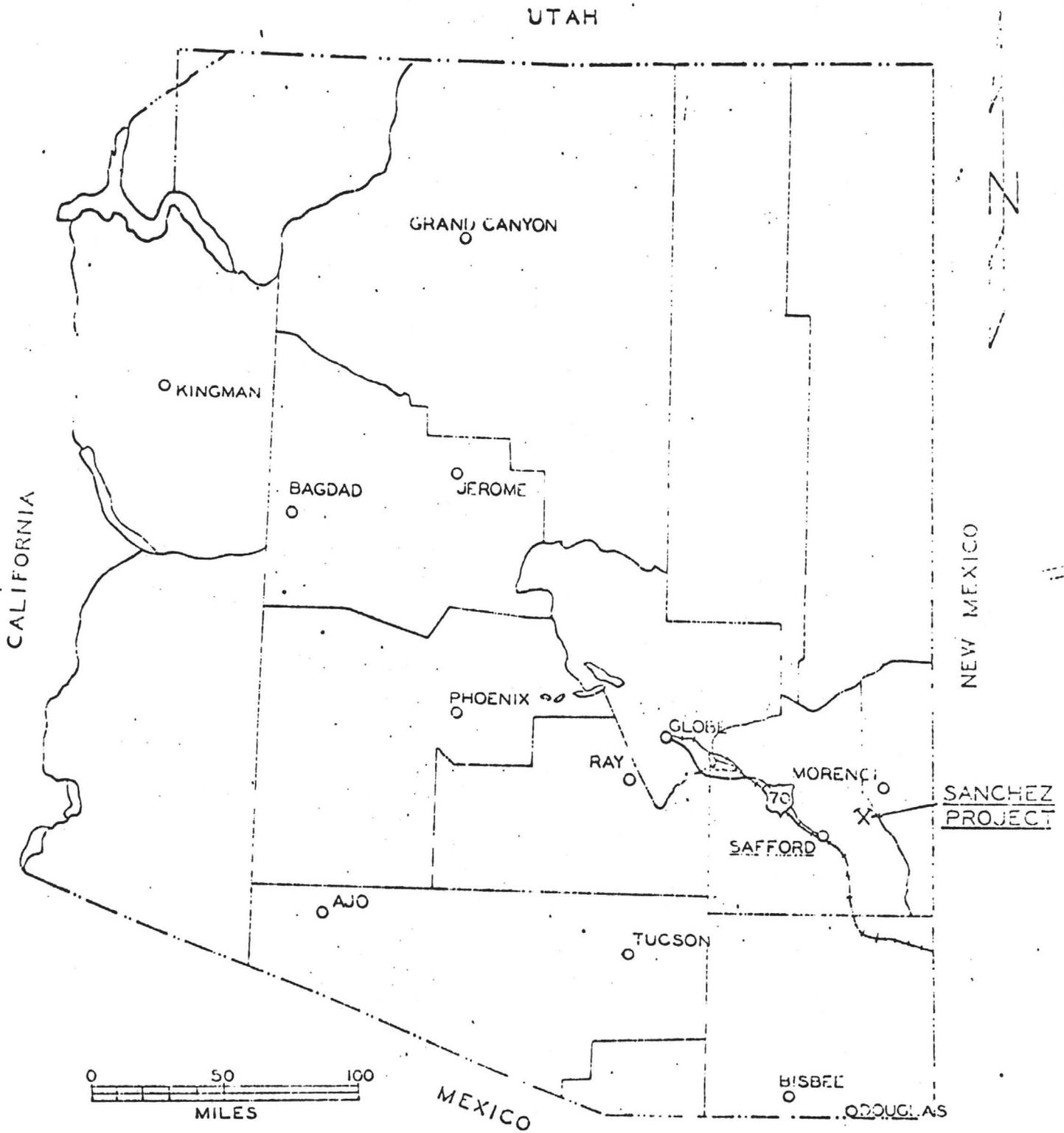


FIGURE NO. 1
INDEX MAP SHOWING THE LOCATION
OF THE
SANCHEZ PROJECT

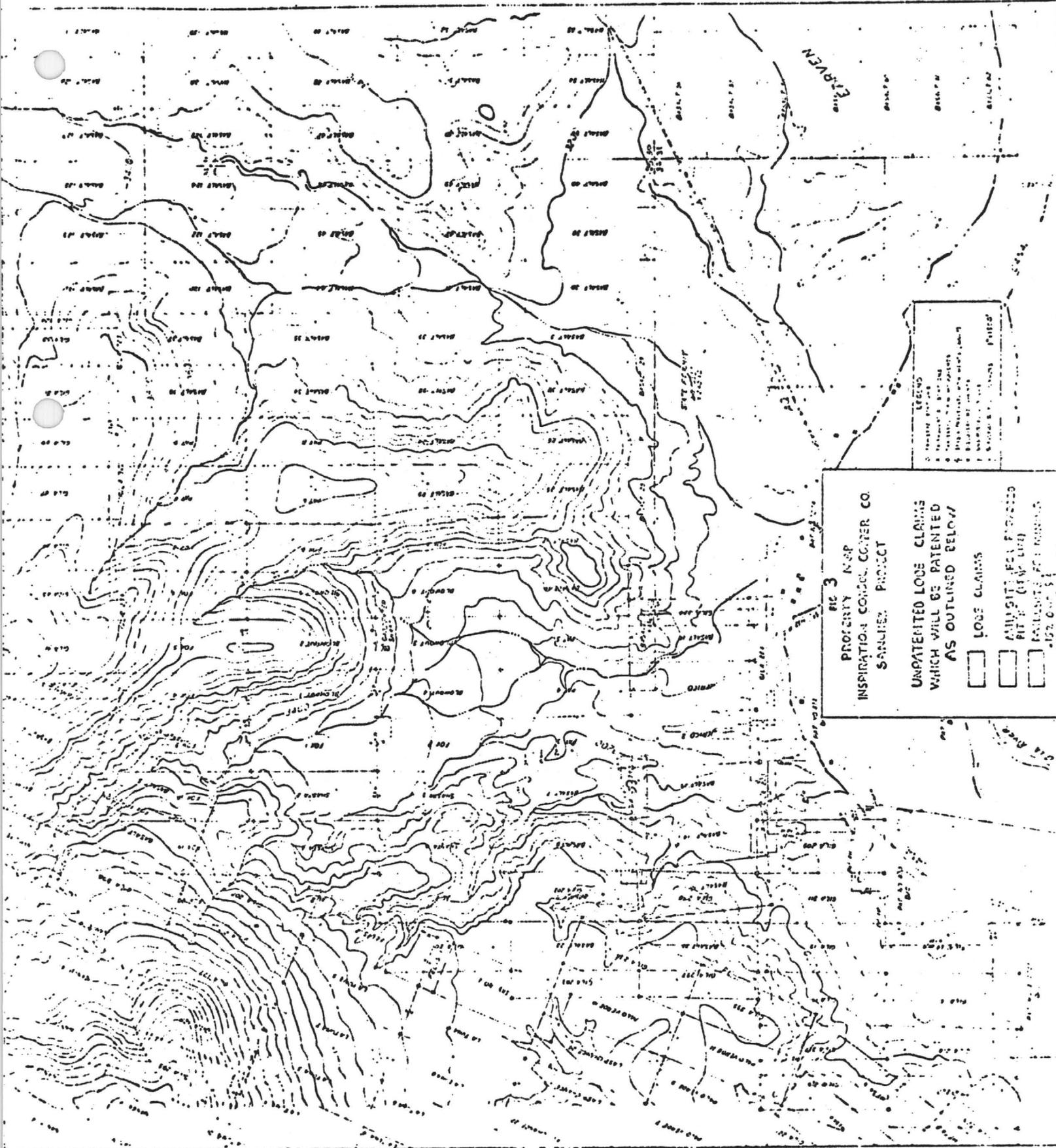


FIG. 3
 PROPERTY MAP
 INSPIRATION CONCRETE CORP. CO.
 SANKER PROJECT

UNPATENTED LOOSE CLAIMS
 WHICH WILL BE PATENTED
 AS OUTLINED BELOW

- LOOSE CLAIMS
- MINORITY BELIEVED
- PATENTED FOR MINING

LEGEND

- 1. Contour Lines
- 2. Section Lines
- 3. Property Lines
- 4. Right of Way
- 5. Easements
- 6. Water Courses
- 7. Other Features

GEOLOGIC MAP

SHOWING MAJOR COPPER DEPOSITS IN THE LONE STAR MINING DISTRICT

SCALE 1:62500

Oct., 1977

GILGILA
MOUNTAINS

PHILLIPS DODGE LEAD
APPROXIMATE OUTLINE
OF ORE BODY

PRODUCERS MINERAL LEAD
APPROXIMATE OUTLINE OF
ORE BODY

STAN JUMI
SHEAR ZONE

WELLS
PLAZA

RENNETT COPPER LEAD
0.4% C. LIMITS

LONE STAR
SHEAR
ZONE

LONE STAR
FAULT

BUTE FAULT

ICCC
APPROXIMATE
OUTLINE OF
ORE BODY

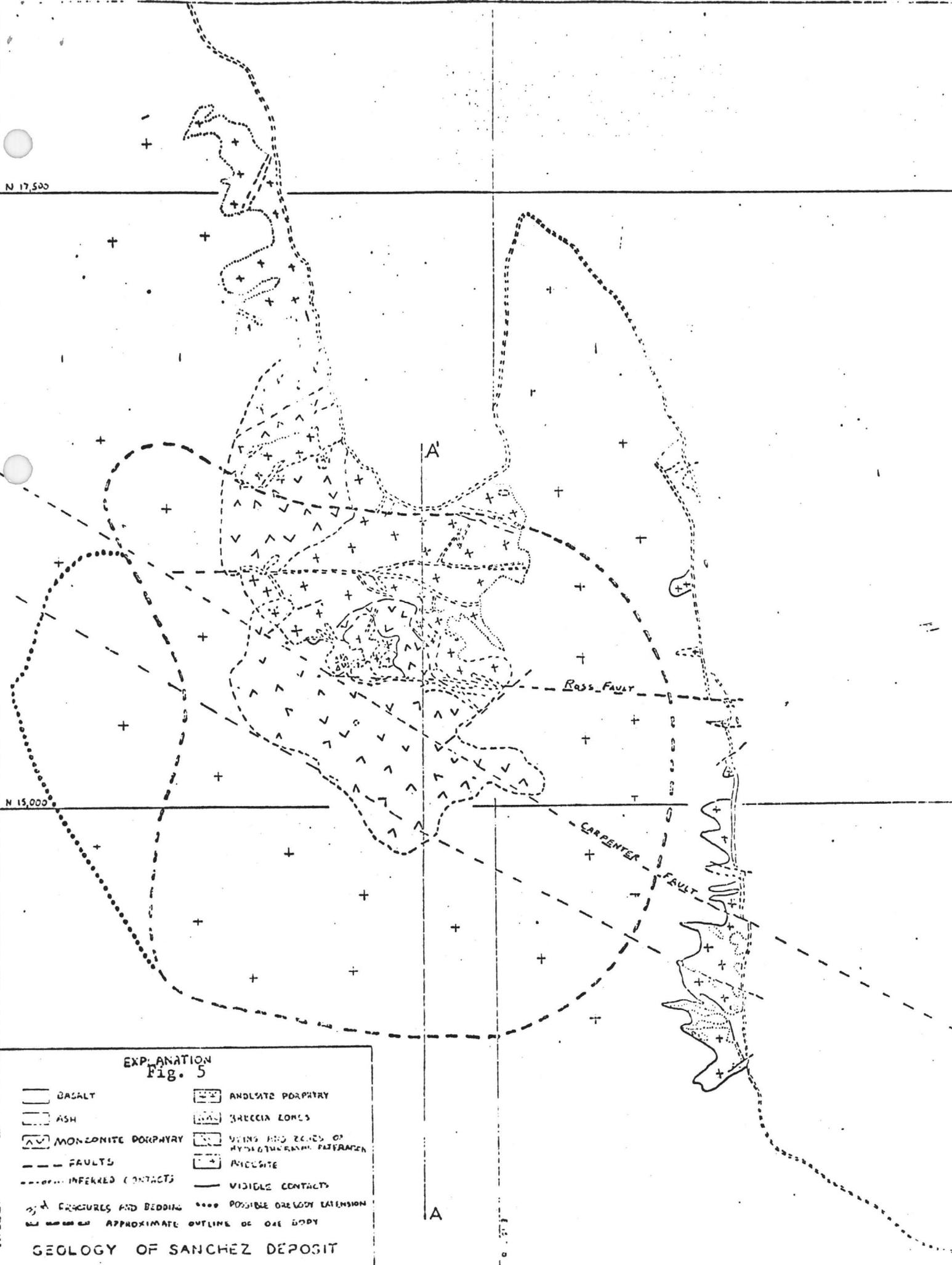
SANCHEZ

EXPLANATION
Fig. 4

-  ALLUVIUM
-  BASALT
-  MONZONITE
-  ANDESITE
-  VIENS & ZONES OF
HYDROTHERMAL ALTERATION
-  FAULTS & FRACTURES
-  CONTACTS
-  OUTLINE OF ORE BODIES

N 17,500

N 15,000



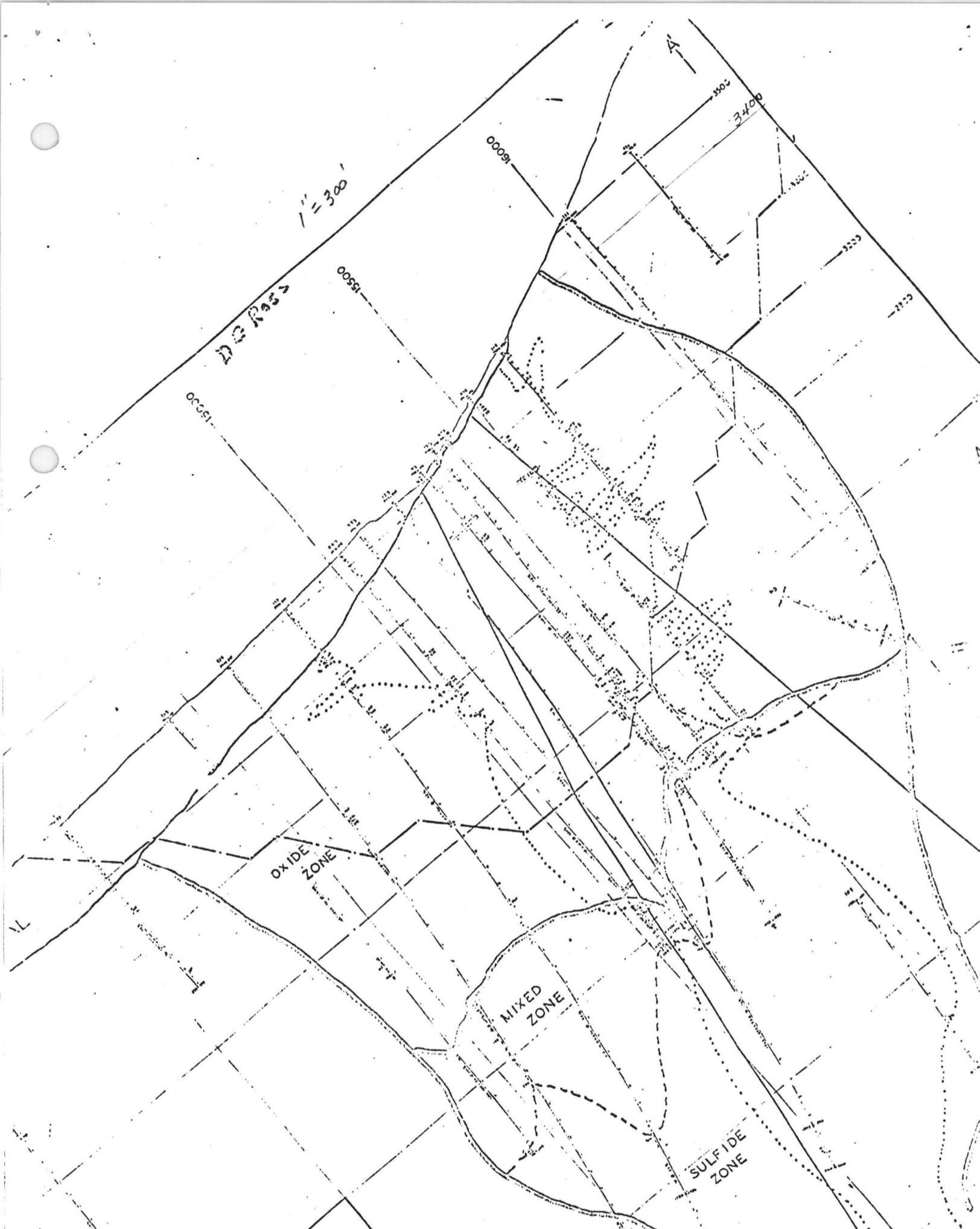
EXPLANATION
Fig. 5

- | | |
|---------------------------------|--|
| BASALT | ANDSITE PORPHYRY |
| ASH | BRECCIA ZONES |
| MONZONITE PORPHYRY | VEINS AND ZONES OF HYDROTHERMAL ALTERATION |
| FAULTS | MICROSITE |
| INFERRED CONTACTS | VISIBLE CONTACTS |
| FOLDING AND BEDDING | POSSIBLE GREGORY EXTENSION |
| APPROXIMATE OUTLINE OF ORE BODY | |

GEOLOGY OF SANCHEZ DEPOSIT

SCALE 1"=500'

MAPPED BY DE ROSS



EXPLANATION

- ANDESITE
- ▲ ANDESITE PORPHYRY
- MONZONITE
- ◆ MONZONITE PORPHYRY
- 15 YEAR PIT
- ORE BODY
- FAULTS
- INTRUSIVE STOCK

FIGURE NO. 6
SECTION 1-4
(Geology Map)

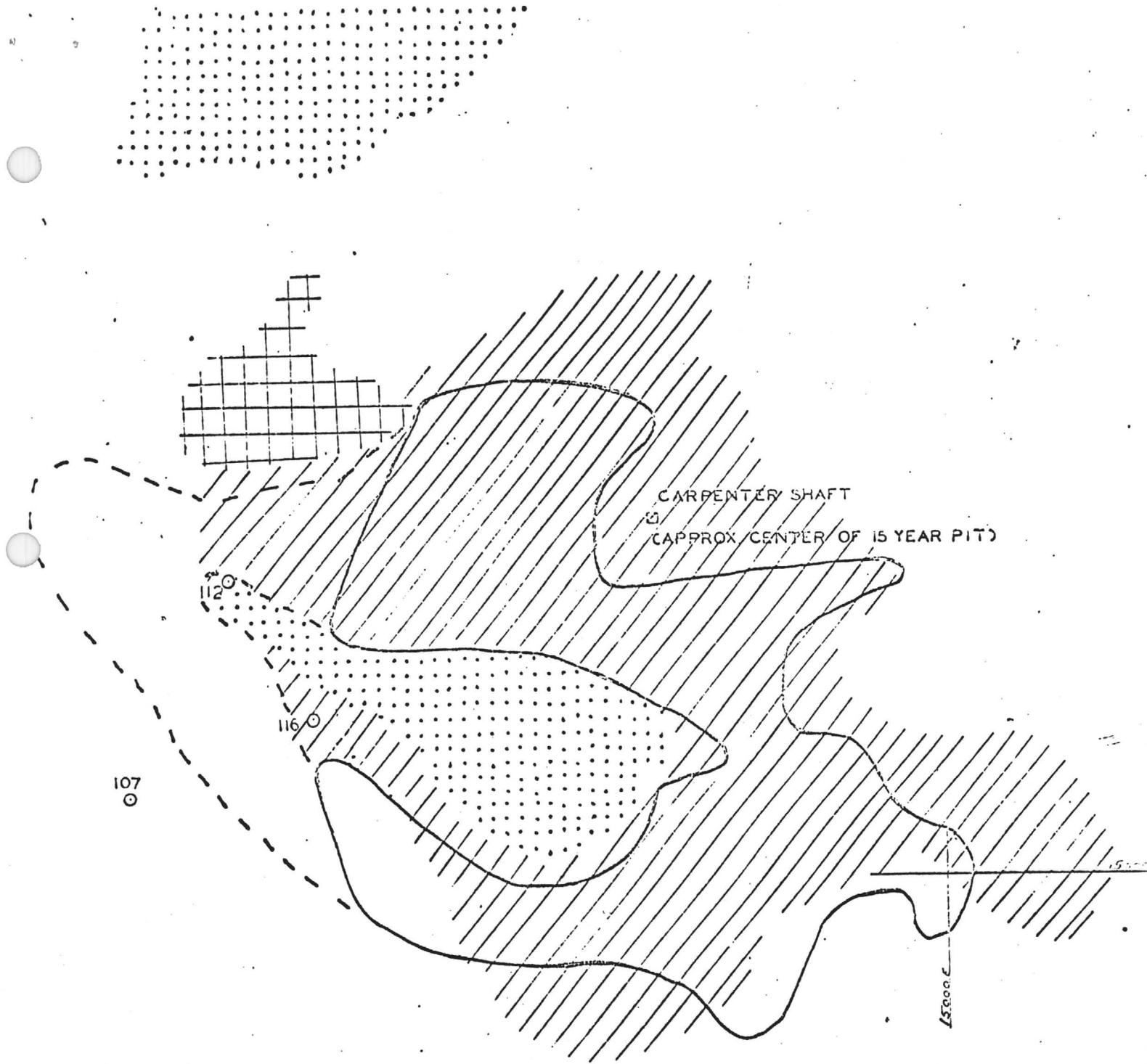


FIGURE NO. 7

MAP SHOWING OUTLINE OF INTRUSIVE STOCKS AND THE HIGH GRADE PORTION OF THE SANCHEZ ORE BODY

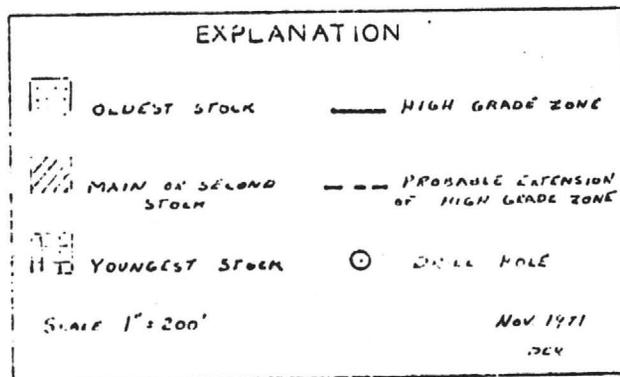


TABLE 1

OUTLINE OF COSTS OF LEASE-OPTION AGREEMENTS

FOR THE SANCHEZ PROJECT

NAME	1969	1970	1971	1972	1973	1974	1975	1976	TOTAL
Bellman	(100)	9,600	19,200	28,800	110,400	--	--	--	168,100
Carrasco	(100)	6,400	12,800	19,200	32,000	57,600	--	--	128,100
Collopy	(50)	2,000	3,000	3,000	3,000	3,000	3,000	3,000	20,050
Knox	(10)	5,000	10,000	10,000	10,000	20,000	95,000	--	150,010
McBride	300	600	1,200	9,900	--	--	--	--	12,100
(100)									
Sub-total	660	23,600	46,200	70,900	155,400	80,600	98,000	3,000	478,360
United Nuclear (Harpoon, Inc.)	550,000	500,000	500,000	500,000	--	--	--	--	2,050,000
Sub-total	550,660	523,600	506,200	570,900	155,400	80,600	98,000	3,000	2,528,360
Carpenter		50,000	100,000	100,000	100,000	100,000	100,000	100,000	650,000
TOTAL	550,660	573,600	646,200	670,900	255,400	180,600	198,000	103,000	3,178,360

(Production Royalties--Carpenter)
 (From 1977 thru 1983)
 (\$139,000/yr. @ 12 years)
 (Figured @ 75,000#/day for 360 days)

Note: Minimum annual advanced royalties paid by Harpoon to
 Carpenter @ \$20,000.00/yr. 1964-1968 5 yrs. = \$100,000.00
 50,000.00/yr. 1969

Was paid in advance royalties by
 Harpoon totaling \$150,000. This
 money will apply toward Product-
 ion Royalties.

5,213,360

Case & No. CLAIMS	DATES PMTS. DUE	Amts.			Pmts.		1975	TOTAL
		1969	1970	1971	1972	1973		
William (43)	Sept. 15	(100)	200/c 9,600	400/c 19,200	600/c 28,800	2,300/c 110,400	--	168,100
Arpenter (31)	June 1		100,000	100,000	100,000	100,000		('74 thru '88) 2,285,000 (Prod. Roy.)
Arpente (32)	June 1 Dec. 1	(100)	100/c 6,400	200/c 12,800	300/c 19,200	500/c 32,000	900/c 57,600	128,100
Collopy (2)	250.00/Mo.	(50)	2,000	3,000	3,000	3,000		('75 & '76) 6,000 20,050
Mc (109)	June 15	(10)	5,000	10,000	10,000	10,000	20,000	95,000 150,010
McBride (3)	Dec. 16	100/c 300 (100)	200/c 600	400/c 1,200	3,300/c 9,900	--	--	12,100
United Nuclear (124)	Sept. 15	550,000	500,000	500,000	500,000	--	--	2,050,000 5,213,350 Sub-Total
aylor (40)	Apr. 20 Oct. 20	(Note: Pd. by H.W. Olmstead)	100/c (10)	200/c 12,000	400/c 48,000	1200/c 1300/c 100,000	--	160,010
Banciaz	March	2,000	(10 yr. lease)	+ 10.00 yr. taxes (20 yr. lease + taxes)				(1979) 5,000 7,300
State Ground	May	2,400	2,400	4,200	4,800	4,800	--	19,200
Trifolva Tract	Oct. 15		7,150	3,500	3,500	3,500		('75 thru '85) 3,500 37,000 (Included 500/yr. traces.) 54,650 5,150,000

TABLE 2

<u>Age</u>	<u>Rock Type</u>	<u>Unit</u>	<u>Lithology & Thickness</u>
Pleistocene-Recent	Alluvium	Quaternary Alluvium	Conglomerate, fan conglomerate, gravel, sand and silt 0-200 Ft.
Pliocene-Pleistocene	Lithified Alluvium	Gila Conglomerate including Solomonsville Beds	Lacustrine deposits and conglomerates 0-2400 Ft.

UNCONFORMITY

Late Tertiary(?)	Basalt flows and basal volcanic ash	Young volcanic series	Basal ash 10-15 ft. thick overlain by vesicular and amygdaloidal basalt flows 0-1000 Ft.
------------------	-------------------------------------	-----------------------	---

UNCONFORMITY

Eocene (58 million years)	Quartz Monzonite Porphyry and related facies	Intrusive stock	Gray tan to pinkish tan; medium grained porphyritic monzonite; generally altered
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UNCONFORMITY

Cretaceous(?)	Andesite and porphyritic andesite agglomerates and flow breccias	Old volcanic series	Gray to green gray fine grained and porphyritic andesites
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OUTLINE OF SANCHEZ REPORT

ABSTRACT

INDEX

- I. GEOGRAPHY
 - A. Location & Physiography
 - B. Climate
 - C. Facilities
 - 1. Transportation
 - 2. Power
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- II. HISTORY
 - A. Lone Star Mining District
 - B. Sanchez Prior to 1969
- III. LAND ACQUISITION
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 - B. Drilling Program
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 - A. Summary
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OUTLINE OF SANCHEZ REPORT CONT'D.

VI. METALLURGY CONT'D.

D. Discussion

1. Significance of Results
2. Considerations
 - a. Mangula-Sanchez Leach
 - b. Pad Leaching
 - c. Treatment of Fines

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- B. Mining Plans
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- C. Mining Methods
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 2. Long Range Mining Proposals
- D. Dumps
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 - b. Pit Waste
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VIII. LEACHING PLANT

- A. Crushing
- B. Treatment
- C. Material Handling

IX. COPPER RECOVERY

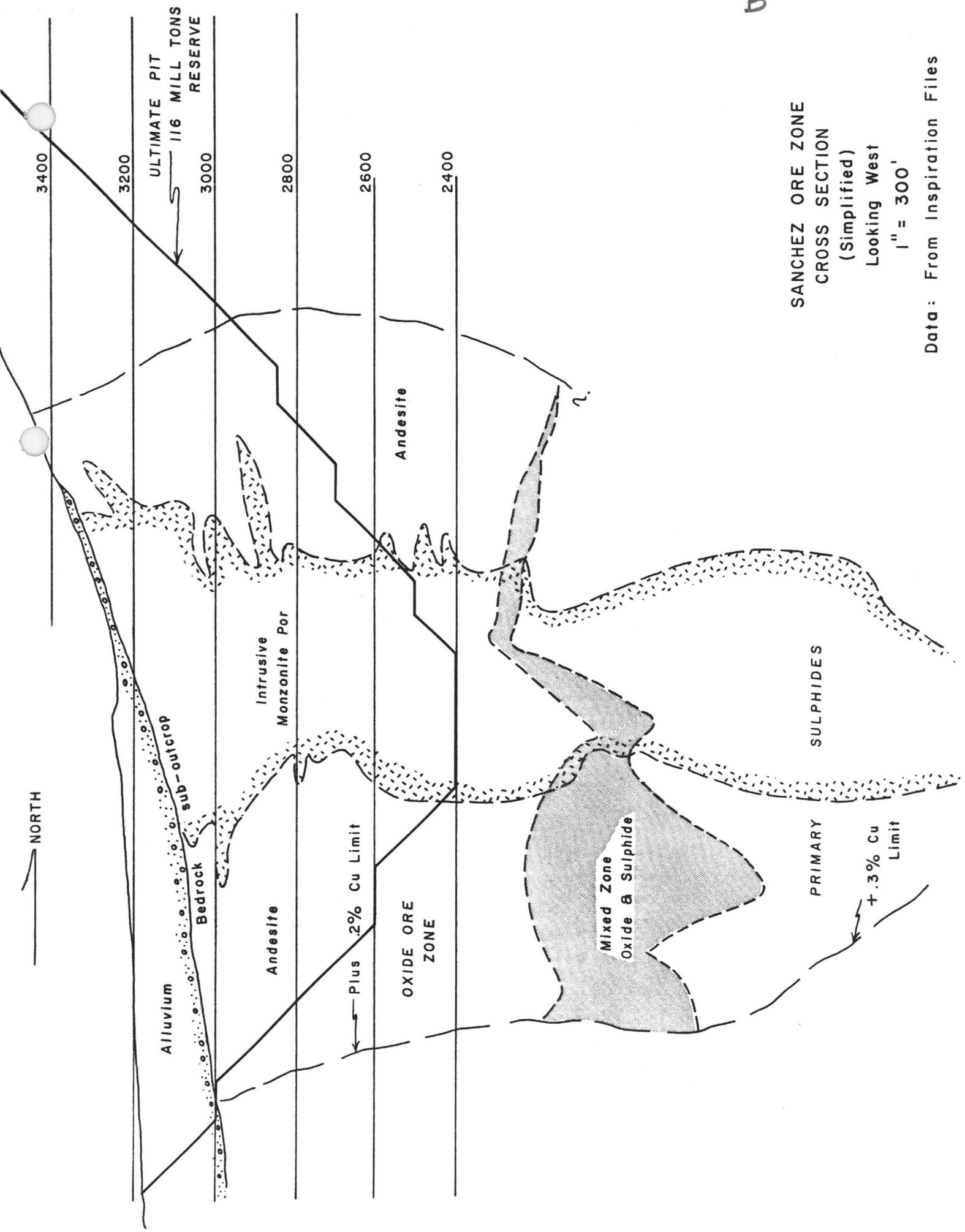
- A. Precipitation on Iron
- B. L.I.X. - Electrowinning

X. FINANCIAL ANALYSIS

XI. CONCLUSIONS & RECOMMENDATIONS

XII. APENDIX

B



SANCHEZ ORE ZONE
CROSS SECTION
(Simplified)
Looking West
1" = 300'

Data: From Inspiration Files

RD

SANCHEZ
Oxide Pit

*Ore Reserve: 116 Mill tons @ .37% Cu
 *Recovery by Mangula process leach, 70%
 *Production: 20,000 tpd ore
 Life of mine: 16 years

*Inspiration data

<u>Sales</u>	<u>70¢ Cu</u>	<u>75¢ Cu</u>
.37 x .70 x 20 = 5.08 #Cu/ton	\$3.62/ton	\$3.88/ton
less 2% sales tax	.07	.08
Net Sales	\$3.55/ton	\$3.80/ton
	\$25.6 mill/yr	\$27.4 mill/yr

Operating Costs (Still)

41.8¢/#Cu including ^{freight} smelting, refining, and marketing

41.8 x 5.08 =	\$2.12/ton	\$2.12/ton
Operating margin	\$1.43/ton	\$1.68/ton

Capital Costs (Still)

Initial investment	\$31 mill:	0-5 yr	6-16 yr
		\$1.9 mill/yr	\$1.9 mill/yr
Equipment replacement	\$21 mill:	--	\$1.9 mill/yr
	Totals	\$1.9 mill/yr	\$3.8 mill/yr

Financial Outcome--Data in Millions

	<u>70¢ Cu</u>		<u>75¢ Cu</u>	
	<u>0-5 yr</u>	<u>6-16 yr</u>	<u>0-5 yr</u>	<u>6-16 yr</u>
Operating margin	\$10.1/yr	\$10.1/yr	\$12.1	\$12.1
Depreciation (total)	(1.9)	(3.8)	(1.9)	(3.8)
Depletion	(15%) (3.8)	(50%) (3.1)	(15%) (4.1)	(15%) (4.1)
Taxable income	4.4	3.2	6.1	4.2
Fed income tax @ 52%	(2.3)	(1.7)	(3.2)	(2.2)
Operating margin	10.1	10.1	12.1	12.1
Income tax	2.3	1.7	3.2	2.2
Equip. cost	--	1.9	--	1.9
Cash flow	\$ 7.8	\$ 6.5	\$ 8.9	\$ 8.0

*DCF ROR 19.5%

*DCF ROR 27%

*On initial capital investment increased 1.5 yrs @ 10% to \$35.7 Mill

JEK
3/1/75

Drilling mostly in oxide area —
Avalanche ore — some per wdr + some small Bx pipes/dike
100± spacing.

Vy little drilling to the S and SW — sulphide
extended in this direction. Some Co not followed out
± 8 sections under control. — Feal claims over ore body.
1 state Com. lease 1/2 Sec. No Patents.

(Terminates on South about at Sanaboy school Rd.
and farms)

Pit about 800' deep, centered on porphy plug with vert walls.
3000 Dia at Rim.

Sulphide — Vy concn est. Relativ few holes.

53 M.I. Tons @ .45.
Au .007 Ag .08

± 2000' Level
± 1200' Deep.

Mixed zone 100-200' Nf. Cu
at interface of ox & Sulph

oxide cylinder 1800± Not all ore — Just some ore
is left on lower benches outside pit limit — 300' Dia before
@ 2400 bench

Previous oxide Tons 79 M.t @ .36 1:49:1
oxide + Sulf 132 M.t
Au .007 oz/ton
Ag .085 oz/ton

116 M.t @ 37 M. 1.78:1
ox + Sulf 168 M

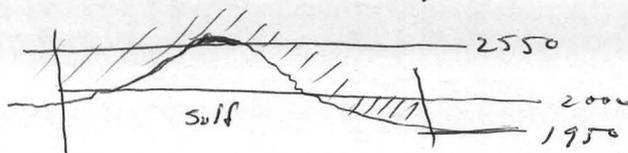
Mo - .001

Some deep intercepts on SE are reported to be Cu-bn

Hole 467 has Cu at 2400 bench - .80% -
1300 from center on SW.

M2 out just N. of Sanchez Rd - SW of Deposit -
Vg small - runs about .42 Cu - No drill holes.

2550 -
2400 - 2950 Center of Sulphide surrounded by ore grade .3-.5 Ox.



Cost / # Cu - ^{quarter} does it include stripping - local taxes etc
incl. Royalty? - T

Recovery - Haze work - Vs 500 to 1000 pools.

Cost off - as above .2% (\downarrow Fee removed)

Indirect -

— Top Fee Fray Marketing Royalties —

Union Pacific Joint Venture

JANCHEZ
Discounted Cash flow
Work Sheet

70¢ Cu

Try 18%

0-5 yr (5yr) 7.8 M.11 x 3.127 = \$ 24.4 M.11 vp @ 0 yr

6-16 (11yr) 6.5 M.11 x 4.656
= \$ 30.26 M.11 disc. for
5 yrs @ 18% = $\frac{30.26}{32.13} \times .437 = \frac{14.0}{13.2}$ M.11 vp @ 0 yr

Present Value = $\frac{37.6}{38.4}$ @ 18%

Try 20%

0-5 yr (5yr) 7.8 M.11 x 2.991 = \$ 23.3 M.11 vp @ 0 yr

6-16 (11yr) 6.5 M.11 x 4.327
= \$ 28.13 M.11 disc. for
5 yrs @ 20% = 28.13 x .402 = 11.2

Present Value = 34.5 @ 20%

Int. Capital. Improved 1 1/2 yrs @ 10% = 31 M.11 x 1.15 = 35.6

Therefore: Return on investment; DCF, ROR about 19 1/2 %

75¢ Cu

Try 25%

0-5 yr (5yr) 8.9 x 2.689 = \$ 23.9 M.11 vp @ 0 yr

6-16 (11yr) 8.0 x 3.656
= 29.24 M.11 disc. for 5 yr @
25% = 29.24 x .328 = 9.6 vp @ 0 yr

Present Value = \$ 33.5 @ 25%

Therefore: by interpolation from tables, rate of return
DCF, ROR (on \$ 35.6) is about 27%.

JJK
1/1/75

JANCHEZ
Royalty Costs
Work Sheet

Assume NSR based on 28% of Cu price for charges and Freight

$$70 \text{¢ Cu} \times .72 = 50.4 \text{¢}$$

$$3\% \text{ Royalty } 50.4 \times 3\% = \text{\$.015 / \# Cu}$$

$$4\% \text{ " } 50.4 \times 4\% = .020 / \# \text{ Cu}$$

$$5\% \text{ " } 50.4 \times 5\% = .025 / \# \text{ Cu}$$

Inspiration $\text{\$5 M.11}$ Equity in property and Exploration,

Considered as Cost / $\# \text{ Cu}$ —

$$\text{Total Cu} = 116 \text{ M.11 tons ore} \times (.37\% \text{ Cu} \times .70 \text{ Rec} \times 20^{\text{th}})$$

$$= 116 \text{ MT ore} \times 5.18 \text{ \# Cu / ton}$$

$$= 600 \text{ M.11 \# Cu}$$

If it is assumed that the Inspiration investment is to be repaid as an installment loan (Diminishing annuity) and that it is only entitled to a "safe" rate (Inspiration risk being represented by their retained royalty) -- say 8%, then;

$$R^n = \frac{A}{A - P \times r}$$

A = Annual Payment

P = Principal

r = interest rate

R = 1 + r

From Table 1 Parks $(1+r)^n = R^n$
8%, 16yr $R^n = 3.426$

$$\frac{A}{A - \text{\$5 M.11} \times .08} = 3.426$$

$$A = 3.426 A - 1,370,400$$

$$2.426 A = 1,370,400$$

$$A = \text{\$565,000}$$

Total Payments: $565,000 \times 16 \text{ yrs} = \text{\$9.04 M.11}$

$$\frac{\text{\$9.04 M.11}}{600 \text{ M.11 \# Cu}} = 1.5 \text{¢ / \# Cu}$$

Improv. of Cap, 31 M. 11 @ 15% for 1 1/2 yrs

$$31 \times 1.23 = 38.1 \text{ M. 11.} \quad = +18\% \text{ from prev calc sheet} \\ @ 70\% \text{ Cur}$$

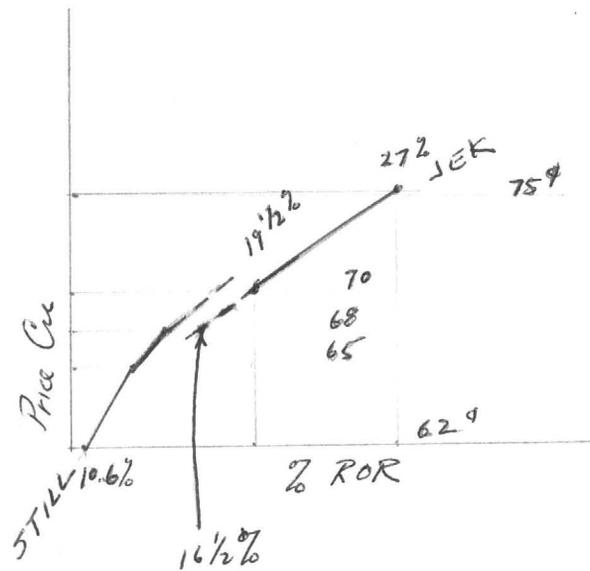
Using 18% vs 19 1/2% on 70% Cur

check against graph of JEC vs Still

$$\text{JEC } 68\% = 16.5\% \text{ by proj.}$$

therefore, if 15% improv. of Capital used, then $16.5 - 1.5 = 15\%$

Thus Still's figure can be checked!!



Ratios to determine
¢/¢ Cu Vs Cap diff of \$ M. II.

$$A: 70^{\text{¢}} \quad 18 \text{ Vs } 202 = 3.1 \text{ M. II diff in Vp}$$

$$B: 75^{\text{¢}} \text{ V } 70^{\text{¢}} = ~~19~~ 27 \text{ Vs } 19.5 \text{ Z}$$

$$\text{or } 5^{\text{¢}} = 7.5\% \text{ diff}$$

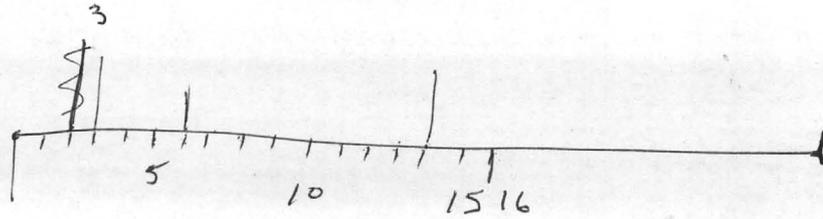
$$\therefore 1^{\text{¢}} = 1.5\% \text{ diff}$$

$$\text{From A - } 2\% = ~~3.1~~ \text{ M. II diff Vp}$$

$$\text{or } 1\% = 1.55 \text{ M. II diff}$$

$$\text{Then } ~~5.5 \times 5 \text{¢}~~ \quad 5 \text{ M. II} \div 1.55 = 3.6\% \text{ change}$$

$$\text{and } \frac{3.6\%}{1.5\%} = 2.4 \text{ ¢ per } 5 \text{ M. II change in cop.}$$

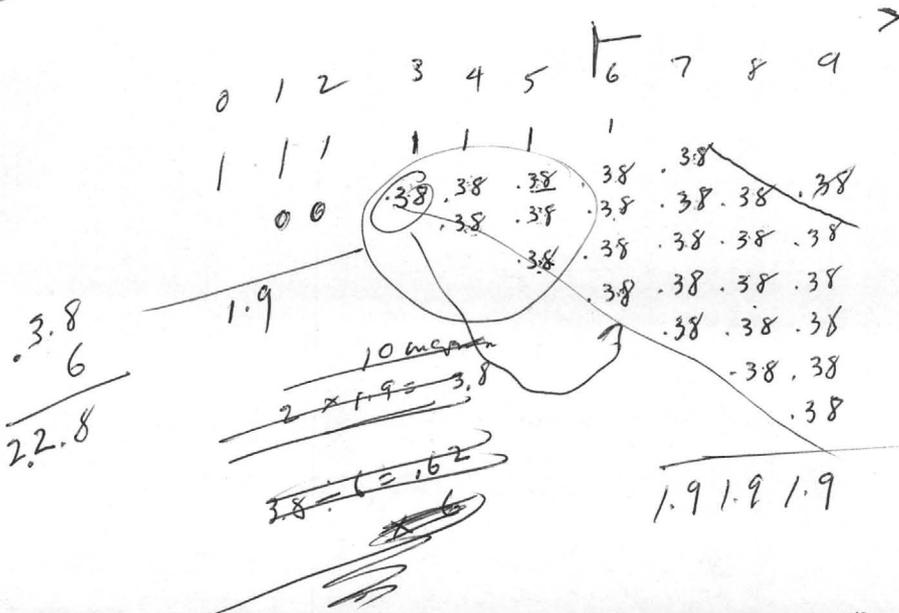


$$6 - 16 = 11 \text{ yrs}$$

$$21 \text{ M.I.} - 12 \text{ yrs} = \frac{1.9}{1.75} \text{ M.I. / yr}$$

$$1.9 \div 5 = .38 \text{ / yr}$$

$$\begin{array}{r} 10 \\ 7 - 16 = \\ \times 1.9 \\ \hline = 19 \end{array}$$



$$\begin{array}{r} 1.9 \\ 4 \\ \hline 2.3 \end{array}$$

$$2.3 + 1.9 \times 10 = \frac{2.3}{19}$$

$$\begin{array}{r} 12.1 \\ 3.8 \\ \hline 8.3 \end{array}$$

$$\begin{array}{r} 12.1 \\ 1.9 \\ \hline 10.2 \end{array}$$

$$6 - 16 \quad 11 \text{ years} @ 1.9/\text{yr} = 21 \text{ M.I.}$$

$$\begin{array}{r} 8.2 \\ 1.7 \\ \hline 6.5 \end{array}$$

$$\begin{array}{r} 10.1 \\ 1.9 \\ \hline 8.2 \\ 1.3 \\ \hline 6.9 \end{array}$$

$$\begin{array}{r} 10.1 \\ 3.8 \\ \hline 6.3 \times 50\% \\ 3.15 \end{array}$$

$$\begin{array}{r} 10.1 \\ 2.8 \\ \hline 7.3 \end{array}$$

$$\begin{array}{r} 152 \quad 3,800,000 \\ 10.1 \\ 2.9 \\ \hline 7.2 \\ 6.9 \\ \hline 3.2 \end{array}$$

$$\begin{array}{r} 10.1 \\ 7.6 \\ \hline 2.5 \end{array}$$

$$\begin{array}{r} 3.8 \\ 3.8 \\ \hline 7.6 \end{array}$$

Summary prepared by Inspiration

SUMMARY: SANCHEZ COPPER PROPERTY

GENERAL

The Sanchez Property is a porphyry-type oxide copper deposit located in the Lone Star Mining District of southeastern Arizona, approximately ten miles northeast of Safford in Graham County. This property lies in Sections 25, 26, 35, and 36; T.65, R 27 E, Salt River Baseline and Meridian. The large, low grade deposit was discovered in 1964 by Harpoon,*Inc., and optioned by Inspiration Consolidated Copper Co. in 1969. Development drilling, metallurgical research, and detailed feasibility studies executed over the past five years have developed plans for a moderate size, low grade, oxide copper leaching operation.

GEOLOGY

The Sanchez Deposit is located on the south end of the Gila Mountains in the Basin and Range Province. Cretaceous andesites are intruded by a tertiary monzonite "pipe-like" mass with many dikes into the andesites. Mineralization in the upper 1200 feet consists of mainly chrysocolla and tenorite, with minor malachite, cuprite, and chalcocite. From 1200 feet down to 3300 feet chalcopyrite and bornite predominate, with chalcocite, pyrite, covelite and molybdenite also present. A mixed oxide-sulfide zone exists with native copper present at the 1000-1200 foot depth contact zone. The alteration is typical phyllic-potassic - propylitic gradation common to porphyry copper deposits. The sulfide zone is largely unexplored, with development focused on surface mining of the upper oxide zone.

*Subsidiary of United Nuclear

DIAMOND DRILLING

A total of 133 diamond drill holes have been drilled on the property by six companies. Complete logs and/or samples are available for approximately 62% of the drilling, with only partial logs or data from the remaining drill holes.

ORE RESERVES

Geologic reserves indicate the presence of 208 million tons of 0.28% copper, of which 166 million tons average 0.33% copper in the vicinity of designed open pits. Gross geologic reserves indicate 250 million tons of 0.25% copper ore in the oxide zone, with an estimated additional 130 million tons of mixed and sulfide ore averaging 0.30% copper underlying the oxides.

Calculated ore reserves from two independent studies on open pit

		Advance Royalty Min \$100,000/yr ($\frac{1}{2}$ ¢ / lb Cu)		
designs show:				or - begin at surface,
		<u>ORE</u>	<u>WASTE RATIO</u>	
economics by Jack St. H	Design 1	79,363,000 Tons @ 0.36% Copper	1.49:1	
	* Design 2	116,000,000 Tons @ 0.37% Copper	1.78:1	
- Union Pacific - Apr. 74	20,000 tpd	68¢ - 16 years life.	31.159	21
			15.7% on 32 M.1 plus 17 M.1	replacement of equipment.

METALLURGY

Pinecock - Allen - Pit design
Computing Ass - Ore Reserves
Hazen - Met design
1 pad - 5000 Tons test on pads duplicated tests on small pre-lim pool tests.
Comprehensive metallurgical process testing on leaching of Sanchez

Ore indicated the Mangula Process to be the most effective system. Recoveries of 60-63% with a 21-day leach cycle were proven feasible. Laboratory testing was scaled up to one 5000-ton batch test on the Mangula system, and a series of 40-ton tests. Dump leaching, vat leaching, and other processes tested were less satisfactory.

bulk samples for pad tests largely from underground of Carpenter shaft and drifts & plus some surface material
Recovery is poor on simple heap leaching (clay disint. rock plus - slow recovery)

62% Cu - 10.67% ROI
65% 13.27% ROI Fuel/oil 35¢ gal Acid \$10/ton

Union Pacific Report
Revised Comparison
11th Dec 74
41.8¢/lb
70.7¢/lb
Exact 7¢/lb
4.1 M.1 AC Top
Cook flow

LAND STATUS

The Sanchez property includes 368 unpatented lode claims, 89 acres of farmland, 10 acres of leased valley border, and 240 acres of leased state land. Inspiration Consolidated Copper Company owns 257 of the unpatented claims, 89 acres of farmland, and holds lease or lease and option agreements on the remaining property. Patent proceedings on 16 lode claims have been initiated, and a BLM land exchange of 1,265 acres or more for plant and dump sites is being negotiated.

SUPPORT FACILITIES

1. Process Water - 1000 GPM of water could feasibly be generated from wells on the property.
2. Potable Water - Safford municipal water is available within 1500 feet of the property.
3. Electric Power - Graham County Co-op will supply 7500 KVA at 4160 volts for secondary distribution.
4. Access - Access is via two alternate roads from Highway 60-70 at Solomon, Arizona, or two miles east of Solomon via the San Jose Road.

Detailed feasibility studies and Economic Evaluations are available for inspection.

Inspiration wishes to lease - not joint venture,

1. period of examination and corroborate results (free)
2. Substantial front end - (5 M.11 investment includes including cost of prep)
3. Perpetual royalty on USR. - don't know
Do not like that profit ^{royalty} - due to legal problems
but might consider.

Pool leaching has advantage with former over controlling acid pollution. Very sensitive in Safford.

Not considered as an acid dump -

Morenci acid is preferable.
Right of way already negotiated -

Deepest holes 2600 - 2800.

Sanchez: 4 Map drawers - plot files.

Inspiration wishes to lease - not joint venture,

1. period of effluents and corrosion results (free)
2. Substantial Franchise - (5 M.11 investment habits including cost of prop.)
3. Perpetual royalty on NSR. - don't know
Do not like net profit ^{royalty} - due to legal problems
but might consider.

Pool leaching has advantage with forms over controlling acid pollution. Very sensitive in Safford.

Not considered as an acid dump -

Morenci acid is preferable.
Right of way already negotiated -

Deepest holes 2600 - 2800.

Sanchez: 4 Map drawers - plot files.

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SANCHEZ

Confidential

JEK Copy

1/9/89

Telephone Call

Sanchez

To LCA

Personal / Confidential

I have obtained these figures from Sal Amzalone. They are bell work but a good general average.

for an SXEW plant

- say 30 tons Cu/prod. per day - Vat leach.

23¢/lb Cu produced acid at 25¢/lb

since acid has gone up a little, today's costs would be about 25¢/lb Cu

Mountain States did a ~~thorough~~ careful review (client unknown). Sal has seen the results - they came up with required \$1.00/lb Cu price to break even at Sanchez. He believes few people know of this report.

Asarco did a review of Sanchez and turned it down. They figured an 80¢/lb Cu cost would break even. They used 80 Mill ton reserve at .38% Cu - obtained from Bill Sorsen of Globe, who owns the property and brought it to them about a year and half ago.

Another figure for SXEW 54¢/ton operating costs is a rule of thumb to Copper plant write off, overhead every thing - \$1.00/ton.

The preferred site for a dump (heap) leach is between the mine and the Gila River - within a mile of the River - Permits from DEQ (Dept Environmental. qual) almost surely can't be had. -- There is some question if the mine itself could be permitted. He doesn't believe Moore recognizes the difficulty here. The alternate heap site is on some low hills up by the mine. The ore would be trucked downslope, then back up hill - and a long haul.

As to the \$75 M. 11. Capital plant cost - this would be hard to meet -

Sal's final comment was that below .5% Copper, there are difficulties. Things may look good on paper, but are hard to work out in practice.

(Of course, Asarco is a conservative Co, and likes a healthy margin - JEK)

As to the mangala process, this was a heap leach with pre-treatment soaking & - in something - I didn't get the details.

His final comments were - be cautious about Sanchez. And forget ~~where~~ where this info came from. I assured him confidentiality to myself and to you. I don't believe I have permission to pass the source on to Dave. I have used Sal's name to let you know the quality of info. It's probably pretty good.

John

Recopied

SANCHEZ

Notes from Telephone call to

Dick (Richard C. Moores) 1/2/1990
(I had expected to be answered by a secretary, and request an annual Report)
AZCO MINING INC.

Moores Answered phone himself.

1. He does not have to file an annual Report
is this because you are set up with a limited
number of investors? Ans - well, yes & No

2. James Cable in London has located 4 principals
These 4 and I suppose Moores hold 75% of the
stock. Raised $3\frac{1}{2}$ \$M. in about
30 investors in the U.S. and Canada.
Total Money so far including the 4
principals is about 5 \$M.

We chatted about several things - he knew my name
and thinks we met back in the vacation days.

I mentioned that Dave Lowell had a
Canadian mining co wishing to locate a leachable
Cu Oxide deposit, and I had brought Sanchez to his attention.
Moores states that Dave never contacted him.
I did not reveal the name of Bethlehem Resources,
as I said I felt I did not have authority to do this.

Moores furnished quite a lot of technical data, but
he is a rapid speaker and I only noted parts of this
data.

Mangula process repudiated
Inspiration ~~design~~ pit layout dates from
late 60's, and was never revised.

They (AZCO) is planning to use the "Mt Isa"
leaching process, with 85-90% Recovery - most of
this in the first day. Crush to (-) $\frac{1}{8}$ ". Sounds
like some kind of wet leach rather than heap
leaching.

$5\frac{1}{2}$ # Acid / ton Cu produced
Acid is cheap, delivered from P.D.

Power Requires 7350 M. @ .12 Cut off, about .3 Ave
168 M. @ .22 Cut off, ave .34

Capital investment Required - 75 M. \$, has
not yet been raised.

Believes he can do it internally in AZCO
with 25% Equity and 75% Debt.

He is willing to take in a mining company
for investment if there is a "fair" deal to
be had.

Original Notes

1/2/89

ALCO Mining Inc.

~~Danvers~~ Golden Colo

303/279-0908

Called 1/2/1990

Dick Moore answered Telephone himself.

4 principals and about ^{3 1/2 Mill.} 30 investors US & Canada
Raised 5 Mill 75% between 4 invest.

James Cable in London.

Mungula process repudiated

Mt. Isa process - 85-90 Rec.

Rush - 1/8

5 1/2 # acid/# Cu acid is cheap - from P.D.

K

ore body in Cu potassic

proven + 350 @ .12 cut off.
about .3 ave

Willing to talk

but do not want to sell out

but want a fair deal

168 @ .2 cut

ave .34 Cu.

Temperature underground work indicated a ~~66~~ ⁶⁵ grade

75 Cops Required.

2nd prop. Strong & Holes 50 M .6 Cu + Zn

JOHN E. KINNISON
Geologist

1220 West Sonora St.
Tucson, Arizona 85745

602/628-9651

November 29, 1989

Memo to:
L. C. Arnold

RE: Sanchez

Personal/Confidential

When we talked over several subjects yesterday, I forgot to pass on the following new info. re. Sanchez.

The background info. that follows may already be known to you and Dave, but the most recent ^{drilling results} happenings probably is not. The most important thing is that I see a possibility ~~a more possibility~~ that Sanchez might fall through a crack and open up, and I have a ~~suggestion of how to monitor the situation if it does unwind. I think we should get Dave's opinion and so there is a plan of action in mind, if the chance comes.~~

The source of my info. is confidential, but it comes from someone
My info. comes from a geologist who has just recently been called in to log core etc., and I believe most of it is accurate. *directly on the job*

I don't know how Dick Moores originally got wind that the property was open; but he got to the owners quickly, and finalized the deal only 3 days before Cyprus tried to make a move. Dave Hackman's group did not do a valid re-investigation of the old drilling data; they did not relog core, investigate assay reliability -and so forth. perhaps they did some revisions of geology, and collaborated with Dick Bideaux, who made an ore reserve estimate, and I presume a computer pit design. Moores has located English capital ~~(with one reservation)~~, and the last thing he wants is a joint venture--I am told that he wants to run the show. The Investor(s) called in Flour to review The Hackman-Bideaux ^{plans} outlook, and backed them up. The British money, however, is still not satisfied, and have stipulated the results ^{to be} confirmed by an undisclosed amount of drilling, for which \$1.5 Mill. have been allotted. If this is successful, the remaining capital investment is promised.

The contractor is Sprague and Henwood. They are drilling 4-inch core holes with a 5ft, 2" barrels. But drilling problems have surfaced, and in my opinion are not being addressed. The core recovery is first measured by running a tape into the tube before removal of core--drillers seem generally to like this, but it does not allow for expansion. However, the core is then weighed and specific gravities are taken--good. The core, however, is so broken that it comes out in small fracture-faced pieces. Joe Janco has been to the site and thinks the drill^{ers} are "pushing" the bit too hard. I'm not sure what this means, but if it refers to "crowding" the bit-- that is, advancing quickly without causing blocking, that is alright. I was able to get good recovery from badly crushed rock at Sacton, using lip-type face discharge bits, good mud, and the use of so-called "crowding". Recovery is reported ^{to be good}, but the completely broken nature of the core seems intolerable. What is particularly bothersome, I would think, is the probability--a high probability-- that the oxides,

*much aware of the
I think Dave should be taking the
current drilling problems.*

LCA - This is nothing more than a first draft, and I would hate to pass it on to Dave complete with my bad spelling, bad typing, and poor sentence structure.

If you would like to edit it and make a joint memo, that would be just fine with me. If not, I'll clean it up and have it typed.

JEK

LCA - I have edited this, but wish your input, at least verbally.

JEK

PAUL WINKLER
428-2980

P.O. Box 511
608 Central Ave

Safford Ave.
85546

Why not call
MOORES, TELL HIM JDL
IS INTERESTED IN
OPENING DEVEL?

C

LCA - This is obviously the most direct approach. Simply contact Moores. JDL need only express confidence in trust in the property. He probably has a list of such requests.

Moores is probably not directly involved in the drilling program. There might be an edge into the financial end alerting him to possible problems -- but this is a very sensitive subject.

The problem with letting an entire drilling program be in ~~jeopardy~~ jeopardy, is that it may make the property hard to finance.

If the values actually become based on the low side, the data is likely to be taken at face value, and there will be no after-the-fact way of proving anything

JEK

being usually soft and friable, could become subject to "washing" inside the core barrel, and be lost in the circulation, thus down-grading the assay. Chrysocholla is particularly susceptible to this. It is somewhat "platy" and floats easily. Moreover, I'm suspicious about the reportedly good recovery. If the core is that broken, it speaks of bad drilling--and whatever Joe Janco suggested was waved off. I immediately ^{suspect} think that the drillers are drilling past "blocks", a bad practice which always results in some core loss due to grinding, *although the problem is probably more complex*

This new drilling could no doubt be fixed up, but Sprague does not intend, it would seem, on solving the problem.

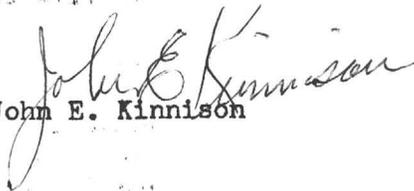
In the event that my thoughts are correct- and that I have been given decent info., the grade could conceivably be systematically biased on the low side. Should this occur, the English backers-whoever they are- would probably pull out.

There are clearly several ways to go, and still leave Moores in control, or at least nominal control, if he loses his current backing. ^{One} The only way to find out how the wind blows is to have a monitor in Safford. I have in mind Paul Winkler, who is the State farm ins. agent in Safford. He is a reputable person, and well known by one of my friends. I met ^{him} once or twice in connection with some claims he held, and I imagine he keeps up with the local mining rumors. His address is P.O. Box 5LL, and his office is 608 Central Ave. Safford, 85543. He would probably do this for a small fee. *This "trickle down" of local news is of course subject to delay.*

Another avenue might be to locate the English financiers and see if they would like a joint venture - financially-- not directly involving Moores, but with the stipulation that the ~~new drilling program be conducted.~~ *new partner be allowed full participation in on-going development drilling.*

When Dave reviews the foregoing, he will no doubt come up with other, possibly better suggestions.

One last comment-- I was also told that PD. reviewed the Hackman/Bideaux plans, and said "it won't fly". I am not certain what emphasis to put on this rumor (it has to be classed as no more than rumor), but with the P.D. open pit expertise, I see a possible warning signal.


John E. Kinnison

Richard C. Moores (Dick)

808 10th ST

Golden Colo 80401

(303) 279-0908

JEK Copy

JOHN E. KINNISON
Geologist

1235 East Sonora St.
Tucson, Arizona 85716

602/623-9780

December 26, 1989

Memorandum to:

J. D. Lowell

L. C. Arnold Personal and Confidential

Re: Sanchez Property
Graham Co., Ariz.

Although you are both familiar with AZCO's Sanchez project, you may not be aware of the most recent drilling results. This information has come directly to me from the job site and suggests a slight possibility that the property may become available in the near future.

Negotiations on the Sanchez property were concluded by AZCO only three days prior to an attempt by Cyprus to negotiate for the property. Dick Moores hired Dave Hackman and Dick Bideaux to develop an ore reserve and preliminary feasibility study, the results of which were used as a basis to attract investment by an English group. The core was not relogged nor was the drilling data reviewed in detail or assay results checked. The feasibility study was reviewed and corroborated by Flour but the investors still insisted on spending \$ 1.5 million on additional drilling prior to commitment of additional funds. This drilling is now in progress and satisfactory results are necessary to insure further financial support.

The drilling contractor is Sprague and Henwood. They are drilling four-inch core holes using a 62-inch core barrel. Problems have developed with the drilling, which I believe are not being addressed but which could materially affect the drilling results. Core recovery is being measured by running a tape into the tube prior to removal of core. Drillers like this method, but it does not allow for expansion. The core is then weighed and the specific gravity calculated. The core is so broken however that it comes out in small fracture-faced pieces.

Joe Janco has been to the drill site and is of the opinion that the drillers are "pushing" the bit too hard. I'm not sure exactly what that means, but if it refers to "crowding" the bit, i.e. advancing quickly without causing blocking it may be alright. I was able to get good recovery from badly crushed rock at Sacaton using lip-type face discharge bits, good mud and use of the so-called "crowding" procedure.

Recovery at Sanchez is reported to be good, but the completely broken nature of the core seems intolerable. What is particularly bothersome is the high probability that the oxide minerals, because

~~Alco~~
AZ Corp Com

1200 W Washington

PHX

85087

542-3026

AZCO Min^{INC} Corp.

542-8345

of their soft and friable nature, could be subject to "washing" inside the barrel and thus be lost to the circulation medium, in this case mud.

If my suspicions are correct, the grade figures resulting from the current round of drilling could be biased on the low side with the result that the English group might decide to back out of the deal. Another warning signal is the rumor that Phelps Dodge Corp. reviewed the Hackman/Bideaux plan and said, "it won't fly." Just a rumor, of course, but possibly significant in view of the open pit expertise in that company.

There are several ways to approach this problem, you may have some ideas yourself. One would be to try and keep tabs on the AZCO work through my friend Paul Winkler in Safford. He has no direct involvement in the project but tends to keep abreast of mining developments in Graham County. Another would be to approach Moores regarding participation in the Sanchez project and thus get on the list of potential investors should the current financial support disappear. Another possibility would be to approach the financial group at this time to determine whether they may be showing signs of discouragement.

I will be interested in your ideas and comments.

John E. Kimison

032
AZ-Graham
(SANCHEZ)

J. E. K.

MAY 19 1975

TO A. D. Wauke
FROM THOMAS W. MITCHAM
DATE 5-19-75

SATURDAY, MAY 17, 1975

TUCSON DAILY CITIZEN

