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AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 28, 1970

Mr. J. J. Collins
Assisstant to the Vice President
New York Office

Superior East
Authorization Request
Dacite Plateau
Globe-Superior Area
Pinal County, Arizona

Dear Sir:

Mr. J. D. Sell's Memorandum of May 26 proposing exploration in the subject area is transmitted herewith.

During the past four months, Mr. Sell has reviewed the exploration possibilities of that portion of the Miami-Superior porphyry copper lineament which is covered by post-mineral rocks. This area is known as the "Dacite Plateau" and is located immediately northeast of the Magma Mine at Superior. Mr. Sell has compiled, in detail, the results of previous exploration efforts in the area, including the information obtained in deep holes drilled by a Miami Copper-Superior Oil joint venture and by Inspiration Copper and Kerr-McGee.

The geologic environment is highly favorable for the existence of important copper mineralization covered by the "Dacite Plateau". As described by Mr. Sell, all the copper deposits in the Miami-Superior District are associated with porphyry copper intrusives which are localized along the northern margin or are satellitic to the Laramide Schultze granite. The northern margin of the Laramide Schultze granite is also the contact, on a regional scale, with a large mass of pre-Cambrian granite. This contact zone containing various porphyry copper deposits is marked by a prominent aeromagnetic gradient resulting from contrasting magnetic susceptibilities between the two granites (high magnetite content in pre-Cambrian vs. low content in Laramide). This gradient continues westward from Miami across the "Dacite Plateau" indicating a similar host environment beneath the post-mineral cover rocks in the area of our current interest.

Because of a great thickness of post-mineral cover on the "Dacite Plateau" previous exploration has been for the most part inconclusive. Most of the holes which have been drilled failed to reach the underlying pre-mineral rocks. Despite the prior exploration efforts by several companies, the "Dacite Plateau" area remains largely untested. Target depths range from 2000 to 5000 feet beneath the surface. These depths

are not prohibitive considering the grade of copper mineralization which could be reasonably expected for another deposit in this district. Underground mining would be feasible today for deposits of the Magma or Miami type and would probably be economic in the future with mineralization of the Castle Dome category.

Mr. Sell proposes and I concur that ASARCO acquire a property position on certain portions of the "Dacite Plateau" that are open for claim location and State prospecting permits. This proposed property acquisition would cover the ground to the west and south of a large claim block controlled by Continental Materials Company (Continental Uranium) and immediately northeast and southeast of Magma Copper's claims over their stacked replacement orebodies.

Acquisition of the land proposed by Mr. Sell would serve two purposes:

1. Improve our bargaining position with either Continental Materials or Magma Copper for joint venture exploration of the Plateau; and

2. Provide control of enough land on the Plateau to complete essentially all the exploration drilling proposed should joint venture negotiations prove unsuccessful. (The Local Manager of Continental Materials expressed interest in our suggestion of a joint venture but this Company now appears to be stalling for more time-perhaps to enlarge their holdings).

If you agree, please request a Mining Authorization in the amount of $45,000 to cover the cost of locating, surveying, cornering, and validation drilling of some 200 claims and two year rental payments on two sections of State Land. Accounting Department Mining Authorization Request Forms 302-M and 302-MA are enclosed.

Our recommendations for deep exploration holes on the Plateau will be deferred until property is acquired and joint venture negotiations are concluded or rejected. The cost of a reasonably comprehensive drilling program will be large. We believe this project is justifiable, however, in view of its favorable location and the size and grade of the anticipated targets.

Mr. Sell should be commended for an excellent job of compiling a great deal of information on this subject and evaluating the exploration possibilities of the "Dacite Plateau".

He is now preparing an adendum to the enclosed Memorandum in which information and data supporting his evaluation will be tabulated. This adendum will be available on request.

Very truly yours,

W E Saegart

W. E. Saegart

WES:lab
cc: JHCourtright JDSell
RJLacy

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 26, 1970

TO: Mr. W. E. Saegart

FROM: Mr. J. D. Sell

DACITE PROPOSAL
Globe-Superior Area
Pinal County, Arizona

An authorization for $45,000 for the Dacite Project is hereby requested for claim acquisition, validation and continued geologic studies.

Submitted is the report and maps outlining the proposed project for copper-moly porphyry type deposits beneath a thick cover of volcanics and conglomerate.

Maps showing the generalized geology, land status and cross-sections illustrating the targets proposed are also included.

ASARCO presently has a lease on State Section 5 (T2S, R13E) and claim staking evaluation on 40 claims is underway in Sections 34 and 35 (T1S, R13E).

It is proposed that ASARCO establish additional control in the area by staking claims in the northwest and west portions of T1S, R13E. Approximately 160 claims would be involved.

An appropriation request for the Dacite Project includes: $2,500 state lease rental, $6,000 claim staking, $20,000 road repair and construction, and $16,500 claim validation for an initial authorization of $45,000.

Authorization and completion of this phase would strongly establish ASARCO in a position to negotiate with other claim groups (Magma Copper Company and Continental Exploration) for testing the target classes outlined, but would not be restricted to negotiation since all the target classes can be tested from the ASARCO land status now proposed.

James D. Sell

JDS/kvs
Attachments

DACITE PROPOSAL
Globe-Superior Area
Pinal County, Arizona

SUMMARY AND RECOMMENDATIONS

Evaluation of the Globe-Superior area with special emphasis on the dacite-covered plateau east of Superior, using deep drill hole penetrations of earlier tests and unpublished data from the workings of Magma Copper Company below the dacite; suggests several target areas for porphyry copper-type mineralization.

Three large tonnage targets, with possible exceptional high-grade ore, are interpreted from known deposits: (1) The Miami-Inspiration class which is localized on the northern edge and across the nose area of the Schultze granite (TKgr), (2) The Castle Dome (Pinto Valley) class which is localized within a satellitic porphyry (Tlgm) some two to four miles north of the Schultze granite northern edge, and (3) The Magma porphyry-breccia class which intrudes Paleozoic sediments and is surrounded by high-grade massive replacement ore bodies in multiple favorable horizons.

Preliminary testing of the targets involves three new holes, re-entry into two previous holes, and one within the Magma claim area as a joint test. Three holes test the northern and nose area of the projected extension of the Schultze granite, one tests for a satellitic porphyry and two test for porphyry and breccia associated with the Magma class.

ASARCO PROPOSAL

Outlined on Attachment A and listed in Table 1 are six proposed sites to test the three classes of large tonnage targets beneath the Dacite Plateau. The cross sections of Attachment B and the site locations presented are to illustrate the target concepts and may be moved or modified with additional geologic-geophysical concepts and land status availability.

The three target classes include:

(1) Miami-Inspiration. Initially 100 million tons of 1.3% copper; production to date exceeds 300 million tons of 0.9% copper.

(2) Castle Dome (Pinto Valley). Initially mined 21 million tons of 0.6% (Castle Dome) with new reserves of 350 million tons of 0.5% copper (Pinto Valley).

(3) Magma breccia-porphyry and limestone replacement. Newly found and published open-ended reserves of 10 million tons of 5.5% copper (limestone replacement) with inferred (no drill holes into inferred chalcocite zone) breccia porphyry ore of 50 million tons of 1% copper and 500 million tons of 0.35% copper.

It is proposed that ASARCO continue its geologic and land acquisition studies with future testing of the three target classes either individually or through joint-ventures with the several companies which now control land in the project area.

Test A-1 (Section 5, T2S, R13E) is on available land and in proximity to Magma's new reserve area. It is along the southern structural edge of the projected Schultze granite trend from Miami and approximately mid-way between Magma's known reserves and the mineralized vein zones southward to the Belmont-Grand Pacific area.

Test A-2 (Section 32, T1S, R13E) is within Magma's claim groups and is recommended as a nearer test of the inferred mineralized brecciated porphyry mass which is presently being encountered by Magma in their underground work in connection with No. 9 shaft. I strongly believe that Magma is unaware of the probability of encountering chalcocite ore in the inferred enriched porphyry breccia which is known at depth.

Test A-3 (Section 28, T1S, R13E) will test the projected nose area of the Schultze granite.

Test A-4 (Section 21, T1S, R13E) is proposed to re-enter the capped Kerr-McGee hole OF-1A with an offset wedge at the bottom to explore for mineralization associated along the northwestern nose area of the Schultze granite projection.

Test A-5 (Section 16, T1S, R13E) is a further test of the Schultze margin-type mineralization.

Test A-6 (Section 3, T1S, R13E) is proposed to re-enter the Miami-Superior hole DCA-1 and continue this 4000-foot hole to completion through the Whitetail conglomerate and into suggested area of satellitic porphyry.

Attachment B contains schematic sections of the inferred target classes for the six drill holes.

LOCATION AND ACCESSIBILITY

Figures 1, 2 and Attachment A show the project area to be located east and northeast of Superior in northeastern Pinal County, Arizona. U. S. Highway 60-70 cuts the area and provides excellent entry from elsewhere in the state.

Attachment A also shows the location of nine previous deep drill holes, two deep shafts, and six holes proposed to test for high-grade and large tonnage deposits.

REGIONAL AND DISTRICT GEOLOGY

Figure 1 outlines the Dacite Project and shows the area to be within the very productive and strong, established, lineament trending through a number of porphyry copper districts including Miami-Poston Butte-Sacaton- and Santa Cruz.

The regional geology is shown on Figure 2 and includes the location of five major copper-moly deposits surrounding the Dacite Plateau.

The Miami-Inspiration deposit on the northeast and the Ray deposit on the south are examples of the type occurrence of a mineralized zone being on the contact between a Laramide granite intrusive and Pinal Schist. Note that both deposits are on the northern margin of the intrusive. The Miami-Inspiration ore body originally contained about 105 million tons of 1.3% copper as chalcocite enrichment.

The Copper Cities and the Castle Dome (Pinto Valley) deposits are examples of the satellitic intrusive-class and are north and northwest of the Miami-Inspiration deposit. The Pinto Valley prospect has recently announced over 350 million tons of 0.5% copper reserves.

The Magma deposits on the west side of the plateau are presently high-grade vein and limestone replacement deposits. Magma's No. 9 shaft, presently being sunk on the plateau, is to exploit open-ended reserves of over ten million tons of over 5.5% copper in stacked limestone replacement bodies which appear to partially surround a blind brecciated porphyry (see File Memoranda in Aa-16A.19.13).

PREVIOUS EXPLORATION TESTS

Table 2 lists the deep tests and workings, along with bottom hole copper values, within the plateau area. Early work by United Verde and Howe Sound probed for continuation of the known exotic copper values in

the schist at Powers Gulch (Sections 1 and 12, T1S, R13E) by drill holes close to the edge of the dacite. Values reported through several hundred feet of exotic copper in schist and diabase (?) ran from 0.08% to 0.50% copper, but apparent grade is quite low for the area. Cibola Exploration placed two holes well into the dacite area along the projection of the Laramide granite body but neither hole penetrated the post-ore cover.

In the late '50s and early '60s, following some deep level IP work by Newmont, activity again increased in the district with three drill holes (DCA-Series) by Miami Copper-Superior Oil group, one (I) by Inspiration Copper and two (OF-1A and DC-1) by Kerr-McGee.

Three of the drill holes (DCA-2, OF-1A, and I) penetrated the cover rocks, with DCA-2 finding minor copper oxide (exotic) values (0.016 to 0.095% Cu) in schist and granite. Hole OF-1A penetrated weakly mineralized diabase (nil to 0.07% Cu) thought to be a dike related to the often barren diabase of the Miami district. Hole I penetrated barren schist and diabase.

LAND STATUS

Attachment C is the land status map as now known. State Lease land is most of T2S, R13E, while the remainder of the map is within the Tonto National Forest. Land withdrawals are limited to two large areas: (a) the Oak Flat Recreation Area of Section 33 (T1S, R13E) and immediate surrounding area, and major portions of Sections 13 and 14 (T1S, R13E) which are covered by various homestead patents.

Magma's known claim area (Sun, East, Oak, Ash) extends from the town of Superior up to and surrounding the Oak Flat Recreation Area and extends both north and south for unknown distances.

Continental Exploration (Continental Materials subsidiary) has recently (1969) staked a large 339 claim block named "Margaret" which covers the central part of the Dacite Plateau.

ASARCO has lease applications submitted for Sections 2, 3, 4 and 5 of T2S, R13E and has received the lease on Section 5 except for the excluded quarter-quarter parcel. ASARCO is presently investigating the property situation south of Continental's "Margaret" claims to fill in down to the State Lease land and also west of Continental's west boundary and north of Magma's boundary for usage and protection in deepening the two re-entry holes as well as some of the proposed test sites.

COSTS

LAND ACQUISITION:

Lease Land.	Two sections immediately and reapplication for two other sections (2 years)	$2,500
Claim Staking.	South group, 40 claims; northwest group, 160 claims	$6,000
Road Building.	Clearing 7.5 miles and basic construction of 6.5 miles	$20,000
Claim Validation and Location Drilling.	200 claims	$16,500
		$45,000

DRILL HOLE PROPOSAL:

As shown in Table 1, it is proposed that six drill holes be placed on the Dacite Plateau to test the three target classes. Depths range from relatively shallow 2000-foot holes (similar to OF-1A and DCA-2) along a bedrock high zone to very deep 5000 plus holes. Costs are proportional.

At present only three of the proposed holes could be drilled, as plotted, on potential ASARCO land. The other three locations are on claims now held by two other groups. The targets using two of the three holes on other claims are to be tested by re-entry into existing drill holes. To test them separately would necessitate a totally new hole on ASARCO holdings.

James D. Sell

J. D. Sell

JDS/kvs

cc: JJCollins
WESaegart
JHCourtright - file copy

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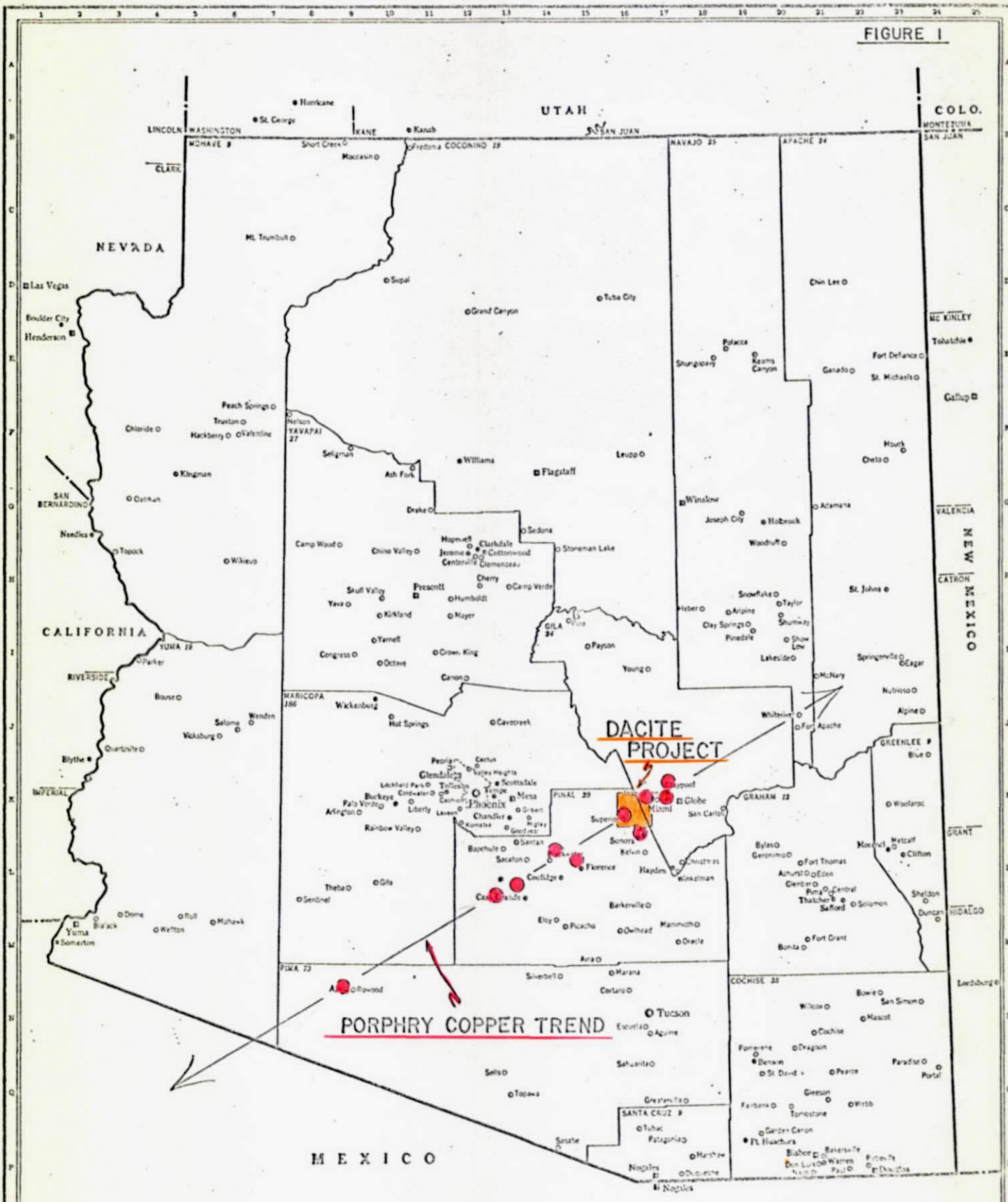
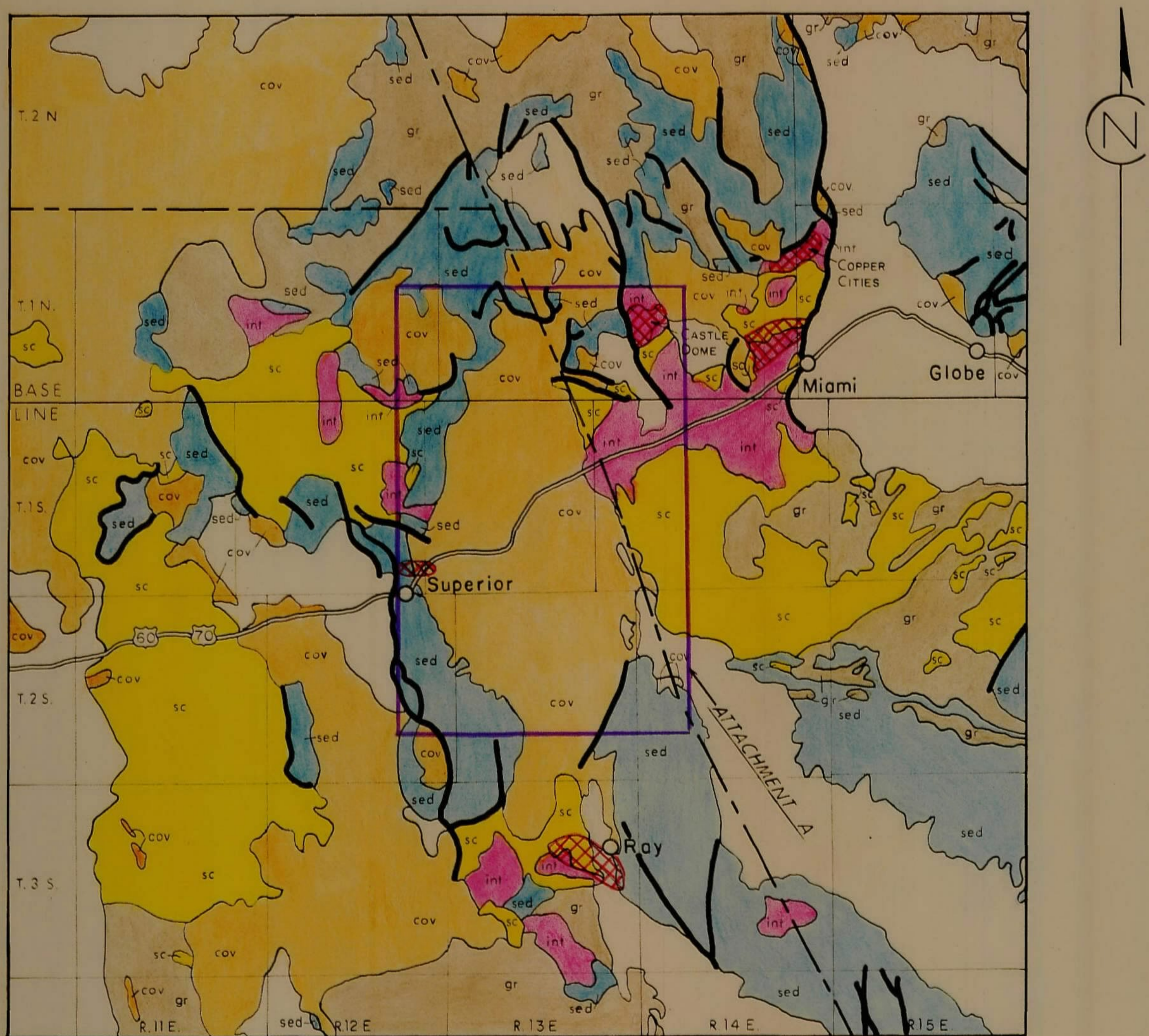
FIGURE 1



DACITE PROJECT

GILA & PINAL COUNTIES, ARIZONA



EXPLANATION

	Quaternary Fill
cov	Post-Mineral Cover - rocks including dacite, early volcanics & whitetail conglomerate
int	Laramide Intrusive
sed	Precambrian Sediments, Diabase & Paleozoic Sediments
gr	Precambrian Granite
sc	Precambrian Schist & Diabase
	MINERALIZED AREA
	OUTLINE OF ATTACHMENT A
	Fault

Adapted from Geol. Map of Arizona (1969)

REGIONAL GEOLOGY

GLOBE, SUPERIOR, RAY DISTRICTS

ARIZONA

SCALE 1:250,000

MAY 1970

0 2 4mile 8mile

TABLE I

ASARCO PROPOSED DEEP DRILL HOLES

Hole No.	Depth	Target
A-1	5750	Altered and mineralized limestones
A-2	5000	Same as A-2, plus mineralized bx
A-3	3200	Mineralized schist and granite
A-4	500*	Mineralized schist and granite
A-5	4500	Mineralized schist and granite
A-6	700*	Mineralized porphyry

* Below bottom of earlier hole.

TABLE 2

DEEP DRILL HOLES AND SHAFTS ON DACITE PLATEAU
With Known Copper Assays

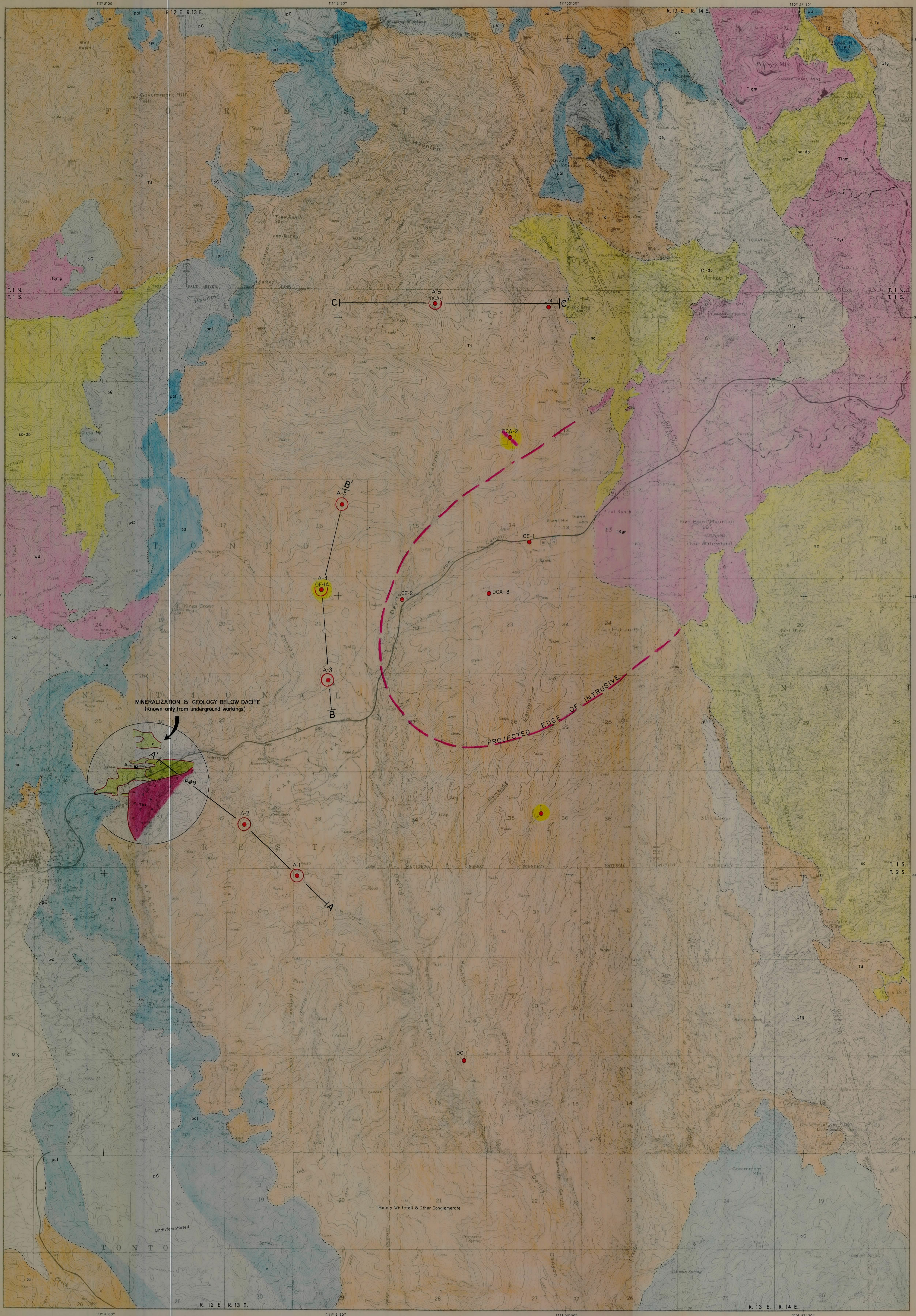
Map Number	Depth	Bottom Rock Type	Location	Company
CE-1	2850	Early Volc.	SE 1/4, Sec. 14*	Cibola Exploration
CE-2	Unknown		NW 1/4, Sec. 22*	Cibola Exploration
U-4	1600	Schist, ex. cu (336 ft.of 0.116% Cu)	NW 1/4, Sec. 2*	United Verde
OF-1A	2150	diabase, wk cu (nil to 0.07% Cu)	NE 1/4, Sec. 21*	Kerr-McGee
DC-1	2303	Whitetail Cgl.	NE 1/4, Sec. 16**	Kerr-McGee
I	3475	Schist-diabase (reported barren)	NE 1/4, Sec. 35*	Inspiration
DCA-1	4011	Whitetail Cgl. (0.024% Cu in bottom)	NE 1/4, Sec. 3*	Miami-Superior
DCA-2	1772	Schist-granite, ex cu (0.016 to 0.095% Cu)	SW 1/4, Sec. 11*	Miami-Superior
DCA-3	3000	Whitetail Cgl.	NW 1/4, Sec. 23*	Miami-Superior
Shaft No. 6	3800	p€ Sed.	SE 1/4, Sec. 25***	Magma
Shaft No. 9	4900 (in progress)	p€ Sed.	NW 1/4, Sec. 32*	Magma

* T1S, R13E

** T2S, R13E

*** T1S, R12E

ATTACHMENT A



—EXPLANATION—

- Quaternary Cover (Qal, Qtg, Qtb)
- Tertiary Dacite (Td), Early Volcanics (Tev), & Whitetail Conglomerate (Tw)
- Laramide Intrusive (TKgr, Tamp, Tqd, Tlgm) & Projected Edge of Intrusive
- Mineralized Breccia (± 0.3 % Cu), (Tbx) Known Only From Underground Workings.
- Paleozoic Sediments (pal) (a) Replacement Ore in Devonian Horizon (b) Stacked Replacement Ore in Devonin thru Pennsylvanian
- Precambrian Sediments (pЄ, 1, Au) & Associated Diabase
- Precambrian Pinal Schist (sc) & Associated Diabase (db)

DRILL HOLE PENETRATION INTO PRE-WHITETAIL CONGLOMERATE UNITS

- DCA-2 Pinal Schist & Laramide Intrusive
- OF-IA Diabase (dikes?)
- I Pinal Schist & Diabase

- OF-IA Known Drill Holes
- A-4 Exemplary Drill Sites
- A A' Cross Sections

0 500 1000' 2000' 4000' 6000'

Generalized Geology

SUPERIOR DACITE PLATEAU & SURROUNDING AREA

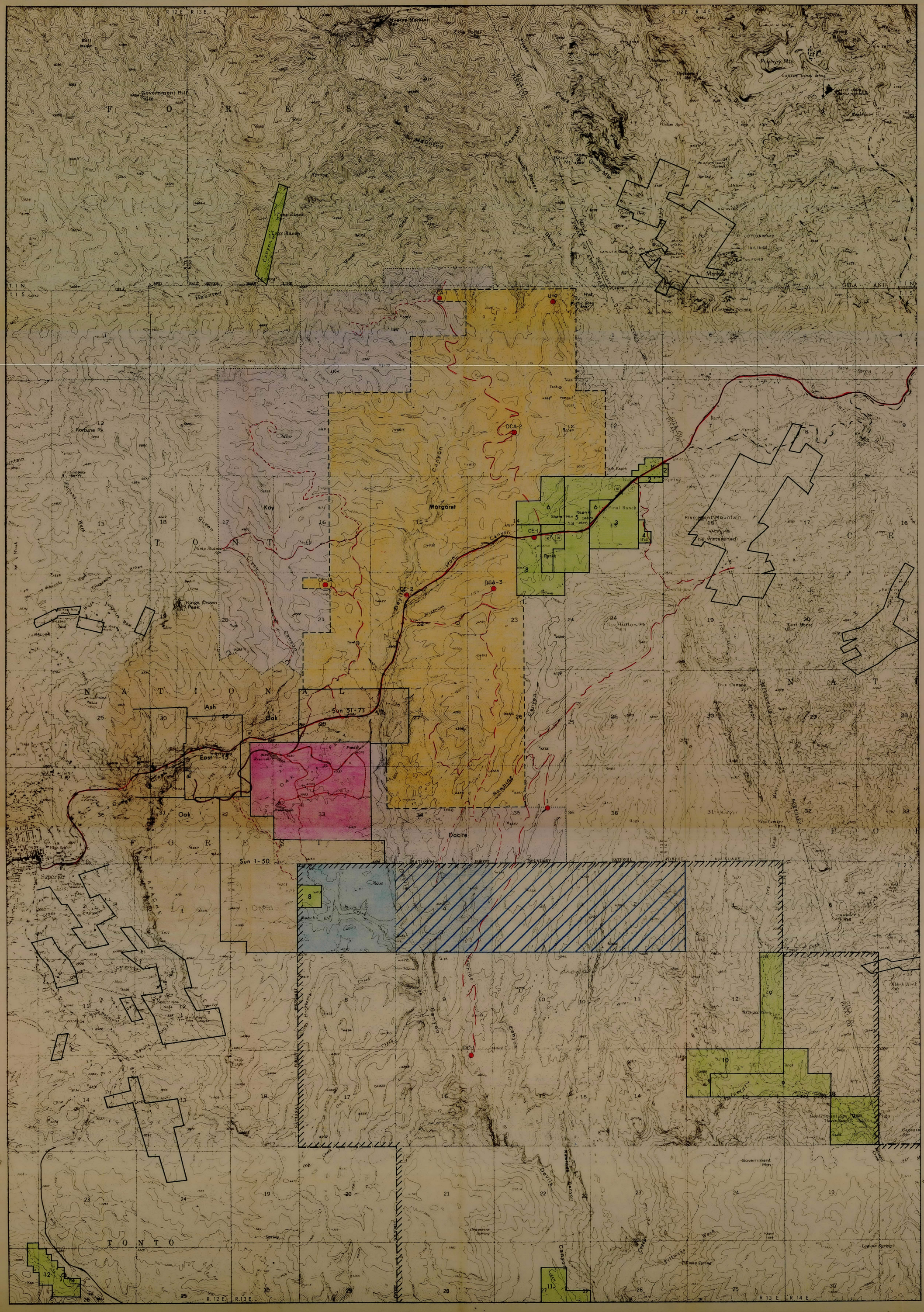
Pinal & Gila Counties, Arizona

SCALE 1:24000

J.D.S. May 1970

2271

ATTACHMENT C



EXPLANATION

- STATE LAND (ALL OTHER LAND IS WITHIN TONTO NATIONAL FOREST)
- PROPOSED ASARCO CLAIM GROUPS
- ASARCO LEASE & APPLICATION
- FEE LAND *
- FOREST SERVICE WITHDRAWAL
- MAGMA COPPER COMPANY CLAIMS (NORTHERN EDGE NOT VERIFIED)
- CONTINENTAL EXPLORATION CLAIMS (EXACT LOCATION NOT VERIFIED)
- MINERAL SURVEY CLAIMS, OWNERS UNKNOWN

* OWNERS

1. HELEN COLE, SUTTON SUMMIT SUBDIVISION
2. WILLARD SHOECRAFT
3. GERALDINE CRAIG
4. ETHEL HENDERSON
5. ROBERT CRAIG
6. GERALD CRAIG
7. THOMES CLARY
8. MILO WEBB
9. THELMA HAGEN
10. HARRY HAGEN
11. KENNECOTT COPPER CORP.
12. OSCAR GRONLAND
13. UNKNOWN

- PAVED OR GRADED ROAD
- UNIMPROVED ROAD
- PROPOSED ROAD FOR LOCATION DRILLING
- OUTLINE OF DACITE PLATEAU
- DCA-3 KNOWN DRILL HOLES

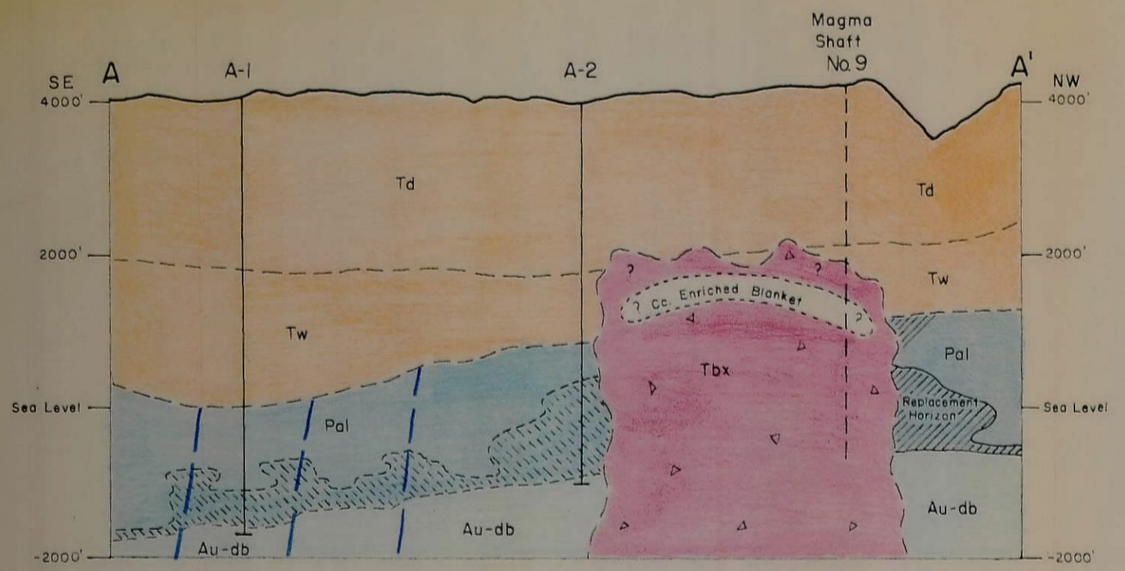
PRELIMINARY LAND STATUS
DACITE PROJECT
Globe, Superior, & Surrounding Area
GILA & PINAL COUNTY, ARIZONA

J.D.S

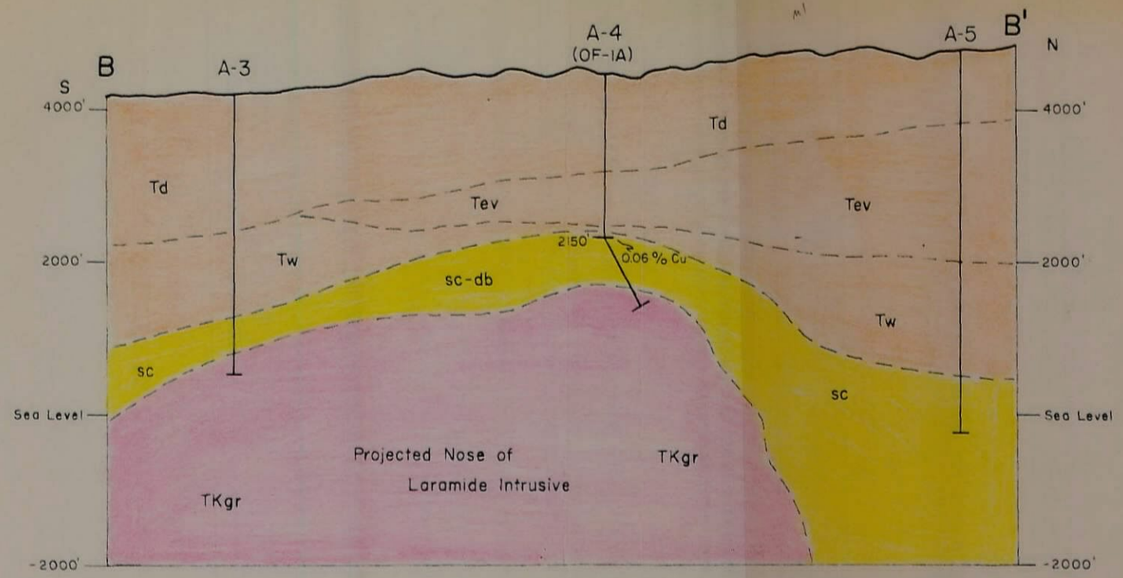
May, 1970

2273 R.E. 12

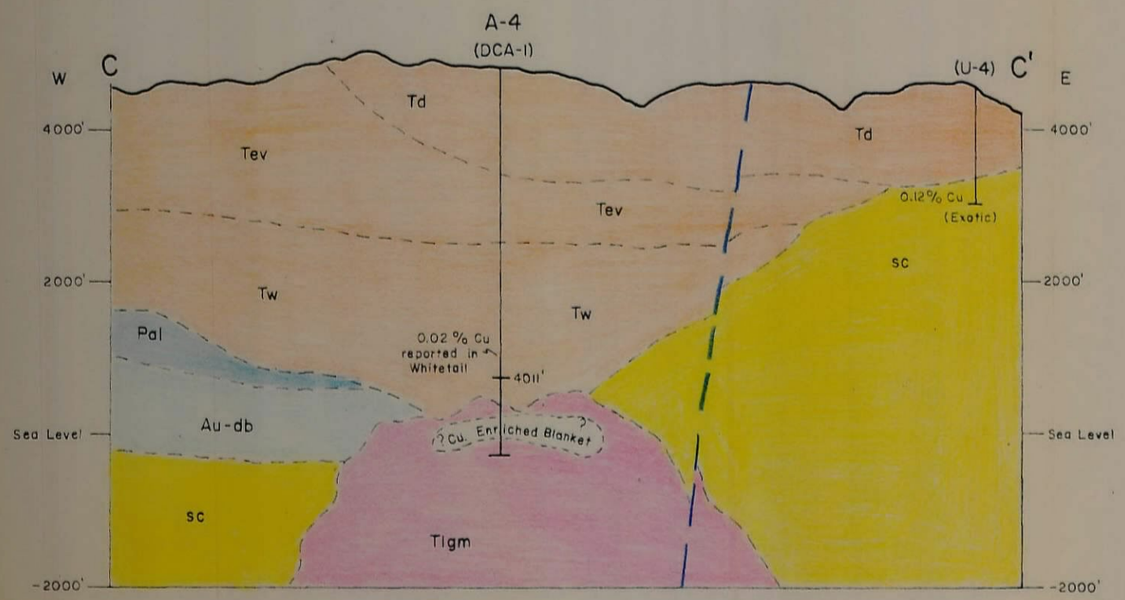
ATTACHMENT B



Section N 50° W
(Looking SW)



Section N 5°E
(Looking West)



Section E-W
(Looking North)

EXPLANATION

Td	Dacite
Tev	Early Volcanics
Tw	Whitetail Conglomerate
TKgr / Tlgm	Laramide Granite / Satallitic Porphyry
Tbx	Brecciated Porphyry
Pal	Paleozoics (With Replacement Ore Bodies)
Au-db	Precambrian Sediment & Diabase
Sc	Pinal Schist

SCHEMATIC SECTIONS

Through Drill Holes To Test Target Concepts

— DACITE PROJECT —

GILA & PINAL COUNTIES, ARIZONA

J.D.S. May, 1970

MVK 2272

copy to J D Sell

Superior East

AMERICAN SMELTING AND REFINING COMPANY
EXPLORATION DEPARTMENT
120 BROADWAY, NEW YORK, N.Y. 10005

JOHN J. COLLINS
ASSISTANT TO THE VICE-PRESIDENT

AIR MAIL

February 12, 1971

Mr. W. E. Saegart
Asarco - Tucson Office

Superior East, Arizona

Dear Sir:

At long last I acknowledge receipt of your letter of January 13 transmitting Mr. Sell's addendum report on this project dated June 3, 1970. It is a useful collection of background information and well presented.

I should like to see a transparent reduction of the geological map keyed as an overlay to the aeromag map. The same applies to Kerr-McGee's structure map.

At the Salt Lake photo mapping course March 15, I would like to exercise my eyes with the high altitude photos of the area. Could you spare a stereo set then? Also, if time allows, would you obtain a set of alternate pictures which I could make into a rough mosaic of the area. I trust contact prints are available at about mile-to-an-inch scale for these purposes. Failing that, the U.S.G.S. regional print lay index (I bought in 1966) would suffice.

Regards,

John J. Collins

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 13, 1971

Mr. J. J. Collins
New York Office

Dear Sir:

Re: Superior East Project
Pinal County, Arizona

This will transmit Mr. J. D. Sell's memorandum of June 3, 1970 which constitutes an addenda to his dacite (Superior East) proposal of May 26. Completion of this addenda was deferred until this time due to more pressing commitments for drafting department time.

The addenda includes north-south and east-west sections through the Dacite Plateau area which illustrates in a general way the thickness of post-mineral cover rocks. Jim Sell has also included copies of Kerr-McGee's reports covering their 1966 drilling in the Plateau area. Please note that Kerr-McGee's hole OF-1A was initially logged by R. C. Barkley as terminating in pre-mineral diabase. A subsequent report by M. J. Fitzgerald describes the rocks in the bottom of the hole as andesite. Fitzgerald recommended deepening hole OF-1A and obviously concluded that the hole had not penetrated the post-mineral sequence. If this is true in fact, a larger portion of the Dacite Plateau within our theorized favorable trend is untested by prior drilling programs.

The claim maps included in the addenda report are no longer accurate since they have not been modified to incorporate newly acquired information.

Our local attorney has approved the draft of the Net Profits Royalty Agreement prepared by Mr. Bowditch covering acquisition of the Margaret Claim Group of Continental Materials Corporation. The draft has been forwarded to that company for consideration.

Geologic studies in the Dacite Plateau and adjacent area are nearing completion. A final report, including drilling recommendations, will be available by the first of April.

Very truly yours,

W. E. Saegart

W. E. Saegart

WES:mw
Enc.
cc: J. D. Sell
Route File Copy to J. H. Courtright
W. L. Kurtz

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 3, 1970

MEMORANDUM TO: W. E. Saegart

Superior East
Dacite Proposal Addenda
Globe-Superior District
Pinal County, Arizona

Enclosed are additional notes and facts which were gathered and partially used in submittal of the Dacite Proposal dated May 26, 1970.

The following headings are expanded and discussed:

MINERALIZATION

Porphyry Copper Deposits
Magma Class of Limestone Replacement and Breccia Porphyry
Exotic Copper Deposits
Whitetail Conglomerate Problem and Study

PREVIOUS PENETRATIONS

Early Series
Later Series

PROPOSED ASARCO DRILLING AND COSTS

DRILLING RATES AND EQUIPMENT

LAND STATUS

ROAD BUILDING

PUBLISHED GEOLOGIC MAPS

RELATION OF KNOWN PORPHYRY DEPOSITS TO MAGNETIC ANOMALIES.

James D Sell

J. D. Sell

JDS/kvs

cc: WLKurtz

Dacite Proposal Addenda
Globe-Superior District
Pinal County, Arizona

MINERALIZATION

Porphyry Copper Deposits. In the porphyry copper deposits known in the district, it is interesting that some lie in structurally high blocks. Especially well-documented are the satellitic horst blocks containing the Copper Cities and Castle Dome (Pinto Valley) deposits. See file memoranda Aa-7.13.13D and Aa-7.13.3E. These two deposits contain a large tonnage of protore values of +0.3% copper but in general had thin chalcocite blankets.

The Miami-Inspiration deposit and its faulted segment known as Miami East (See file memo Aa-7.13.13E) had an exceptionally high grade chalcocite blanket, in excess of 100 million tons, and is underlain by large tonnage of low-grade protore. In a verbal paper by R. Moore of Miami Copper Company (May 8, 1970), he reported that the Miami-Inspiration ore body has produced 6,645 million pounds of copper of the total 8,856 million pounds of the entire Globe-Miami District (as of January 1, 1970). Copper Cities has produced 647 million pounds and Castle Dome 577 million pounds. Thus, the relative importance of the Miami-Inspiration versus satellitic porphyry deposits is graphically illustrated. However, the future of the protore deposits is not to be underestimated when it is known of the large reserves at Pinto Valley and that one drill hole near the west limiting Gold Gulch fault was terminated at 3800 feet in ore-grade material.

Other known chalcocite deposits in the district include the Madera Canyon, estimated to be about the same size as Copper Cities and a grade of $\pm$ 0.3% copper (Blucher, File No. Aa-7.7.0) and the Cactus deposit (p. 95-96, USGS P.P. 342).

On the west side, north of Superior, Blucher outlined several altered zones; namely, the Silver King and Stone House shown on Attachment A, and the further westward zone named Reevis Trail Canyon. These are all highly pyritic with probable low protore values. They all are probably of the satellitic class. It is interesting that in the Stone House area (Sec. 2&3, T1S, R12E) there are ferrugineous-cemented conglomerates similar to those at La Caridad. D. W. Peterson (USGS Map MF-253) originally mapped these as "breccia pipes" but in his latest recompilation of the Superior 7 1/2' quadrangle (USGS Map GQ-818) he did not show these bodies.

A "Copper Springs Canyon" porphyry trend was mentioned by Kerr-McGee (See Attachment C-8). This area lies south of Schultze Ranch and Blucher's Map No. 1408 (Aa-7.7.0) shows a small altered area in section 10, T1S, R14E (Pinal Ranch Quadrangle), and he noted several breccia pipes in the area.

Magma Class of Limestone Replacement and Breccia Porphyry.

Recently reported is the new tonnage and grade figures for the replacement deposit at Magma. (Several memos in File Aa-16A.19.13) Information suggests that some limestone beds of all the Paleozoic units are mineralized and that a commercial "stacked ore body" (memorandum dated March 30, 1970) occurs adjacent to a brecciated porphyry. The lower Devonian horizon contains ore at two and three times the lateral extent of the stacked or multiple zone. This is similar to the deposit at Christmas (AGS Digest 1) where they presently have an open-pit operation to extract a portion of the porphyry and adjacent mineralized limestones.

The extent of the breccia porphyry at Magma is unknown although a 2000-foot drill hole on the 2800 level did not, in my opinion, penetrate the southern extent. Magma presently has or will have drifts on the 3000 through 3600 levels into this porphyry and the new No. 9 shaft being sunk on the Dacite Plateau will also penetrate the porphyry. A sample of the porphyry core reject from over 2500 feet of core was assayed by Magma and a value of 0.35% copper was reported. The piece of core (from 3600 level) submitted with my "buried intrusive" memo of March 30, 1970 (Aa-16A.19.13) shows chalcopyrite and pyrite as discrete grains and cross-cutting veinlets in a dark breccia. Oxidation has leached the replacement deposit down to the 3200 level and confirms the deep leaching cycle present in the district prior to the overflooding of cover rocks of conglomerate and dacite. There is little doubt that the porphyry will be leached and with the apparent protore grade it will indeed be surprising if a chalcocite blanket does not exist in the porphyry as well as secondary mineralization in the adjacent limestones.

Exotic Copper Deposits. All known deposits are on the Globe-Miami side. Presently extensive deposits are being worked at the Blue Bird Mine and Ox Hide Mine north of Schultze Ranch. A small operation is presently working (El Paso Natural Gas group?) at the Bellevue area in section 21, T1S, R14E. The Powers Gulch area (section 1, T1S, R13E) has been of interest for many years as the exotic deposit goes under the Dacite cover. Many years ago Howe Sound put down at least thirteen holes (mostly in the schist) and United Verde drilled five or more on or very near to the dacite (Figure 1). Drill hole U-4 was the deepest and furthest west and penetrated 1264 feet of dacite and 336 feet of

schist containing 0.11% copper (exotic). N. P. Peterson (USGS, P.P.342) suggests that the exotic copper might be coming from an oxidized deposit further west under the dacite. Miami-Superior drill hole DCA-2 located about three-quarters of a mile to the west of the dacite edge encountered 247 feet of schist and granite containing values from 0.014 to 0.095% copper as stain and chrysocolla.

Whitetail Conglomerate Problem and Study. One of the shockers in drilling under the dacite was the extreme thickness of Whitetail conglomerate encountered. The type locality near Castle Dome is some 400 feet thick and in a drill hole nearby was known to be 500 feet thick. At Teapot Mountain north of Ray the section is some 800 feet thick. Drilling under the dacite (Table 1) indicates thicknesses of 55, 95, 570+, 1138+, 1801+ and 1834 feet in the various holes which encountered the Whitetail (the + signifies that the hole terminated in that thickness of Whitetail!). The two thin units were found where relatively shallow bedrock is encountered (Holes OF-1A and DCA-2); elsewhere it apparently thickens rapidly.

Whitetail is known to outcrop on three sides of the Plateau and it is proposed that a study be made for mineralized fragments and stream-deposition direction. Three exposures have been investigated:

1) In Queen Creek at the Thompson Arboretum (NW 1/4, Sec. 7, T2S, R12E). Here the pebbles were predominantly Paleozoic units with minor Precambrian units, and no Laramide intrusives noted. The stream direction was going west-southwesterly to northwest.

2) South side of Queen Creek in SE 1/4, Sec. 36, T1S, R12E. Mostly fine silt fraction with few, mainly Precambrian, units with flow direction westerly.

3) North side of Queen Creek in SW 1/4, Sec. 25, T1S, R12E. Again, mainly silty units but increased pebble fraction. All pebbles were Precambrian sediments plus diabase and schist. No Paleozoics noted even though the Whitetail was noted within several tens of feet of Paleozoic outcrop. Two porphyritic pebbles (dioritic ?) were noted but they were unmineralized. Depositional direction was again predominantly west to northwest, with few pebbles showing east and southeast direction (backwater or obstruction feature ?).

It would not be surprising to ultimately find a deep Whitetail-filled basin which was filled by streams going predominantly southward into the Ray district with the overflow going westerly off the "Concentrator" escarpment. The eastward structural high would be the exposed schist and intrusive granite in the Pinal Ranch quadrangle.

The postulated pre-Whitetail fault must pass east of drill hole "I" which had 1834 feet of Whitetail. Perhaps the trend of Devil's Canyon cutting north-south into the dacite reflects this fault block basin trend, which is then outlined by a structural high trending southwest through drill holes DCA-2 and OF-1A. North of this high the basin again deepens as DCA-1 to the north was terminated in Whitetail after penetrating 1801 feet. Assay of the core runs in the lower portion of DCA-1 returned 0.020% copper. Regionally, this supposed basin would connect northward into the large Tonto Basin at Roosevelt Lake.

PREVIOUS PENETRATIONS

Early Series. Only fragmental information is known about the early work by Howe Sound and United Verde. Figure 1 shows the approximate location of these groups plotted on the Superior quadrangle. Notes from several sources indicate the following:

Hole UVCC, DDH4	0-1264. 1264-1600TD	T dacite, tuff at base schist, 336' @ 0.116% Copper
Hole UVCC, DDH5	0-655 655-835TD	T dacite schist, 180' @ 0.40% Copper
Hole HS 1	0-233TD	diabase (?), 233' @ 0.20% Copper
Hole HS 2	0-65 (?) 65(?)-168TD	schist ? schist, 103' @ 0.09% Copper
Hole HS 4	0-144TD	diabase (?), 144' @ 0.08% Copper

All values as silicates and carbonates. No sulfides known or thought to be original. All exotic copper. See USGS P.P. 342, pages 140-141. Powers Gulch (64 Group).

Cibola Exploration put down two holes well inside the dacite (CE-1 and 2). Blucher reports that N. P. Peterson stated both went to 1400 feet and terminated in basalt. Some information gleaned from Dave Lowell suggests that CE-1 went to 2850 and terminated in early volcanics.

Later Series. Following the release of N. P. Peterson's P. P. 342 report, Lowell, Superior Oil, Miami Copper, Inspiration Copper, and Kerr-McGee became active on the plateau. Lowell was the active force who tied up ground and secured Superior and Miami into a joint venture, which then drilled three holes. Inspiration drilled one and Kerr-McGee drilled two.

Table 1 is a list of the drill holes on the plateau with information as to rock types and depths along with available copper assays on the premineral rock encountered.

It was also reported by Anaconda (doing work for Inspiration) that the IP response for Whitetail conglomerate is very high. This was confirmed by Superior Oil.

Also, notes by Kerr-McGee suggested that the "magnetic" basement below their OF-1A is estimated at 4000 feet (OF-1A was in diabase at 2150TD). Their DC-1 hole terminated in Whitetail conglomerate at 2303 with an estimated depth of 3300 feet to the magnetic basement.

PROPOSED ASARCO DRILLING AND COSTS

Six holes have been proposed for the Dacite Plateau. Construction of cross-sections and previous drill hole information was utilized in figuring depths and rock units. Table 2 is a compilation of this data along with ball-park costs.

Attachment A is a reprint from the similar letter of the original report with the new cross-section lines added. Attachment B contains the long cross-sections across and through the entire width and length of Attachment A. As stated, these were used in the evaluation for depths and probable units in the original report.

J. R. Wojcik suggests that contractors for such work would undoubtedly only drill on rig time contracts. Based on some probable figures, a cost of $1,410 per day was used to determine costs. Some additional costs would accrue in mobilization time, moving time, coring and assaying. Additional road and site preparation has been added in Table 2 over that initially requested in that the initial trail would undoubtedly need more work for passage of the large drill to be used, mud pits constructed, etc.

DRILLING RATES AND EQUIPMENT

Some information was gleaned from the drill logs of Miami-Superior and of Kerr-McGee. Calculations suggest the following:

Dacite drilling - 175 to 225 feet per day; used 200 feet per day in Table 2 calculations.

Early Volcanics drilling - 50 to 60 feet per day; used 60 feet per day.

Whitetail Conglomerate drilling - 60 to 100 feet per day; used 80 feet per day.

Overall in Kerr-McGee holes the average was 105-120 feet per day for total hole, while the M-S holes average 140-170 feet per day.

The difference in drilling rates undoubtedly was in the initial size of the hole and hence the useable equipment (weight). M-S holes varied from 5 5/8" to 9" while the K-M holes were 6 1/4" using a Failing 2500.

J. R. Wojcik suggests that sufficient mud pits and supplies be on hand to cope with the high loss which was found in the Early Volcanics and Whitetail conglomerate. The drilling rates suggest a big increase in problems in these formations.

Attachment C includes several Kerr-McGee reports on the drilling and costs as well as two of Miami-Superior drill logs. Verbal discussion with Ben Dickerson of Superior Oil suggested total high costs ($12.00 to $18.00 per foot ?) were incurred, but no positive figures were given. Inspiration apparently cored their hole from the surface and a $25.00 per foot cost was released.

LAND STATUS

The basic land status is resubmitted as Attachment D.

Work presently in progress and proposed utilizing Mr. Harvey W. Smith (tel: 946-0989, Scottsdale, Arizona) will clarify the boundary line of Continental and Magma. Mr. Smith will submit a map of the new and true boundaries.

Verbal discussion with John Roscoe of Continental on May 25, 1970 revealed that Margaret claims 329 and 330 were specifically laid out to include the drill holes DCA-1 and OF-1A. Plotting claims on the map thus suggests that a full 600 x 1500-foot claim was not established in the field.

Figures 2-A and 2-B show the claim distribution for the Continental Exploration "Margaret" group and the proposed ASARCO "Kay" group to the west. Exact details of the Kay group depend upon the boundary of the northern Magma claims (Oak and Ash?) and other possible claim conflicts, which is now under study. On the south in Sections 34 and 35, south of Continental's boundary, early investigation indicates open ground going

down to the State Lease land located in T2S. Claims are presently being staked in the open ground by HW Smith.

It should also be noted that a 200-foot (?) mineral withdrawal has been made along U. S. Highway 60-70, thus separating claim lands to the north and south. Although the claims span the road, legally the locations and work should be separated and kept out of the right-of-way withdrawal. Thus, Continental schedules work on both sides of the road to hold onto the appropriate claims. Magma holds claims over the highway and mines ore from under the right of way.

The name and addresses of the patent land numbers are as follows (secured by S. I. Bowditch):

1. Sutton Summitt Subdivision; Helen Cole

2. Willard Shoecraft, 326 High Street, Globe 85501

3. Geraldine Craig, 369 So. Sutherland Street, Globe 85501

4. Ethel Henderson, P. O. Box 863, Miami 85539

5. Robert Craig, Pinal Ranch, Star Route, Box 15, Miami 85539

6. Gerald Craig, 538 W. Monte Vista, Phoenix 85003

7. Thomas Clary, P. O. Box 2513, Globe 85501

8. Milo Webb, Star Route, Miami 85539

(NOTE: Irregular lots at common corner of units 6, 7 and 8 have been sold to individuals.)

9. Thelma Hagen, c/o Harry Hagen, Globe

10. Harry Hagen, Globe

11. Kennecott Copper Corporation, Ray

(NOTE: On units 9, 10 and 11, the State may have reserved a one-sixteenth interest.)

12. Oscar Gronland, Box 528, Superior 85273

13. Unknown.

ROAD BUILDING

As shown on Attachment D (Preliminary Land Status), appreciable road work has been done in the areas previously claimed. Additional road construction will be necessary for ASARCO claim validation and drilling.

Verbal conversation with Harry Hagen (Hagen Construction, tel. 425-5784, Globe, Arizona), who built most of the roads for Miami and Inspiration on the Plateau plus Magma's new road to No. 9 Shaft, indicates that if little blasting needs to be done than a cost of 5 to 15 cents per foot ($250 to $800 per mile) is applicable; but for a better improved road requiring blasting, then the cost would be nearer 50 cents per foot ($2600 per mile).

Rough calculations suggest the following footage (mileage):

South Area. Clean 14,000 feet, new 8000 feet to Section 34, and new 4000 feet to Section 35.

Northwest Area. Clean 26,500 feet, new 9000 feet for Sections 8, 9, 16 and 17, and new 5,500 feet for Sections 20 and 21.

Northeast Area. Clean 21,000 feet, new 3,000 feet to sections north of DCA-1, and new 5,000 feet to west sections 3 and 4.

The present road from the J I Ranch area north to DCA-1 and DCA-2 goes through fee land and a small group of subdivision lots. At present the gate is generally locked, but John Roscoe states that they have secured an easement right through the area for a modest yearly fee.

PUBLISHED GEOLOGIC MAPS

Published mapping by the USGS in the area of the Dacite Plateau is shown on Figure 3. Quadrangles outside the immediate area have not been released although detailed quadrangle mapping is in progress around the Ray area to the south.

ASARCO map 2263 is a compilation of the Superior 7 1/2' quadrangle which is now scheduled to be published as USGS map GQ-818.

RELATION OF KNOWN PORPHYRY DEPOSITS TO MAGNETIC ANOMALIES

The basic geology of the Globe-Superior-Ray Districts is shown on Figure 4 (same as Figure 2 of the original report) with Figure 5 being a portion of the U. of A. (J. S. Sumner) high-level aeromagnetic map (rectified) of the same general area (but covering additional land outside the geologic map).

The interpretation by W. G. Farley shows the change of gradient boundary which he believes to be deep-seated granitic plutons. Several points are outstanding:

1. The steepest-longest gradient is essentially the area where the large high-grade Miami-Inspiration ore-body is found.

2. The next best gradient edge is east of Superior and falls under the Dacite Plateau in the general area of recommended drilling.

Further clarification of magnetic interpretation is under investigation by the Salt Lake City group and will be reported upon completion.

As reported earlier, Kerr-McGee interpretation indicated a magnetic basement at 4000 feet in the area of OF-1A and 3300 feet at DC-1 with neither hole going to those depths.

Continental Exploration has contracted with a Mr. Cooksley of Redding, California, for a seismic study over the plateau. The report is due in late May.

James D. Sell

JDS/kvs

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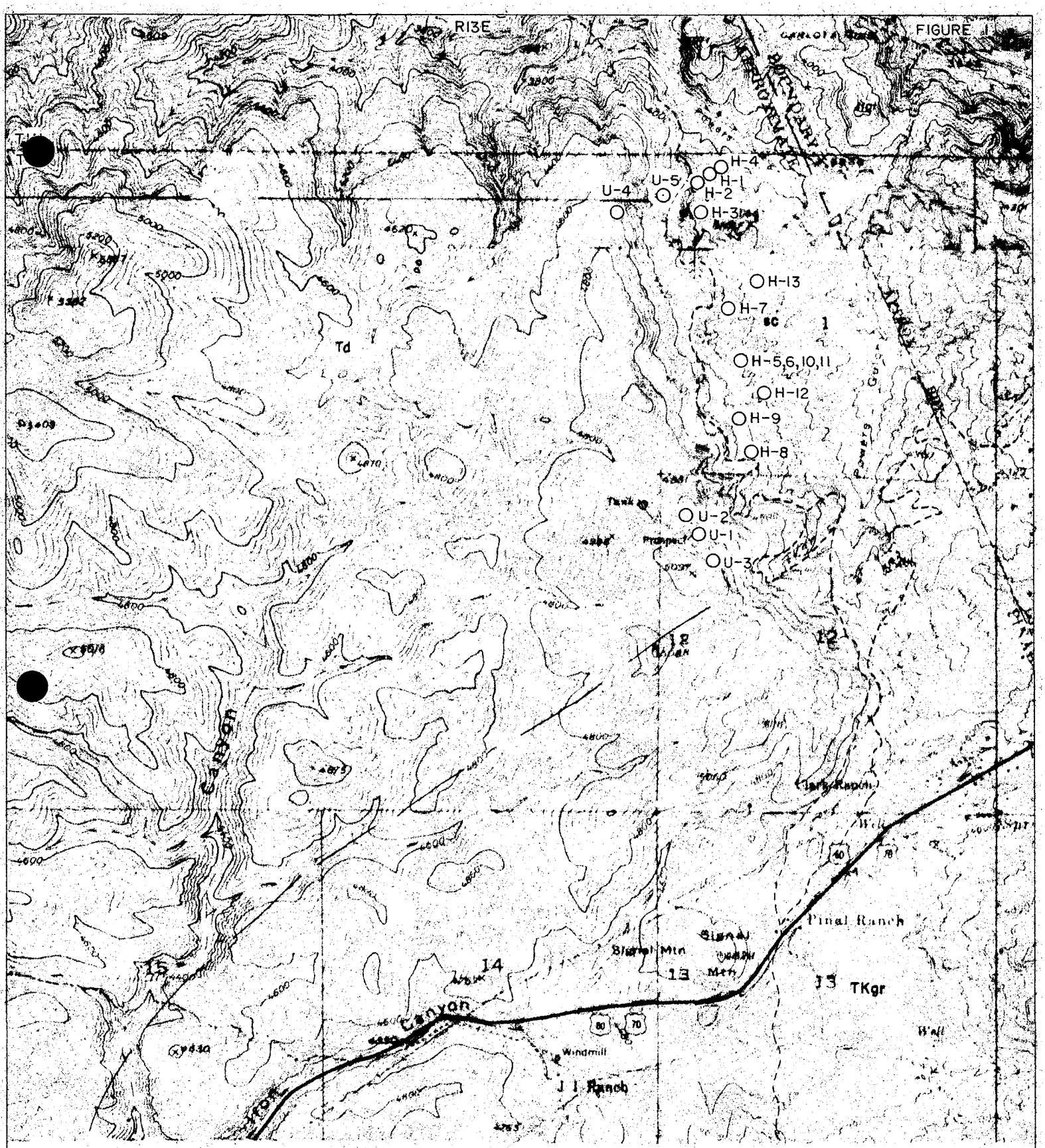


Location of Howe Sound (H) and United Verde (U) Drill Holes

SUPERIOR EAST PROJECT

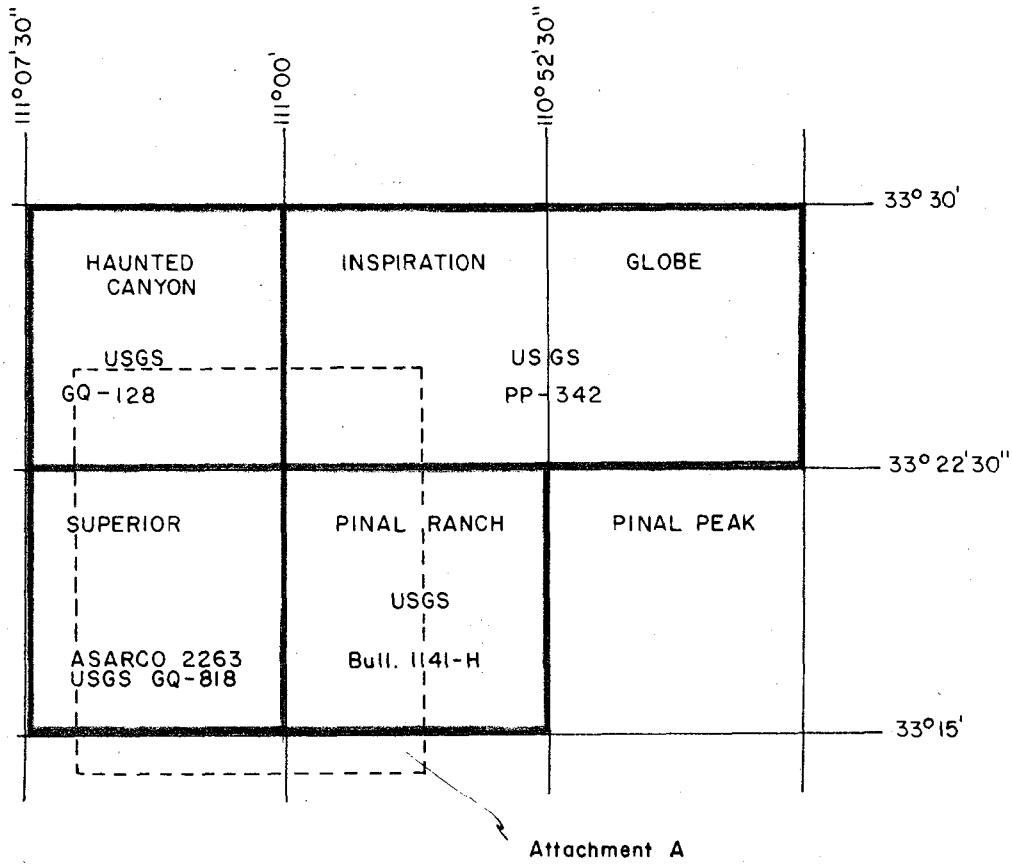
Globe-Superior District

PINAL & GILA COUNTIES

Scale: 1:24,000

JDS - 1970

CE 2331



GQ-128. Geology of the Haunted Canyon Triangle, by D.W. Peterson, 1960. (1 sheet)

PP-342. Geology and Ore Deposits of the Globe-Miami District, Arizona, by N.P. Peterson, 1962 (Plate 1).

ASARCO 2263. Geologic Map of the Superior (7-1/2') Quadrangle, compiled by J.D. Sell, 1970. (File Memo Aa-16.A.16.19A, Map No. 2263.)

Bull. 1141-H. Geology of the Pinal Ranch Quadrangle, by N.P. Peterson, 1963 (Plate 1)

GQ-818. Geologic Map of the Superior Quadrangle, Pinal County, Arizona, by D.W. Peterson, 1969. (1 sheet with text.) Note: Detailed 1:12000 mapping of the west half was released as USGS Map MF-253.

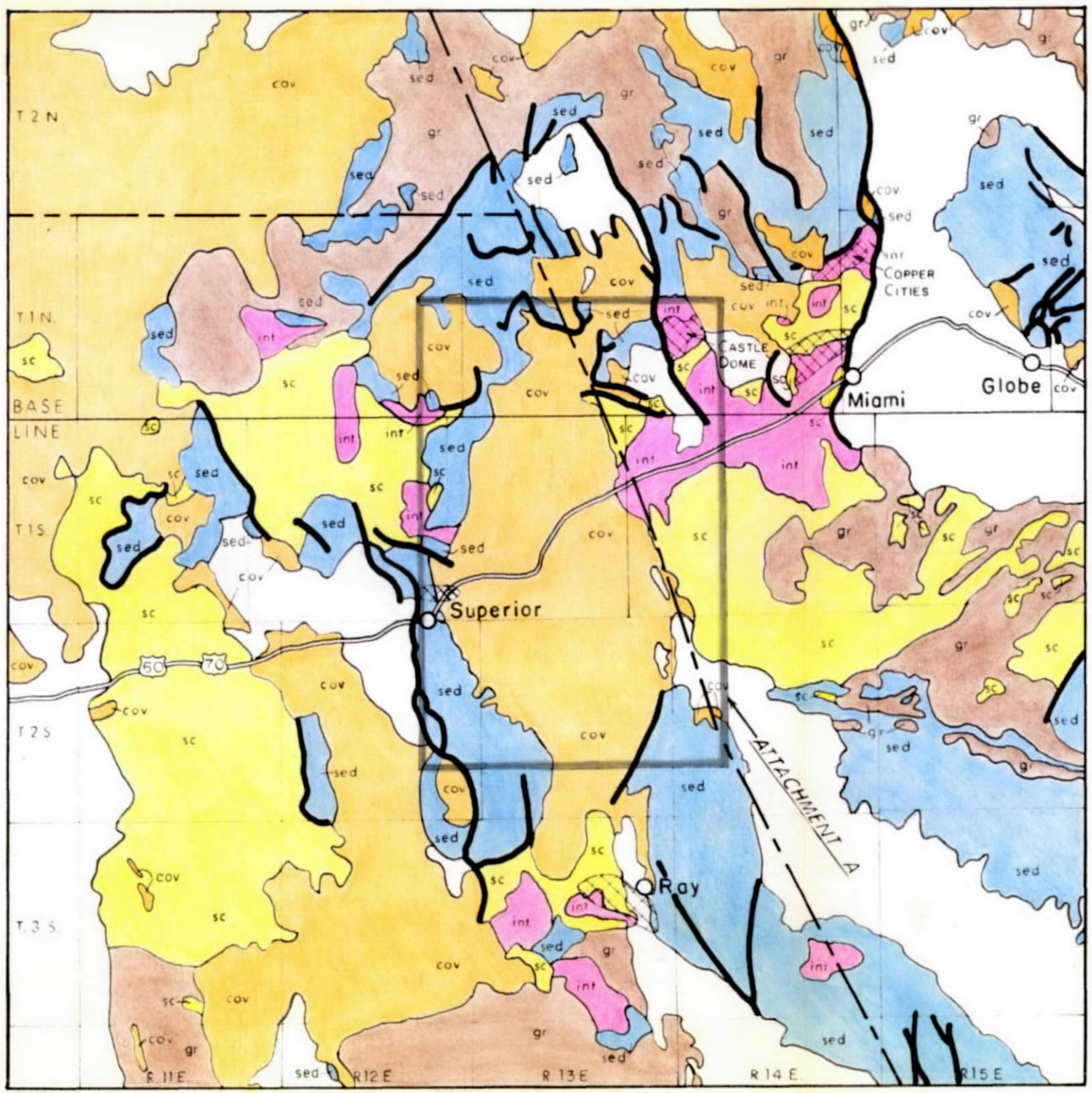
Geologic Quadrangle Mapping in Globe – Superior Area (7 1/2' Quadrangles)

SUPERIOR EAST PROJECT

PINAL & GILA COUNTIES

J.D.S. 1970

MVK 2334



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EXPLANATION

		Quaternary Fill
737	cov	Post-Mineral Cover - rocks including dacite, early volcanics & whitetail conglomerate
745	int	Laramide Intrusive
740½	sed	Precambrian Sediments, Diabase & Paleozoic Sediments
756	gr	Precambrian Granite
735½	sc	Precambrian Schist & Diabase

MINERALIZED AREA

OUTLINE OF ATTACHMENT A

Fault

Adapted from Geol. Map of Arizona (1969)

REGIONAL GEOLOGY
GLOBE, SUPERIOR, RAY DISTRICTS
ARIZONA

SCALE 1:250,000

JDS MAY 1970

0 2 4mile 8mile

TABLE I

DRILL HOLE INFORMATION SHOWING ROCK UNITS AND KNOWN ASSAYS.

DACITE PLATEAU

Map No.	Company	Location	Collar Elev.±	Rock Unit	Information	Thickness
CE-1	Cibola Expl.	NW¼ SE¼, Sec.14,T1S,R13E	4485	grey Td	0-2200, Td 2200-2850 TD, Tev	2200+ 650+
CE-2	Cibola Expl.	SE¼ NW¼, Sec.22,T1S,R13E	4080	grey Td	1490' No information	
OF-1A	Kerr-McGee	NW¼ NE¼, Sec.21,T1S,R13E	4410	white Td	0-1995, Td 1995-2050, Tw 2050-2150 TD, db (dike?) nil to 0.07% Cu	1995+ 55' 100+
DC-1	Kerr-McGee	NE¼ NE¼, Sec.16,T2S,R13E	3990	Td	0-1165, Td 1165-2303 TD, Tw	1165+ 1138+
I	Inspiration	SE¼ NE¼, Sec.35,T1S,R13E	4200	Td	0-1105, Td 1105-2939, Tw 2939-3240, db 3240-3475 TD, sc No sulfides reported.	1105+ 1834 301 235+
DCA-1	Miami-Superior	NW¼ NE¼, Sec.3,T1S,R13E (unsurveyed)	4780 60	Td	0-1360, Td 1360-1845 felsite } Tev 1845-2210 Andesite } 2210-4011 TD, Tw NOTE: log shows db and igneous rocks as high as 1935; but 90% of rock is andesite. @ 2885 - native Cu frag. in schist @ 2959-2971 core; 0.024% Cu @ 3514-3525 core; 0.024% Cu @ 4000-4011 core; 0.020% Cu	1360+ 850 1801+

Map No.	Company	Location	Collar Elev.±	Rock Unit	Information	Thickness
DCA-2	Miami-Superior	~~NE¼ SW¼~~ NW¼ SE¼, Sec.11,T1S,R13E (unsurveyed)	~~4800~~ 4720	white Td	0-1340, Td 1340-1525, Tw 1525-1575, sc w/ex Cu 1575-1678, Kqm w/ex Cu 1678-1772, TD, sc w/ex Cu NOTE: Lost circulation from 1270-1340 - ? on Tw contact @ 1471-1525; 0.008 to 0.038% Cu @ 1525-1575; 0.016 to 0.026% Cu @ 1575-1680; 0.014 to 0.095% Cu @ 1680-1772; 0.020 to 0.075% Cu total copper values; a sulfide, still highly oxidized, sample at bottom ran 0.09 to 0.18% Cu	1430+ 95 50 103 94+
DCA-3	Miami-Superior	NW¼ NW¼, Sec.23,T1S,R13E	4640	white Td	0-1400, Td 1400-1415, vitroph. 1415-1490, tuff } Td 1490-2430, basalt, Tev 2430-3000, TD, Tw	1490+ 940 570+
U-4	United Verde	~~SW¼~~ NE¼ SW¼ NE¼, Sec.2,T1S,R13E	4640	Dacite	0-1264, Td 1264-1600, TD, sc 0.116% copper, exotic	1264+ 336+
U-5	United Verde	SE¼ NE¼, Sec.2, T1S,R13E	4165	Dacite	0-655, Td 655-835 TD, sc 0.40% copper, exotic	655+ 180+

TD = total depth
Td = Dacite
Tev = Early Volcanics
Tw = Whitetail conglomerate
Kqm = Schultze quartz monzonite
sc = Pinal Schist
ex Cu = exotic copper

TABLE 2

ASARCO PROPOSED DRILL HOLES AND COSTS

Hole	Depth	Road-Site Prep.	Drilling-Case-Cem., etc. foot-type (days)		Cost*	Overhead @ $2/ft.	Totals
A-1	5750	3000	2300'Td	(12)	1) 69,000	11,500	83,500
			1800'Tw	(23)			
			1650'Pal	(14)	2)(69,100)		
A-2	5000	500	2200'Td	(11)	60,000	10,000	70,500
			950'Tw	(12)			
			1850'Pal	(16)	(55,000)		
A-3	3200	1000	1800'Td	(9)	38,400	6,400	45,800
			1200'Tw	(15)			
			200'Sc-Gr	(2)	(36,700)		
A-4	500	1000	Cleanout-wedge	(3)	6,000	1,000	14,700
			500' Sc-gr	(6)	(12,700)		
A-5	4500	8000	900'Td	(5)	54,000	9,000	98,800
			1800'Tw	(30)			
			1500'Tw	(19)			
			300'Sc-Gr	(4)	(81,800)		
A-6	700	2000	Cleanout	(5)	8,400	1,400	23,100
			400'Tw	(5)			
			300'Tlgm	(4)	(19,700)		
							$336,400
							13,600
							$350,000

*Costs computed at:

1) $12 per foot
2) $1,410 per day (rig, bits, mud)

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KERR-McGEE OIL INDUSTRIES, INC.
Internal Correspondence

TO: E. E. Jones

DATE: January 15, 1965

FROM: R. C. Barkley

SUBJECT: Evaluation and Drilling Report of Oak Flat and Devils Canyon Area, Pinal County, Arizona

OAK FLAT AREA

Preliminary Recommendations

Drilling was recommended in the Oak Flat area by Mike Fitzgerald on the basis of a structural intersection of three prominent structures projected underneath the post-ore dacite cover. A study and comparison of other orebodies in the area indicates that chance of sulfide mineralization near each structural intersection are about five out of seven.

Results of Drilling

Drilling was commenced the 17th of September, 1964, by C. C. Smith Drilling Co. A rotary-type Failing 1500 rig that was rigged for a 2000 foot capacity was used for the first hole. A total of 671 feet was drilled into the dacite when the drillers encountered trouble twisting off the pipe and losing the bit cones in the hole. Five days were spent in trying to retrieve the bit cones and junk basket before abandoning the hole on the 24th of September.

An offset (DDH OF-1A) to the abandoned hole DDH OF-1 was started on October 27 by C. C. Smith Drilling Company. A rotary-type Failing 2500 rig was used in drilling the offset hole. A total of 2150 feet was drilled in DDH OF-1A to complete the hole on November 15.

Three vitrophyre zones were encountered from 1635 to 1670 feet; 1790 to 1840 feet; and from 1875 to 1930 feet respectively. A vitrophyre and basal tuff zone predominantly is a marker horizon for the dacite over most of the exposed area. The white tuff zone was absent below all of the vitrophyre zones in the hole. The three vitrophyre zones could represent either a reverse fault or flows within the dacite. Total thickness of the dacite is 1995 feet. A zone from 1995 to 2050 feet consists mainly of black shale and lime fragments with minor orange silicified particles and may represent a weathered zone of the Whitetail conglomerate. From 2050 to 2150 feet a diabase was encountered with core taken from 2130 to 2150 feet. Assays of the cored interval from 2130 to 2140 feet are a trace of gold and silver, and 0.07% Cu. A standard assay of the cored interval from 2140 to 2145 feet are 0.06 oz. Ag and 0.004 oz. Au. A petrographic description of thin sections from the core by M. Wood of the University of Arizona is as follows:

Plagioclase	-	78%
Augite	-	10%
Chlorite	-	trace
Magnetite?	-	12%

The texture is diabasic with a well aligned fabric of plagioclase laths. Augite is interstitial. The megascopic banded appearance is unrecognizable in thin section. The fine-grained equigranular texture indicates a hypabyssal (dike) origin.

Conclusions and Recommendations

The Apache group is exposed north and west of the hole, so that the diabase encountered in the hole may be a diabasic intrusive within the Apache group. Anomalous values of gold, silver and copper in the diabase may indicate adjacent mineralization. It is recommended that an induced polarization survey be made down the hole and an area around the hole that can be effectively surveyed to see if any sulfides are present.

A breakdown of the costs for hole #OF-1 and OF-1A excluding surveying and claim staking is as follows:

Road Construction and Repair (including drill site and mud pits)		$5,516.49
Drilling	OF-1 (abandoned)	5,455.70
	OF-1A (offset)	12,137.50
	Total	$17,593.20
Rotary Bits		
13 size 4 3/4" rotary bits @ $37.00/bit		$ 481.00
25 size 6 1/4" rotary bits @ $75.00/bit		1,875.00
	Total	$2,356.00
Surface Casing		$ 50.67
Water — 21 loads @ $1.00/load		$ 21.00
Loss of Circulation Material		$2,768.85
	Total	$28,306.21

Excluding road construction expenses, average cost per foot is $10.60

DEVILS CANYON AREA

Preliminary Recommendations

A hole was recommended 5 1/2 miles north of Ray in the Devils Canyon area by Mike Fitzgerald on the basis of an intersection of three major structural trends projected underneath post-mineral rocks.

Results of Drilling

Drilling was started the 27th of November, 1964 and completed to a total depth of 2303 feet on December 17 by C. C. Smith Drilling Co. A Failing 2500 rotary-type drill rig was used to drill the hole.

Total thickness of dacite is 1130 feet. Vitrophyre is present from 1130 to 1160 feet and a white tuff unit was encountered from 1160 to 1165 feet. A thickness of 1138 feet was drilled into the Whitetail conglomerate from 1165 to 2303 feet. Due to a slower drilling rate, excessive thickness of the conglomerate, and increased drilling costs, the hole was bottomed in the Whitetail conglomerate. From 1165 to 1800 feet the conglomerate contains larger size pebbles and boulders which decreased the rate of drilling considerably.

Conclusions and Recommendations

Before the drilling started, the thickest known section of Whitetail conglomerate was about 800 feet, exposed on Teapot Mountain north of Ray. As drilling progressed information was received that the Whitetail conglomerate was 1834 feet thick in Inspiration's hole three miles north of DDH DC-1. During the course of the drilling of this hole a reconnaissance of the Whitetail conglomerate exposed one half mile south and west of the drill hole revealed the possibility of an excessive thickness of the conglomerate, that is generally tilted 15° to 40° to the northeast.

From this information a basin of Whitetail conglomerate can be projected from north of Ray to at least Section 26, T1S, R13E, for over eight miles with Devils Canyon forming the west boundary of the basin.

It is recommended that an induced polarization survey be made down the hole and an area around the hole that can be effectively surveyed to see if any sulfides are present. More detailed mapping should be done in the area south and west of the drill hole of the Whitetail conglomerate and pre-mineral rocks to better understand the structures involved. Sufficient money has been spent on road construction and drilling to hold the State leases until August 8, 1966.

The log of Inspiration's hole is as follows:

0-1105 feet - Dacite
1105-2939 feet - Whitetail conglomerate
2939-3240 feet - Diabase
3240-3475 T.D. - Pinal Schist

Inspiration encountered no sulfides in the diabase or schist as reported by Burt Reed, Chief Geologist for Inspiration. Core fragments of the schist found around their drill site were barren of any sulfides.

A breakdown of costs for hole #DC-1 is as follows:

Road Construction (including drill site and mud pits)....	$15,247.50
help move rig to road, approximately.....	325.00
	$15,572.50
Drilling	$12,787.50
12 hours to move to highway, approximately.....	300.00
	$13,087.50
Rotary Bits	
27 size 6 1/4" rotary bits @ $75.00/bit.....	$ 2,025.00
cost for setting diamonds in diamond bit, approx..	60.00
	$ 2,085.00
Surface Casing.....	$ 20.82
Loss of Circulation Material, approximately.....	$ 1,600.00
	$32,365.82

Excluding road construction costs, the average cost per foot is $7.29.

Inspiration's cost on their hole, which was cored from the surface, averaged $25.00/foot.

/s/ R. C. Barkley

RCB/jh
enc.

E. E. Jones

June 10, 1966

Mike J. Fitzgerald

Proposed Assessment Work in the Dacite Area, Pinal County, Arizona

Summary

Two prospects, Devils Canyon and Oak Flat, have been investigated in the dacite-covered area between Superior and Miami, Arizona. Each is located at the projected intersection of major structural trends which are known or strongly believed to control copper mineralization in known orebodies in the area. Drilling did not encounter pre-ore rocks in either of the prospects. Geologic work during and subsequent to drilling of the Devils Canyon Prospect, the more southerly of the two, indicates that pre-ore rocks in that area are probably too deep to be reached economically. However, drilling by other companies coupled with projected structural relationships indicates that pre-ore rocks may occur only a few hundred feet below the OF-1A hole in the north prospect (Oak Flat) and a limited amount of further drilling is recommended.

Devils Canyon Prospect

A brief log of the rocks encountered in the DC-1 drill hole is as follows:

0	-	1130	Tertiary dacite
1130	-	1160	vitrophyre
1160	-	1165	tuff
1165	-	2303	Whitetail conglomerate

The drilling results indicate that the projected structural intersection occurs in a pre-Tertiary topographic low which is filled with Whitetail conglomerate. Dips of the bedding in the exposed Whitetail south of the drill hole indicate that the conglomerate thickens to the north and it has previously been recommended that the prospect be dropped.

Oak Flat Prospect

The Oak Flat Prospect covers the projected intersection of three major structural trends; the Sleeping Beauty fault zone, the Ray fault, and the east-west zone of stronger copper mineralization which extends westward from the Copper Springs Prospect. The Copper Cities and Castle Dome porphyry copper orebodies lie within the broad Sleeping Beauty fault zone to the northeast of the dacite cover and the vein and replacement

orebodies of the Magma Copper Company lie within the projection of the zone on the west side of the dacite at Superior. The Ray fault appears to have had an important effect on the localization of the orebodies at Ray and the OF-1A drill hole lies within the Sleeping Beauty zone just east of its projected intersection with the Ray Fault.

The geology of the area and the methods used to define and project the structural trends has been discussed in considerable detail in a previous report (Structural Features in the Miami-Superior-Ray, Arizona Region and Indicated Buried Prospect, May, 1964).

Two areas of mineralization exposed within the Sleeping Beauty zone have a direct bearing on drilling under the dacite. One is the Cactus orebody which lies on the east edge of the dacite. The orebody, which contains about 10 million tons of oxidized copper ore, occurs in a thrust plate and all available evidence seems to indicate that the plate moved to its present position from an area to the southwest subsequent to ore deposition and secondary enrichment. The other is the eastern portion of the Superior district where Magma's extensive exploration has disclosed the presence of considerable tonnages of replacement ore in limestone to the east of the present mine workings.

Summary of Drilling Results in the Northern Portion of the Dacite:

The Kerr-McGee OF-1A drill hole did not encounter pre-ore rocks and bottomed in Tertiary andesite at 2150 feet. A brief log of the hole is as follows:

OF-1A

0	- 1995	Tertiary dacite	
1995	- 2050		Whitetail conglomerate
2050	- 2150		andesite

The identification of Whitetail conglomerate at 1995 - 2050 is not positive. If the material in this interval is not Whitetail, the unit, if present, may lie at greater depths.

The three holes drilled by Miami Copper and Superior Oil have some bearing on whether or not the OF-1A drill hole should be deepened. Generalized logs of these holes are as follows:

DCA-1

Located 3.2 miles N 21 E of OF-1A

0	- 1360	Tertiary dacite	
1360	- 1845		felsite
1845	- 2210		andesite
2210	- 4011		Whitetail conglomerate

DCA-2

Located 2.5 miles N 52 E of OF-1A

0	-	1430	Tertiary dacite
1430	-	1525	Whitetail conglomerate
1525	-	1575	Precambrian Pinal schist (exotic copper)
1575	-	1678	Cretaceous quartz monzonite (exotic copper)
1678	-	1772	Precambrian Pinal schist (exotic copper)

DCA-3

Located 1.7 miles S 88 E of OF-1A

0	-	1400	Tertiary dacite
1400	-	1415	vitrophyre
1415	-	1490	dacite tuff
1490	-	2430	basalt
2430	-	3000	Whitetail conglomerate

The location of each of the holes, the outline of the Kerr-McGee claims, and the projections of the structural trends are shown on the accompanying map. It is believed to be very significant that the only pre-dacite high encountered in the deep drilling to date (DCA-2) was along the projection of the Sleeping Beauty fault zone. Pre-ore rocks exposed on the edge of the dacite are topographically high east of the DCA-2 hole and west of the OF-1A hole suggesting that a high, pre-dacite topographic trend, possibly associated with the Sleeping Beauty fault, may extend entirely across the present dacite exposure. If this trend is actually present, the high encountered in the DCA-2 hole may extend into the area of the OF-1A drill hole.

Exotic copper was encountered under but near the edge of the dacite southwest of the Cactus deposit in the 1930's and the drilling of DCA-2 establishes that the exotic copper extends further southwestward. The pattern of exotic copper occurrences under the dacite strongly suggests that the source of the copper, presumably the remainder of the enriched porphyry-type orebody of which the small Cactus deposit is a part, lies further to the southwest.

The OF-1A hole is located near and just to the east of the projected intersections of the Sleeping Beauty and Ray faults, the most likely location for the occurrence of disseminated copper mineralization, and, in view of the above drilling data, it appears to be worthwhile to deepen the hole in an attempt to reach pre-ore rocks. As the depth to pre-ore rocks in the area is at least 2200 feet, it is believed that secondary

enrichment related to the early Tertiary erosion surface, similar to that in the Miami-Inspiration and Ray orebodies, would probably have to be present to bring the grade of disseminated primary mineralization up to commercial ranges for depths in excess of 2000 feet. As it is not likely that extensive enrichment related to the early Tertiary erosion surface would occur under a great thickness of pre-dacite volcanics due to the unfavorable erosional environment, it is believed that if pre-ore rocks are not encountered within 500 feet of the bottom of the OF-1A hole the drilling could safely be terminated and the prospect dropped.

Should the actual location of the Ray fault zone be to the east of OF-1A, limestone should be present below the Tertiary rocks. The mechanism of displacement along the zone is not known but the total displacement must be at least 4000 to 5000 feet. There is some suggestion that the displacement may be in the form of step-faulting across a broad area as step-faulting has been noted in the Magma mine workings. However, displacement along the observed step-faults is small. In any event, the persistence of replacement ore down-dip in the favorable beds near the base of the Devonian Martin limestone coupled with the presence of zinc in the up-dip horizons suggests that the source of the copper may be to the east.

The probable presence of disseminated copper mineralization in the crystalline rocks east of the Ray fault suggests that the mineralization in the limestone may have the same source and, if so, it is entirely possible that tactite-type copper mineralization may occur in the limestones near the Ray fault zone. Thus, if the OF-1A hole does lie west of the Ray fault, there is a distinct possibility that disseminated copper mineralization may occur in that area in silicated limestones. In fact, indications of silication in the limestone accompanied by evidence of sulfide mineralization would be extremely suggestive that disseminated copper mineralization lies further to the east even if significant copper values were not encountered.

Conclusions

Projection of structural zones coupled with drilling by other companies in the dacite seems to indicate that there is a fair chance that pre-ore rocks may occur within a few hundred feet below the bottom of the OF-1A drill hole, and the location of the hole in relation to the projected structural zones is believed to be very favorable for the presence of disseminated copper mineralization. The presence of mineable ore in the pre-ore rocks is probably dependent on the presence of secondary enrichment related to the early Tertiary erosion surface so deepening the OF-1A drill hole 500 feet should be sufficient to test for the possibility of ore.

Recommendations

It is recommended that the OF-1A drill hole be deepened 500 feet in an attempt to reach pre-ore rocks. The hardness of the andesite encountered in the last 100 feet of drilling indicates that the deepening would have to be done with a core drill. Estimated costs are as follows:

Road repair	$ 300.00
Cleaning existing hole, setting casing, etc.	500.00
Cementing	500.00
Mobilization	400.00
Drilling: (500 ft. at $10/ft.)	5,000.00
TOTAL	$6,700.00

Mike J. Fitzgerald

MJF/mf

CC: S. E. Jerome
P. C. Ellsworth
R. M. Corn

KERR-McGEE OIL INDUSTRIES, INC.

District Oak Flat
Hole Number OF-1A
Spudded 10-27-64
Completed 11-15-64
Total Depth 2150 feet
Driller C.C. Smith
Logged By R.C.B.

County Pinal State Arizona
Claim MX-65 Sec 21 T. 1S R. 13E
Elevation
Hole Size 6¼"
Core Size 3 3/4" cored from 2130 to 2150'
Hole Angle Vertical
Collar Coords. N.
E.

Depth Int.	%Core Rcvy	Samp. No.	Assays Cu	Assays Mo	Rock Type	Rock Description	Alteration	Mineralization
0-1470					Dacite	red-brown; hard	some clay alteration	none
1470-1635					Dacite	yellow-brown and gray; hard and well indurated	some clay alteration	some limonite staining
1635-1670					Vitrophyre	dark gray and black; glassy with conchoidal fractures		
1670-1790					Dacite	yellow-brown and gray	some clay alteration	abundant limonite coating
1790-1840	60				Vitrophyre	black, glassy with conchoidal fractures		
1840-1875					Dacite	reddish-brown	some clay alteration	decreased amount of limonite
1875-1930	65				Vitrophyre	black, glassy with conchoidal fractures		
1930-1995					Dacite	red-brown	some clay alteration	
1995-2050					Whitetail? conglomerate	predominant black shale and lime fragments; minor orange particles		

OF-1A

District Oak Flat Hole Number OF-1A

Depth	Int.	%Core Rcvy	Samp. No.	Assays Cu %	Mo	Au oz.	Ag oz.	Rock Type	Rock Description	Alteration	Mineralization
2050-2060			6067	.05				Diabase	Black, hard, dense	Trace amount of chlorite	None apparent
2060-2070			6068	nil				"	"	"	"
2070-2080			6069	nil				"	"	"	"
2080-2090			6070	.05				"	"	"	"
2090-2100			6071	nil				"	"	"	"
2100-2110			6072	.04				"	"	"	"
2110-2120			6073	nil				"	"	"	"
2120-2130			6074	.05				"	"	"	"
2130-2140		100	6065	0.07		trace	trace	"	"	"	"
2140-2145		100	6061			0.06	0.004	"	"	"	"
2145-2150		100	6066	.06		trace	trace	"	"	"	"

PLUGGED

KERR-McGEE OIL INDUSTRIES, INC.

District Devils Canyon
Hole Number DC-1
Spudded 11-27-64
Completed 12-17-64
Total Depth 2303 feet
Driller C.C. Smith
Logged By R.C.B.

County Pinal State Arizona
Claim NE 1/2 Sec 16 T. 2S R. 13E
Elevation
Hole Size 6¼"
Core Size
Hole Angle Vertical
Collar Coords. N.
E.

Depth	Int.	%Core Rcvy	Samp. No.	Assays Cu	Assays Mo	Rock Type	Rock Description	Alteration	Mineralization
0-1130						Dacite	Red-brown; hard	some clay alteration	some limonite coating
1130-1160						Vitrophyre	dark brown and black; flattened phenocrysts		
1160-1165						Tuff	white and soft	mostly altered to clay	
1165-1800						Whitetail conglomerate	smaller pebbles and grit cemented by red mud		
1800-2303						Whitetail conglomerate	larger pebbles and boulders; much harder drilling		

ATTACHMENT C-5

MIAMI COPPER CO.
MIAMI, ARIZONA

ROTARY ILL HOLE DCA #1
THE SUPERIOR OIL CO. COORDINATES
ELEV. OF KELLY 4760
Location: Corner Melvin 1,2,7,8 JUL 28 1964 SIZE OF HOLE 9 inch

MINERALS DIVISION TUCSON

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
5-18	0- 40	Dacite; somewhat glassy; verging	Same as 430 - 460
5-19	40- 70	on welded tuff? in places	Same as 430 - 460
"	70-100	"	Same as 430 - 460
"	100-130	"	Same as 430 - 460
140 ft.			
5-20	130-160	"	Same as 430 - 460
	160-190	"	Same as 430 - 460
	190-220	"	Same as 430 - 460
	220-250	"	Same as 430 - 460
	250-280	"	Same as 430 - 460
	280-310	"	Same as 430 - 460
	300-330	"	Same as 430 - 460
	330-370	"	Same as 430 - 460
	370-400	"	Same as 430 - 460
	400-430	"	Same as 430 - 460
	430-460	"	100% brown-pink dacite; may be verging on welded tuff; somewhat glassy
470			
5-21	460-490	Glassy dacite	100% very glassy rhyolite (vitrophyre)
"	490-520	"	70% dark glass; 30% very glassy (vitrophyre)?
"	520-550	Dacite (very glassy) with felsite zones	35-45% dacite; 35-45% dirty white felsite; 15-20% glass (light & dark)
"	550-580	"	Very fine; probably dacite
"	580-610	"	Same as 640-670
"	610-640	"	Same as 640-670
"	640-670	"	Very fine; mostly glass (light & dark) with a few dacite frags.
"	670-700	"	Very fine sample; probably same as 700-730.
"	700-730	"	60-65% glass as below; 30-35% felsite as below; 5% dacite
"	730-760	- Break at 745 Felsite; with	45-50% dirty white felsite; 45-50% glass (dark & light); 5% dacite
"	760-790	glassy zones & also dacite zones (Glass may be from	50-60% dirth white felsite; 30-40% glass (dark & light); 5% dacite
"	790-820	glassy dacite	Same as 820-850; probably more glass present.
"	820-850	"	Same as 900-930; some of felsite getting more glassy.
"	850-880	"	Same as 900-930
"	870-900	"	Same as 900-930

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
928			
5-22	900- 930	"	80-90% gray felsite; dacite; dark and light glass.
"	930- 960	"	Very fine sample probably same as 990-1020.
"	960- 990	"	60-70% as below; 20-30% glass (gray, clear, pink & brown) 5-10% dacite
"	990-1020	"	80-90% gray felsite (looks greasy); dark glass; dacite
"	1020-1050	Dacite, very glassy in places	80-90% gray glass; felsite gray (tan tint); dacite
"	1050-1080	Some red-brown volcanics present	50% gray glass; 25-30% gray (tan tint felsite); 20-25% dacite
"	1080-1110	"	Same as 1110-1140
"	1110-1140	"	60-70% gray glass (from dacite?); 30-40% dacite (limonite after biotite)
"	1140-1150	"	No sample
"	1150-1180	"	Same as 1240-1270
1198			
5-23	1180-1210	"	Same as 1240-1270; plus gray sugary-glassy material
"	1210-1240	"	Same as 1240-1270
"	1240-1270	"	90-95% dacite (some frags. very glassy); red-brown volcanics; limonite stained dacite.
"	1270-1300	"	Same as 1330-1360
"	1300-1330	"	Same as 1330-1360
"	1330-1360	"	Most of sample glass derived from dacite original rock probably 70% dacite 25% red brown volcanic, 5% pink felsite
"	1330-1360	"	85-95% dacite (very glassy); gray felsite; red-brown volcanic.
"	1360-1390	Felsite with volcanic & glassy zones	Same as 1640-1668; plus dark glass & dacite frags. much limonite staining
"	1390-1410		Same as 1510-1540
"	1410-1425	"	40% gray & pink felsite; 50% gray glass red-brown volcanics; dacite
1428			
5-24	1420-1450	"	30% felsite (gray & pink); 40-50% dacite 15-20% red-brown volcanics; dark & light glass.
"	1450-1480	"	90% gray (green tint) felsite; looks somewhat like serpentine; pink felsite, dacite, red-brown volcanics; dark & light glass.
"	1480-1510	"	Same as 1510-1540; plus quartz gneiss? with oxidized biotite.

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
5-24	1510-1540	"	35-45% felsite as below; 15% pink felsite; 20-25% dacite; 10% red-brown volcanics; dark & light glass; biotite oxidized in some of felsite.
"	1540-1570	"	Same as 1640-1668
"	1570-1580		No sample
"	1580-1610	"	Same as 1640-1668; plus dacite frag; less pink felsite.
"	1610-1640	"	Same as 1640-1668; plus black glass & gray dacite-andesite with limonite after biotite.
1644			
5-25	1640-1668	"	65-70% felsite as below; 20% pink felsite with biotite; red-brown volcanics clear quartz (glass)
5-26	-5-30 Regaining circulation with Zeogel		
5-30	1668-1675	Core	Volcanics
5-31	-6-2 No returns		
	1693-1734	"	Same as 1736-1740; possibly 50-60% quartz (glass)
1746	1736-1740	"	65% felsite as below; 25-30% black quartz
6-4			(glass); pink quartz; red-brown volcanics
"	1740-1755	"	90% gray (yellow tint) felsite; glassy; red-brown volcanics; black quartz (glass?)
"	1755-1770		No sample
"	1770-1785	"	50-60% yellow-green white felsite, 25% red brown volcanic (dacite?); 10-15% dark andesite, black quartz (glass); diabase (altered)
"	1785-1800	"	Same as 1815-1830; increase of siltstone (volcanic?).
"	1800-1815		Same as 1815-1830; slightly more felsite quartzite with pyrite; red volcanic rocks.
"	1815-1830	"	30% red-brown volcanic; 50-60% yellow-white felsite; quartz; andesite; diabase rhyolitic frags.
"	1830-1845		Transition zone; 45% andesite; 45% white ophanitic igneous rock, red siltstone; quartz; diabase?
"	1845-1850	Andesite? amygdaloidal in place	Same as 1860-1875; slightly more amygdaloidal material.
"	1850-1855	"	Same as 1860-1875; but much of material is amygdaloidal (50%)

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
"	1855-1860	"	Same as 1860-1875
"	1860-1875	"	Same as 2050-2065; plus feldspar?
"	1875-1890	"	Same as 2195-2210; plus amygdaloidal volcanics & red volcanics?
"	1890-1905	"	Same as 2195-2210
"	1905-1920	"	Same as 2050-2065
1930			
6-5	1920-1935	"	Same as 2050-2065
"	1935-1950	"	Same as 1980-1995; plus igneous rocks.
"	1950-1965	"	Same as 1980-1995
"	1965-1980	"	Same as 1980-1995
"	1980-1995	"	Same as 2095-2110; plus altered diabase
"	1995-2010	"	Same as 2095-2110
"	2010-2025	"	Same as 2050-2065
2033			
6-6	2020-2035	"	Same as 2050-2065
"	2035-2050	"	Same as 2195-2210
"	2050-2065	"	Same as 2095-2110; plus amygdaloidal basalt?
"	2065-2080	"	Same as 2195-2210
"	2080-2095	"	Same as 2095-2110
"	2005-2110	"	Same as 2165-2180; few inclusions.
2115			
6-7	2110-2125	"	Same as 2165-2180
"	2125-2130	"	Same as 2165-2180
"	2130-2134	"	Same as 2165-2180
"	2134-2150	"	Same as 2165-2180
"	2150-2165	"	Same as 2165-2180
"	2165-2180	"	Same as 2195-2210; no diabase
"	2180-2195	"	Same as 2195-2210
"	2195-2210	"	90% gray brown (bronze tint) andesite?; red siltstone; diabase; quartz; quartzite
"	2210-2225	Conglomerate	75-80% dark andesite? fragg; 15% diabase; mafics; sandstone; red siltstone; very small amount of magnetite
"	2225-2240	"	Same as 2240-2255; plus sandstone
"	2240-2255	"	60-65% dark & light quartzite & andesite; 25% diabase; quatz; mafics, feldspar; red siltstone; amygdaloidal basalt
2257			
6-8	2255-2270	"	Same as 2270-2285; plus granitic frags.
"	2270-2285	"	Same as 2700-2715; no basalt; plus red siltstone; possibly more diabase.
"	2285-2300	"	Same as 2700-2715; no basalt; plus red siltstone & brown gray limestone
"	2300-2315	"	Same as 2344

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
6-8	2315-2340	Conglomerate	No sample
"	2344(Circulate)	"	Same as 2700-2715; no basalt; plus red siltstone.
2345	2340-2350	"	Same as 2700-2715; plus red siltstone & Gneiss.
6-9			
"	2350-2360	"	Same as 2375-2380; plus gray brown limestone.
	2360-2370	"	Same as 2380-2390
2375			
6-10	2370-2375		Core 0.018% Cu; 0.004 OxCu
"	2375-2380	"	Same as 2700-2715; no basalt; plus red siltstone.
"	2380-2390	"	Same as 2700-2715, plus red siltstone.
"	2390-2400	"	Same as 2700-2715; no basalt
"	2400-2415		No sample
"	2415-2425	"	Same as 2700-2715; plus red siltstone
"	2425-2440	"	Same as 2700-2715; no basalt
"	2440-2455	"	Same as 2685-2700; no basalt
"	2455-2470	"	Same as 2700-2715; plus red siltstone.
"	2470-2485		Same as 2685-2700, no basalt
"	2485-2500	"	Same as 2685-2700, no basalt
"	2500-2515	"	Same as 2700-2715, plus red siltstone; no basalt
"	2515-2530	"	Same as 2700-2715; plus limonite staining
"	2530-2545	"	Same as 2700-2715
"	2545-2560	"	Same as 2700-2715, plus red siltstone
"	2560-2575	"	Same as 2700-2715; plus aplite? & red siltstone; no basalt.
2580			
6-11	2588-2595	"	Same as 2700-2715
"	2595-2610	"	Same as 2685-2700; no basalt
"	2610-2625	"	Same as 2700-2715; no basalt; plus mica schist.
"	2625-2640	"	Same as 2700-2715; no basalt; plus rhyolite? frag.
"	2640-2655	"	Same as 2700-2715; plus red siltstone
"	2655-2670	"	Same as 2685-2700
"	2670-2685	"	Same as 2685-2700; no basalt
"	2685-2700	"	Same as 2700-2715; plus red siltstone & gray-brown limestone.
"	2700-2715	"	40-50% diabase; 35-45% dark & light quartzite & andesite; quartz, feldspar; amygdaloidal basalt; mafics; magnetite; sandstone.
"	2715-2730	"	Same as 2730-2733

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MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
2733			
6-12	2730-2733	Conglomerate	Same as 2750-2765, no limestone; no limonite stains; plus amygdaloidal basalt
"	2733-2750	"	Same as 2750-2765; plus limonite stains no sandstone
"	2750-2765	"	Same as 2765-2780; more andesite frags. no red siltstone.
"	2765-2780	"	50-60% diabase; 30-40% dark & light quartzite & andesite; brn. ls.; red siltstone quartz; feldspar; magnetite; mafics; sandstone.
"	2780-2795	"	Same as 2840-2855; no limestone; plus mica schist & andesite frags.
2810	2795-2810	"	Same as 2825-2840; more andesite frags. less quartzite; no granitic frags; brn. limestone
"	2810-2825	"	Same as 2825-2840; plus rhyolite frags. brown limestone; amygdaloidal basalt
6-13	2825-2840	"	50-60% diabase; 30-40% dark & light quartzite; magnetite, mafics; igneous rock frags.
"	2840-2855	"	40-50% diabase, 40-50% quartzite & andesite, quartz, feldspar; brown limestone; amygdaloidal basalt, mafics; magnetite, red siltstone, gypsum filled fractures.
"	2855-2870	"	Same as 3395-3410
2882			
6-14	2870-2885	"	Same as 3395-3410
"	2885-2900	"	Same as 3395-3410; plus native Cu in quartz-mica schist.
"	2900-2915	"	Same as 3395-3410, plus rhyolite frag.
"	2915-2930	"	Same as 3040-3055
"	2930-2945	"	Same as 2945-2959; possibly more diabase.
2959	2945-2959	"	Same as 3395-3410; plus tan limestone
6-15	2959-2971	"	Core 0.024% Cu, 0.010 OxCu
6-16	2971-2980	"	Same as 3395-3410
"	2980-2995	"	Same as 3040-3055
"	2995-3010	"	Same as 3040-3055
"	3010-3025	"	Same as 3040-3055
"	3025-3040	"	Same as 3395-3410
"	3040-3055	"	Same as 3395-3410; plus granitic? frag.
"	3055-3070	"	Same as 3395-3410; plus dark brown limestone
"	3070-3085	"	Same as 3395-3410; plus rhyolite? frags.
3100	3085-3100	"	Same as 3395-3410
6-17	3100-3115	"	Same as 3130-3145

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MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
6-17	3115-3130	Conglomerate	No sample
"	3130-3145	"	Same as 3395-3410; plus serpentine
"	3145-3160	"	Same as 3175-3190
"	3160-3175	"	Same as 3175-3190; plus rhyolite frag.
"	3175-3190	"	Same as 3395-3410, plus some limonite staining
"	3190-3205	"	Same as 3395-3410
"	3205-3215	"	Same as 3395-3410
3224			
6-18	3215-3230	"	Same as 3395-3410
"	3230-3245	"	Same as 3260-3275
"	3245-3260	"	Same as 3430-3445; plus granitic? frags.
"	3260-3275	"	Same as 3395-3410; plus brown limestone & limonite staining.
"	3275-3290		No sample
"	3290-3305	"	Same as 3395-3410
"	3305-3312	"	No sample
"	3312-3320	"	Same as 3335-3350
"	3320-3335	"	Same as 3430-3445
3344			
6-19	3335-3350	"	Same as 3395-3410; plus limonite stains
"	3350-3365	"	Same as 3395-3410
"	3365-3380	"	Same as 3395-3410, no andesite
"	3380-3395	"	Same as 3395-3410; plus brown limestone
"	3395-3410	"	Same as 3430-3445; possibly more diabase
"	3410-3415		No sample
"	3415-3430	"	Same as 3430-3445
"	3430-3445	"	50-55% diabase; 40-45% dark & light quartzite & andesite; magnetite; mafics feldspar, quartz, mica schist; red siltstone.
"	3445-3460	"	Same as 3460-3475; plus red sandstone & limonite stains.
"	3460-3475	"	Same as 3552-3562; plus mica schist & serpentine.
"	3475-3490	"	Same as 3552-3562
"	3490-3505	"	40-50% diabase; 40-50% dark & light andesite & quartzite; quartz; feldspar;
3510			brown limestone; magnetite, mafics; pyrite
6-20	3505-3514	"	Same as 3552-3562; plus igneous rock frag. (type?)
"	3514-3525	"	Core sample; 0.02% % Cu; 0.008% OxCu; Same as 3552-3562; possibly more diabase; dacite? frag; fractures filled with gypsum

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY DRILL HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
3550			
6-21	3525-3542	Conglomerate	Core sample; same as 3552-3562; plus ryholite frag.
"	3542-3552	"	Core sample; same as 3552-3562; plus mica schist, limonite staining; rhyolite & dolomite? frags.
"	3552-3568	"	Core sample; 40-50% diabase; 40-50% green to white quartzite & andesite; quartz;
3568			feldspar; magnetite; mafics.
6-22	3568-3580	"	Same as 3580-3595; plus brown-black Dolomite?
"	3580-3595	"	Same as 3600-3610; plus red siltstone & pyrite.
"	3595-3600		No sample
"	3600-3610	"	50-55% diabase; 35-90% green to white quartzite & andesite; mica schist; quartz; feldspar, magnetite, mafics; limonite staina
"	3610-3620	"	Same as 3645-3660; less mica schist & limonite staining
"	3620-3630	"	Same as 3645-3660; plus rhyolite? frag.
"	3630-3645	"	Same as 3645-3660
"	3645-3660	"	Same as 3660-3675; some limonite staining on several frags.
3675	3660-3675	"	50-55% green-white quartzite & andesite;
6-23			35-40% diabase; quartz; feldspar; mica schist; magnetite & mafics.
"	3675-3690	"	60-70% green-brown to white quartzite andesite; 20-30% diabase; micaschist; feldspar; magnetite; mafics
"	3690-3705	"	Same as 3705-3720; no evidence of fractures.
"	3705-3720	"	85% green-brown-red-white quartzite & andesite; diabase; feldspar; mica schist; magnetite; mafics; fractures filled with quartz
"	3720-3735	"	Same as 3765-3780; slightly more quartzite & andesite;
"	3735-3750	"	Same as 3765-3780
3754			
6-24	3750-3765	"	Same as 3765-3780
"	3765-3780	"	80% quartzite & andesite as below; diabase mica schist; mafics; magnetite; feldspar.
"	3780-3795	"	Same as 3795-3810; less mica schist.
"	3795-3810	"	60-70% quartzite & andesite as below; 20% diabase; mica schist, magnetite; mafics; quartz; feldspar.

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Melvin 1,2,7,8

ROTARY D. .L HOLE DCA #1
COORDINATES
ELEV. OF KELLY 4760
SIZE OF HOLE 9 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
6-24	3810-3825	Conglomerate	Same as 3870-3885; minor serpentine? red sandstone.
"	3825-3840	"	Same as 3870-3885; plus plagioclase & red sandstone
"	3840-3855	"	Same as 3870-3885
"	3855-3870	"	Same as 3870-3885
"	3870-3885	"	80% quartzite & andesite as below; mica schist; diabase; mafics; magnetite;
3900	3885--3900	"	Same as 3900-3915; plus mica schist& oxidized pyrite?; no granitic or mudstone frags.
6-25	3900-3915	"	80% green-brown-white quartzite & andesite; diabase; feldspar; granitic? frag; red-brown mudstone; magnetite; mafics
"	3915-3920	"	No sample
"	3920-3930	"	75% green-brown-white quartzite & andesite; diabase; brown limestone; mica schist; feldspar; quartz; mafics;magnetite.
"	3930-3940	"	Same as 3940-3950; pyrite has a green coating on it.
"	3940-3950	"	85% brown-green-white quartzite & andesite; diabase, quartz; feldspar; red-orange quartizte?; magnetite; pyrite.
"	3950-3965	"	85% brown-green-white quartzite & andesite; yellow tan limestone; mica schist magnetite; pyrite; mafics
"	3965-3980	"	Same as 3980-3995; less limestone; some diabase & weathered diabase
"	3980-3995	"	75-85% green-brown to white quartzite & andesite; 5-10% brown limestone; quartz; feldspar; mica schist; magnetite; mafics
4000	3995-4000	"	80-85% green-brown to white quartzite & andesite; mica schist; limestone (brown-gray); quartz; diabase; much magnetite; some mafics; one xl of pyrite;
6-26	4000-4011.5	"	Core 0.020% Cu; 0.004% OxCu

NOTE: FOR OPERATIONAL REASONS THIS HOLE WAS LOGGED FROM THE BOTTOM UP.

MIAMI COPPER CO.

MIAMI, ARIZONA

THE SUPERIOR OIL CO.

Location: Corner AG 1,2,9,10

ROTARY DRILL HOLE DCA #2
COORDINATES
ELEV. OF KELLY 4720
SIZE OF HOLE 7-7/8 inch

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
7-3	0- 15	Dacite	100% pink-brown dacite; somewhat glassy.
"	15- 30	"	Same as 0-15
7-4	30- 45	"	Same as 0-15
"	45- 60	"	Same as 0-15; magnetitic metallic is probably mostly from bit
"	60- 75	"	Same as 0-15
7-5	75- 90	"	Same as 0-15
"	90- 105	"	Oil stained?; probably same as 0-15
"	105- 120	"	Same as 0-15
"	120- 135	"	Same as 0-15
"	135-150	"	Same as 0-15
"	150-165	"	Same as 0-15
"	165-180	"	Same as 0-15
"	180-195	"	Same as 0-15
"	195-210	"	"
"	210-225	"	"
"	225-240	"	"
"	240-255	"	"
"	255-270	"	"
"	270-285	"	"
"	285-300	"	"
"	300-315	"	"
"	315-330	"	"
"	330-345	"	"
"	345-360	"	" plus one piece of blue black andesite?
"	360-375	"	Same as 345-360
"	375-390	"	Same as 0-15
"	390-405	"	Same as 345-360
"	405-420	"	Same as 0-15
"	420-435	"	"
"	435-450	"	"
"	450-465	"	Same as 0-15; plus black-green andesite" (several fragments)
"	465-480	"	Same as 450-465; plus more andesite
"	480-495	"	Same as 0-15
"	495-510	"	" ; plus some of Xls show evidence of flowage.
"	510-525	"	Same as 450-465
"	525-540	"	"
"	540-555	"	"
"	555-570	"	Same as 0-15
"	570-585	"	Same as 450-465
"	585-600	"	Same as 0-15
"	600-615	"	" black(bronze tint) glassy frags.

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Ag 1 ,2,9,10

ROTARY DRILL HOLE DCA #2
COORDINATES
ELEV. OF KELLY 4720
SIZE OF HOLE 7-7/8

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
7-5	615-630	Dacite	Same as 0-15
"	630-645	"	"
"	645-660	"	"
7-6	660-675	"	Same as 450-465
"	675-690	"	Same as 0-15
"	690-705	"	"
"	705-720	"	"
"	720-735	"	"
"	735-750	"	"
"	750-765	"	Same as 0-15
"	765-780	"	" ; plus brown-black oily looking material (contamination from rig?)
"	780-795	"	Same as 450-465
"	795-810	"	Same as 765-780
"	810-825	"	Same as 0-15
"	825-840	"	"
"	840-855	"	"
"	855-870	"	"
"	870-885	"	Same as 495-510
"	885-900	"	"
"	900-915	"	Same as 0-15
"	915-930	"	"
"	930-945	"	Same as 765-780
7-7	945-960	"	Same as 0-15
"	960-975	"	"
"	975-990	"	"
"	990-1005	"	"
"	1005-1020	"	"
"	1020-1035	"	"
"	1035-1050	"	"
"	1050-1065	"	Same as 450-465
"	1065-1080	"	Same as 0-15; plus dull orange waxy soft mineral?
"	1080-1095	"	Same as 450-465; plus red brown andesite? very few frags).
"	1095-1110	Rhyolite & glass interbedded	40-50% dacite; 40-50% black glass; 10-15% dark & light quartzite? (silicified felsite??)
"	1110-1125	"	Same as 1095-1110; possibly 50-60% black glass.
"	1125-1210		No sample
7-9	1210-1225	Dacite	Cement used to seal off water & later drilled out.

MIAMI COPPER CO.

MIAMI, ARIZONA

Location: Corner Ag 1,2,9,10

ROTARY DRILL HOLE DCA #2
COORDINATES
ELEV. OF KELLY 4720
SIZE OF HOLE 7-7/8

DATE	FOOTAGE	TYPE OF ROCK	REMARKS
1964			
7-9	1225-1240	Dacite	95+-% dacite; brown with red tint; slightly darker than 0-15 dacite; also has light quartzite & light felsite with biotite;
"	1240-1255	"	Same as 1225-1240
"	1255-1270	"	"
"	1270- ?	1300	No sample
7-10	? -1340	Quartz rich sandstone or conglomerate	95+-% quartz, quartzite (light & colored) & feldspar; schist; biotite, red-brown mudstone.
7-11	1340-1355	Conglomerate	55-65% quartz & quartzite (light & colored); 25-30% dacite; black glass; schist; black-green andesite
7-12	1355-1370	"	Same as 1340-1355; plus pink igneous rock rich in biotite;
"	1370-1385	"	Same as 1340-1355
"	1385-1400	"	60-70% quartz & quartzite (light & colored); 20-25% schist? (biotite-quartz) 5% dacite; a few red-brown & one orange igneous fragment;
"	1400-1415	"	Same as 1385-1400; no red brown igneous frags.; possibly slightly more schist
"	1415-1430	"	Same as 1385-1400
"	1430-1445	"	" ; plus black-green andesite?
"	1445-1460	"	Same as 1430-1445; less schist & more quartz-quartzite present than in 1385-1400
	HOLE BOTTOM 1471		

ATTACHMENT A

-EXPLANATION-

- Quaternary Cover (Qal, Qtg, Qtb)
- Td — Tertiary Dacite (Td), Early Volcanics (Tev), & Whitetail Conglomerate (Tw)

Tev Tw — POST-MINERAL

PRE-MINERAL

- TKgr - Tqm — Laramide Intrusive (TKgr, Tqmp, ~~Tqd, Tlgm~~) & Projected Edge of Intrusive
- Tbx — Mineralized Breccia (± 0.3 % Cu), (Tbx) Known Only From Underground Workings.
- Pal, a, b — Paleozoic Sediments (pal)
  (a) Replacement Ore in Devonian Horizon
  (b) Stacked Replacement Ore in Devonin thru Pennsylvanian
- Av - db — Precambrian Sediments (pЄ, t, Au) & Associated Diabase
- sc — Precambrian Pinal Schist (sc) & Associated Diabase (db)

DRILL HOLE PENETRATION INTO PRE-WHITETAIL CONGLOMERATE UNITS

- DCA-2 — Pinal Schist & Laramide Intrusive
- OF-1A — Diabase (dikes?)
- I — Pinal Schist & Diabase

- OF-1A — Known Drill Holes
- A-4 — Exemplary Drill Sites
- A — A' — Cross Sections

0 500 1000' 2000' 4000' 6000'

Generalized Geology

SUPERIOR DACITE PLATEAU & SURROUNDING AREA

Pinal & Gila Counties, Arizona

SCALE 1:24000

J.D.S. May 1970

ATTACHMENT C-7

ATTACHMENT A

MINERALIZATION & GEOLOGY BELOW DACITE
(Know only from underground workings)

PROJECTED EDGE OF INTRUSIVE

—EXPLANATION—

Quaternary Cover (Qal, Qtg, Qtb)

Tertiary Dacite (Td), Early Volcanics (Tev), & Whitetail Conglomerate (Tw)

Laramide Intrusive (TKgr, Tamp, Tqd, Tlgm) & Projected Edge of Intrusive

Mineralized Breccia (± 0.3 % Cu), (Tbx) Known Only From Underground Workings.

Paleozoic Sediments (pal)
(a) Replacement Ore in Devonian Horizon
(b) Stacked Replacement Ore in Devonin thru Pennsylvanian

Precambrian Sediments (pC, ↑, Au) & Associated Diabase

Precambrian Pinal Schist (sc) & Associated Diabase (db)

DRILL HOLE PENETRATION INTO PRE-WHITETAIL CONGLOMERATE UNITS

DCA-2 — Pinal Schist & Laramide Intrusive

OF-1A — Diabase (dikes?)

I — Pinal Schist & Diabase

OF-1A — Known Drill Holes

A-4 — Exemplary Drill Sites

A — A' Cross Sections Included in Original Report

A — A' Long Sections Accompanying This Report

0 500 1000' 2000' 4000' 6000'

Plan Map and Generalized Geology

SUPERIOR EAST PROJECT

GLOBE–SUPERIOR DISTRICT

Pinal & Gila Counties, Arizona

SCALE 1:24000

J.D.S. May 1970

2271

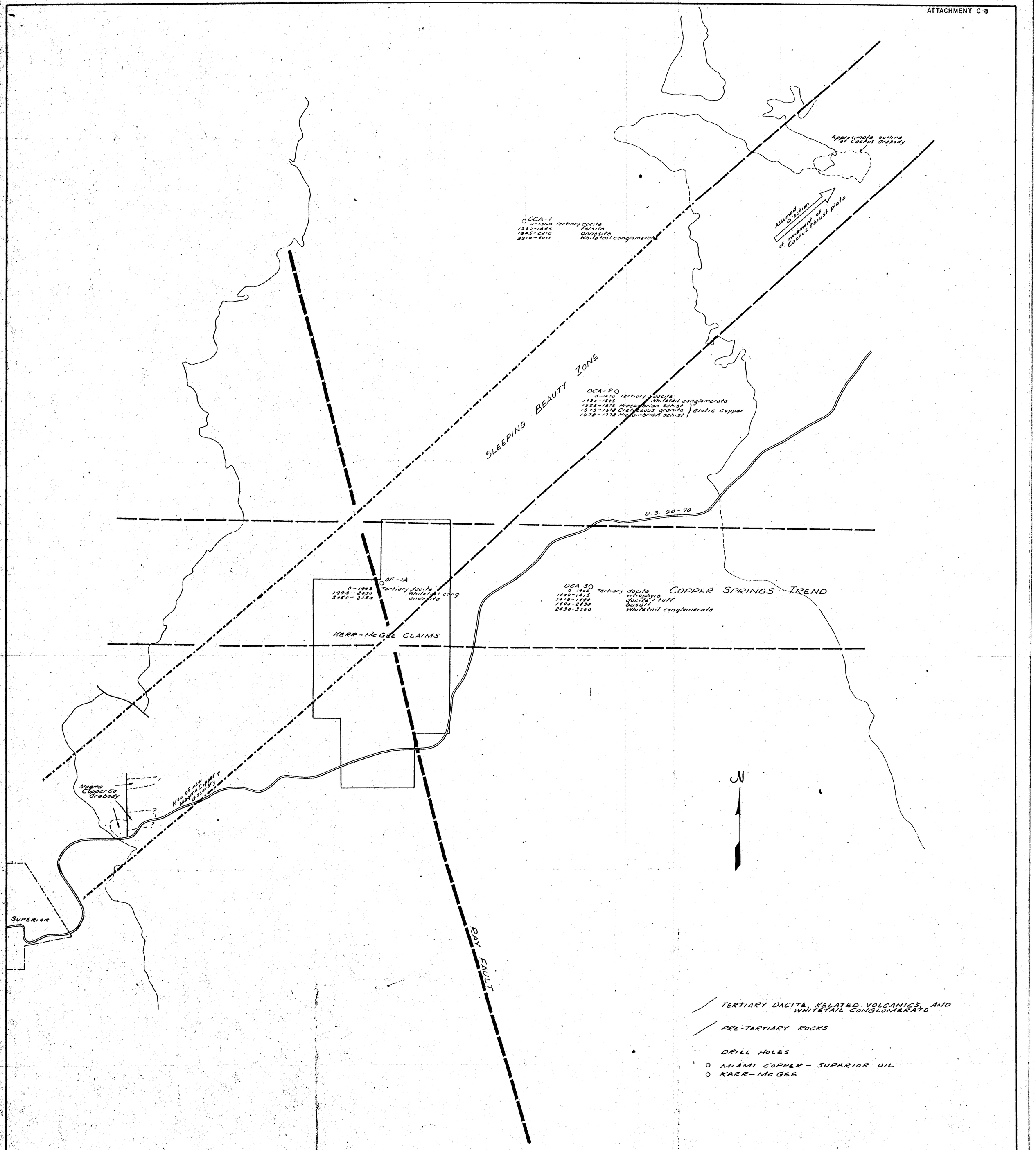
ATTACHMENT B

NORTH, SOUTH SECTIONS
(LOOKING WEST)
SUPERIOR EAST
PINAL COUNTY, ARIZONA
SCALE: 1" = 2000'

JUNE 1970 J.D. SELL

MLR 2335

ATTACHMENT C-8



TERTIARY DACITE, RELATED VOLCANICS, AND WHITETAIL CONGLOMERATE

PRE-TERTIARY ROCKS

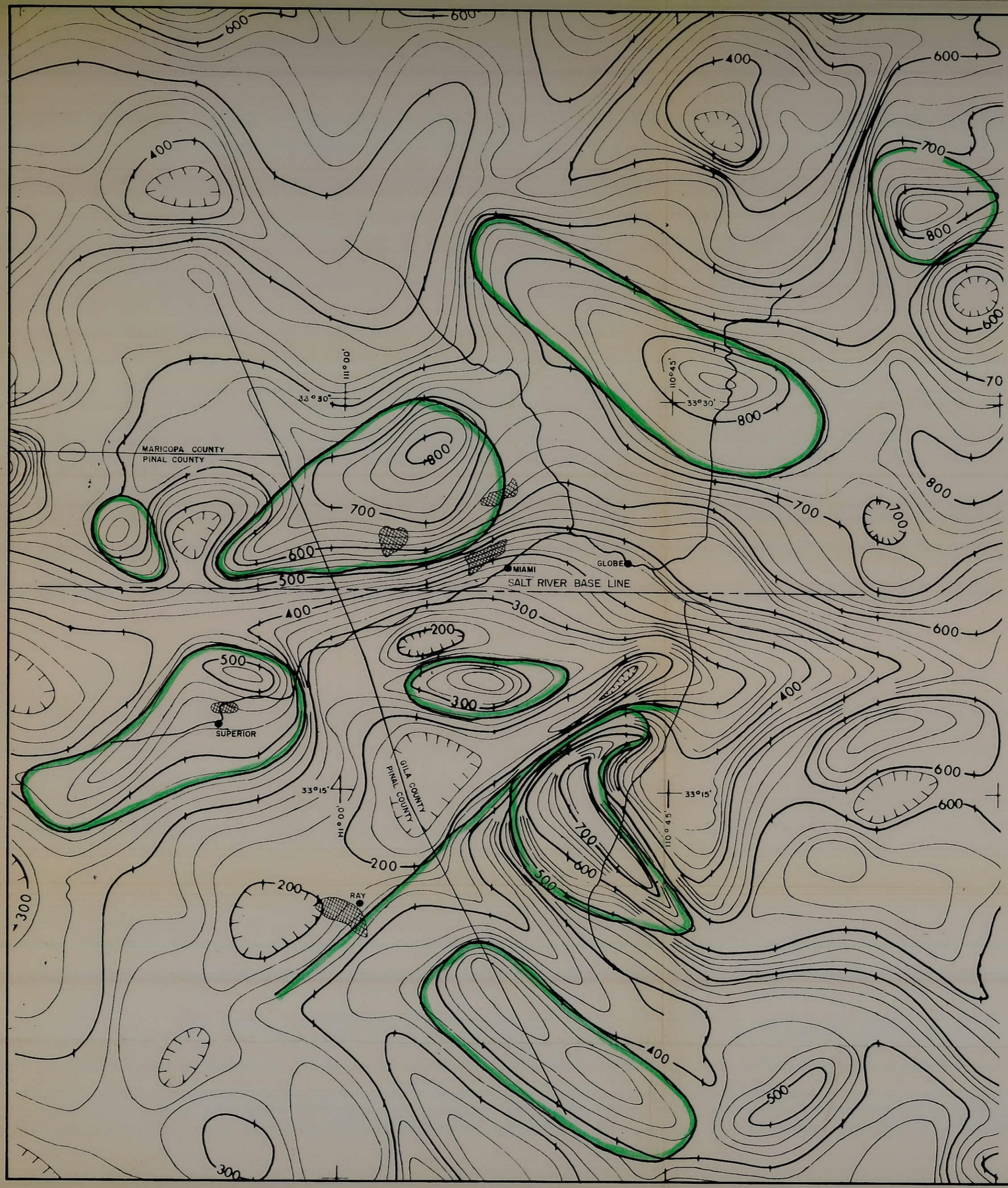
DRILL HOLES

- MIAMI COPPER – SUPERIOR OIL
- KERR-McGEE

KERR-McGEE CORPORATION MINERAL EXPLORATION DEPARTMENT	GENERALIZED GEOLOGY AND STRUCTURAL PROJECTIONS OAK FLAT PROSPECT	STATE: ARIZONA COUNTY: PINAL AREA: DISTRICT: SUMMIT SURVEY:	GEOLOGY BY: M.J. FITZGERALD CONTOURED ON: CONTOUR INTERVAL: DRAWN BY: M. J. F. TRACED BY: C.A.B
DATE: June 1966 SCALE: 1" = 2000'		REVISIONS: (Name & Date)	Haunted Canyon (D. Peterson) Dacite Thesis
Reduce To – 1:62,500		REFERENCES: Pinal Ranch (Peterson) Prof. Paper 342 Western Half Superior Quad. (Peterson)	

2276

FIGURE 5



EXPLANATION

- HIGHWAY
- DEEP-SEATED GRANITIC PLUTONS (W.G. FARLEY)
- HYDROTHERMAL OUTLINE OF KNOWN PORPHYRY DEPOSITS

RESIDUAL AEROMAGNETIC MAP
(SAUCK & SUMNEN) **of the**
GLOBE-SUPERIOR-KAY DISTRICTS

SCALE: 1:250,000 J. D. SELL

JUNE 1970

TR 2333

ATTACHMENT A

MINERALIZATION & GEOLOGY BELOW DACITE
(Know only from underground workings)

PROJECTED EDGE OF INTRUSIVE

Mainly Whitetail & Other Conglomerate

—EXPLANATION—

- Quaternary Cover (Qal, Qtg, Qtb)
- Tertiary Dacite (Td), Early Volcanics (Tev), & Whitetail Conglomerate (Tw)
- Laramide Intrusive (TKgr, Tamp, Tqd, Tlgm) & Projected Edge of Intrusive
- Mineralized Breccia (±0.3 % Cu), (Tbx) Known Only From Underground Workings.
- Paleozoic Sediments (pal)
  (a) Replacement Ore in Devonian Horizon
  (b) Stacked Replacement Ore In Devonin thru Pennsylvanian
- Precambrian Sediments (pC, ↑, Au) & Associated Diabase
- Precambrian Pinal Schist (sc) & Associated Diabase (db)

DRILL HOLE PENETRATION INTO PRE-WHITETAIL CONGLOMERATE UNITS

- DCA-2 — Pinal Schist & Laramide Intrusive
- OF-IA — Diabase (dikes?)
- I — Pinal Schist & Diabase

- OF-IA — Known Drill Holes
- A-4 — Exemplary Drill Sites
- A — A' — Cross Sections Included in Original Report
- A — A' — Long Sections Accompanying This Report

0 500 1000' 2000' 4000' 6000'

Plan Map and Generalized Geology

SUPERIOR EAST PROJECT

GLOBE–SUPERIOR DISTRICT

Pinal & Gila Counties, Arizona

SCALE 1:24000

J.D.S. May 1970

2271

FIGURE 2

				14	8	3	1					
				15	9	4	2					
			34	35	16	17	10	329	304	303	298	297
			36	37	18	19	11	5	302	301	296	232
			38	39	20	21	12	6	300	299	168	167
			40	41	22	23	13	7	202	201	200	199
			42	43	24	25	30	29	204	203	198	197
			44	45	26	27	28	27	206	205	196	195
			46	47	28	29	26	25	208	207	194	193
RECOMMENDED "KAY" GROUP ASARCO →			48	49	30	31	24	23	210	209	192	191
			50	51	32	33	22	21	212	211	190	189
88	89	52	53	72	71	32	31	20	19	213	188	187	295
90	91	54	55	74	73	34	33	18	17	214	186	185	294
92	93	56	57	76	75	36	35	16	15	215	184	183	293
94	95	58	59	78	77	38	37	14	13	216	182	181	292
96	97	60	61	80	79	40	39	12	11	141	180	179	291
98	99	62	63	82	81	42	41	10	9	142	178	177	290
100	101	64	65	84	83	44	43	8	7	143	176	175	289
102	103	66	67	86	85	46	45	6	5	144	174	173	288
104	105	68	69	88	87	48	47	4	3	145	172	171	
106	107	70	71	90	89	50	49	2	1	146	170 W	169	
108	109	72	73	92 A	91 A	52	51	122	121	147			
110	111	74	75	94 A	93 A	54	53	124	123	148			
112	113	76	77	96 A	95 A	56	55	126	125	149			
114	115	78	79	98 A	97 A	58	57	128	127	150			
116	117	80	81	100 A	99 A	60	59	130	129	151			
118	119	82	83	102 A	101 A	62	61	132	131 E	152			
120	121	84	85	104 A	103 A	64	63	134 W	133	153			
122	123	86	87	106 A	105 A	66	65	136 W	135	154			
137	138	124	330	108 A	107 A	68	67	138	137	155			
139	140	125	126	110 A	109 A	70	69 E	140	139	156			
141	142	127	128	112 A	111 A	158 W	157	218	217	227			
143	144	129	130	114 A	113 A	160 W	159	220	219	228			
145	146	131	132	116 A	115 A	162 W	161	222	221	229			
147	148	133	134	118 A	117 A	164 W	163	224	223	230			
149	150	135	339	120 A	119 A	166 W	165	226	225	231			
151	152	136	338	326	325	234 W	233	248	227	287			
? Ash ? ? Oak ? (MAGMA COPPER CO.)			337	328	327	236	235	250	249	286			
			336	332	331	238	237	252	251	285			
			335	334	333	240	239	254	253	284			
						242	241	256	255	283			
						244	243	258	257	282			
						246	245	260	259	281			
						262	261	266	265	280			
						264	263	268	267	279			
						270	269	274	273	278			
						272	271	276	275	277			
						321	314	313	306	305			
						322	316	315	308	307			
						323	318	317	310	309			
						324	320	319	312	311			

"MARGARET" GROUP
CONTINENTAL EXPLORATION

NOTE:
THIS OUTLINE IS FROM COURTHOUSE RECORDS. FIELD LOCATION NOT VERIFIED.

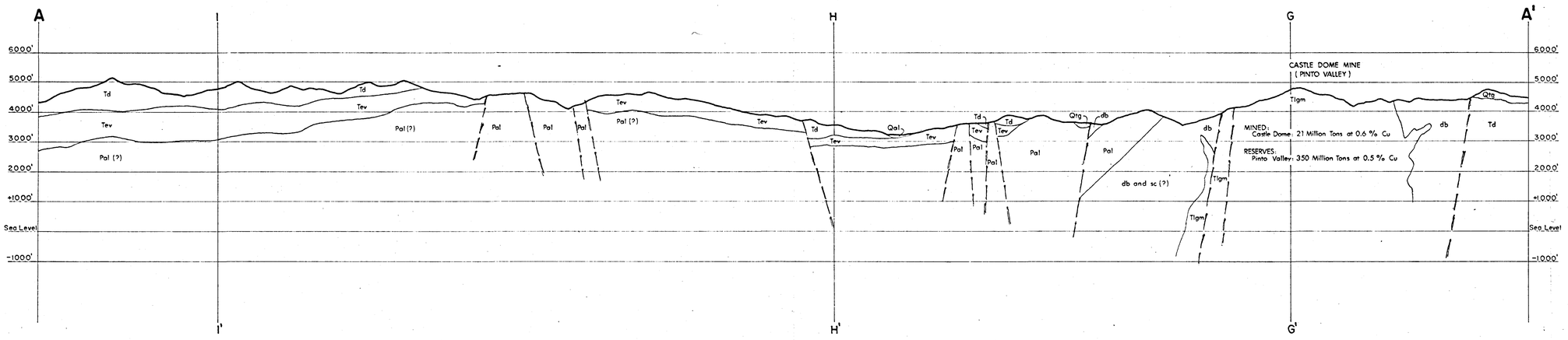
R.13E., T.1S.
MARGARET and KAY CLAIMS
PINAL COUNTY, ARIZONA

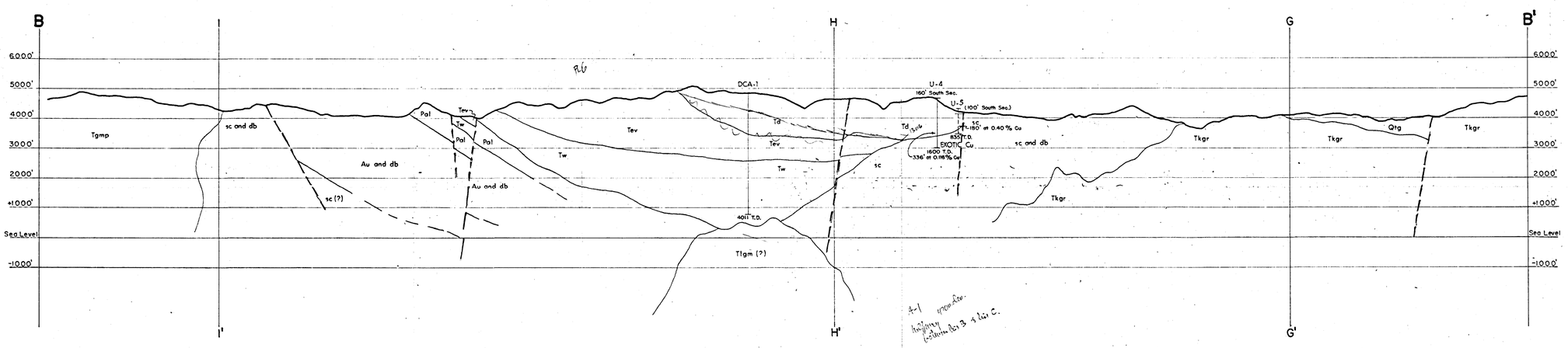
SCALE: 1:24,000 or 1"=2000'

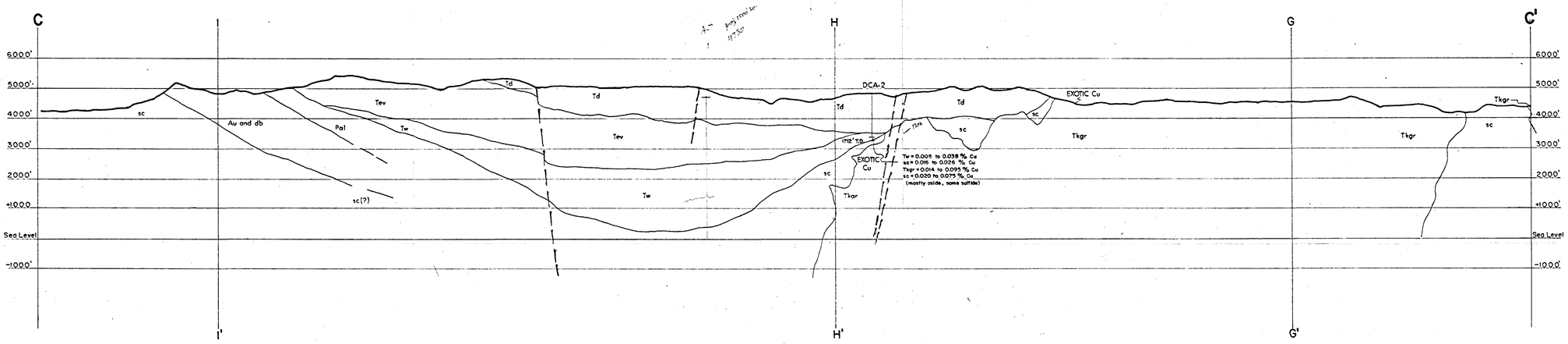
JUNE 1970 J.D. SELL

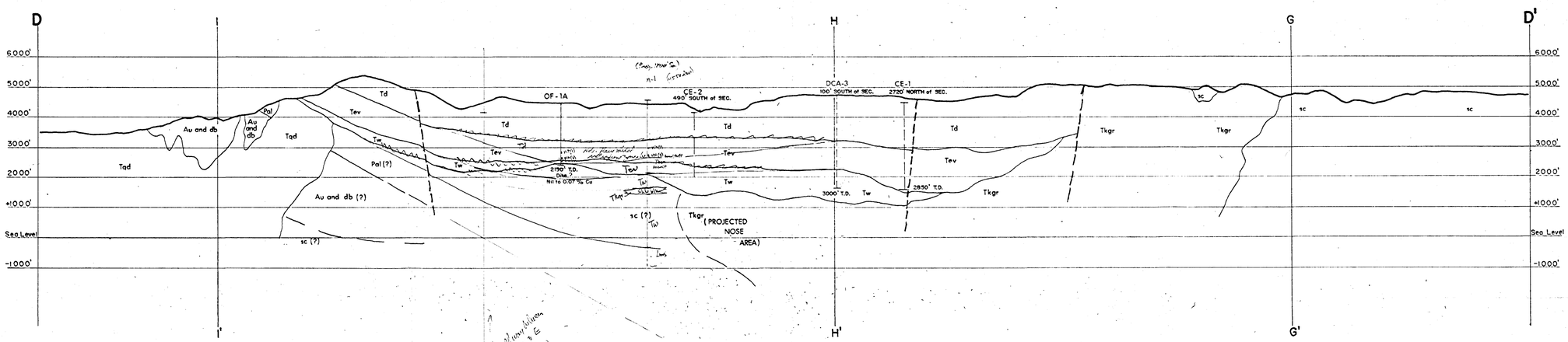
TR 2332

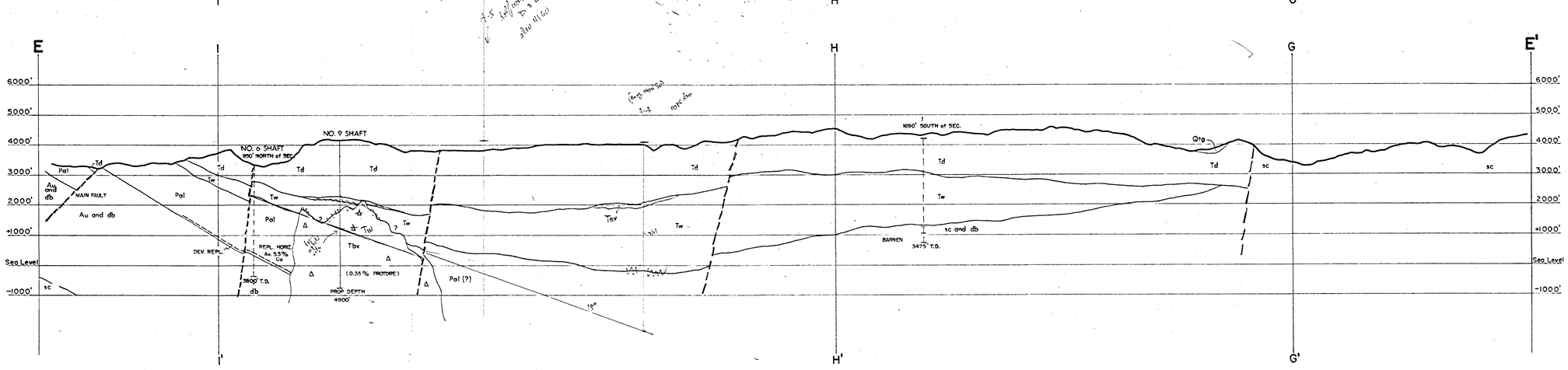
ATTACHMENT B

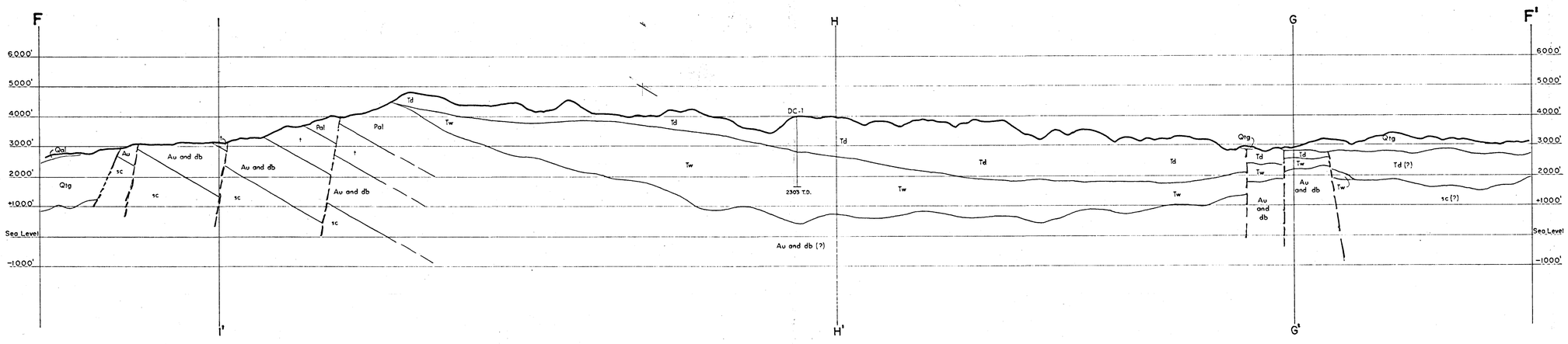








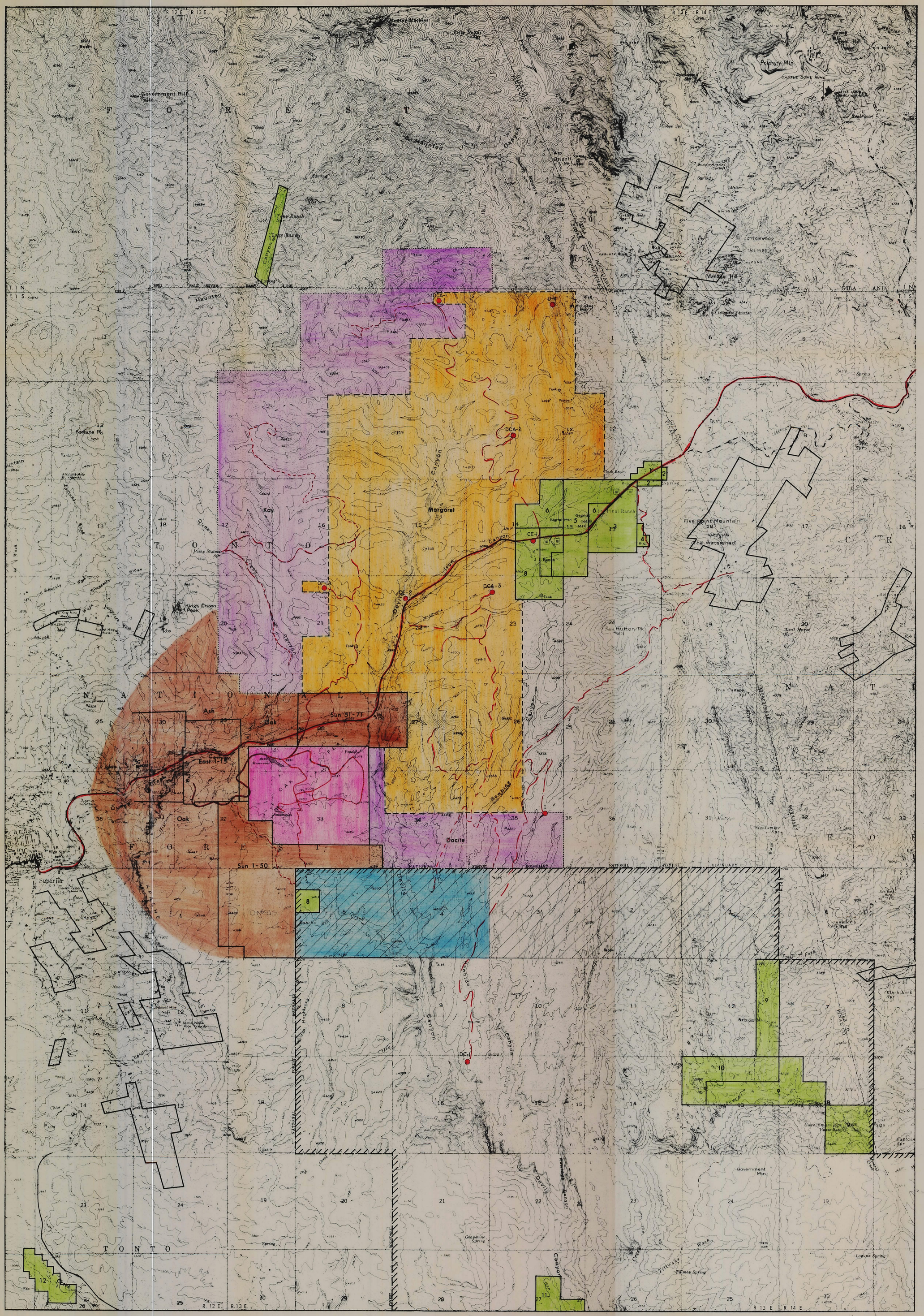




EAST, WEST SECTIONS
(LOOKING NORTH)
SUPERIOR EAST
PINAL COUNTY, ARIZONA
SCALE: 1" = 2000'
JUNE 1970 J.D. SELL

MLR

ATTACHMENT D



—EXPLANATION—

- STATE LAND (ALL OTHER LAND IS WITHIN TONTO NATIONAL FOREST)
- PROPOSED ASARCO CLAIM GROUPS
- ASARCO LEASE & APPLICATION
- FEE LAND *
- FOREST SERVICE WITHDRAWAL
- MAGMA COPPER COMPANY CLAIMS (NORTHERN EDGE NOT VERIFIED)
- CONTINENTAL EXPLORATION CLAIMS (EXACT LOCATION NOT VERIFIED)
- MINERAL SURVEY CLAIMS, OWNERS UNKNOWN

* OWNERS

1. HELEN COLE, SUTTON SUMMIT SUBDIVISION
2. WILLARD SHOECRAFT
3. GERALDINE CRAIG
4. ETHEL HENDERSON
5. ROBERT CRAIG
6. GERALD CRAIG
7. THOMES CLARY
8. MILO WEBB
9. THELMA HAGEN
10. HARRY HAGEN
11. KENNECOTT COPPER CORP.
12. OSCAR GRONLAND
13. UNKNOWN

- PAVED OR GRADED ROAD
- UNIMPROVED ROAD
- PROPOSED ROAD FOR LOCATION DRILLING
- OUTLINE OF DACITE PLATEAU
- DCA-3 KNOWN DRILL HOLES

PRELIMINARY LAND STATUS
SUPERIOR EAST PROJECT
Globe, Superior, & Surrounding Area

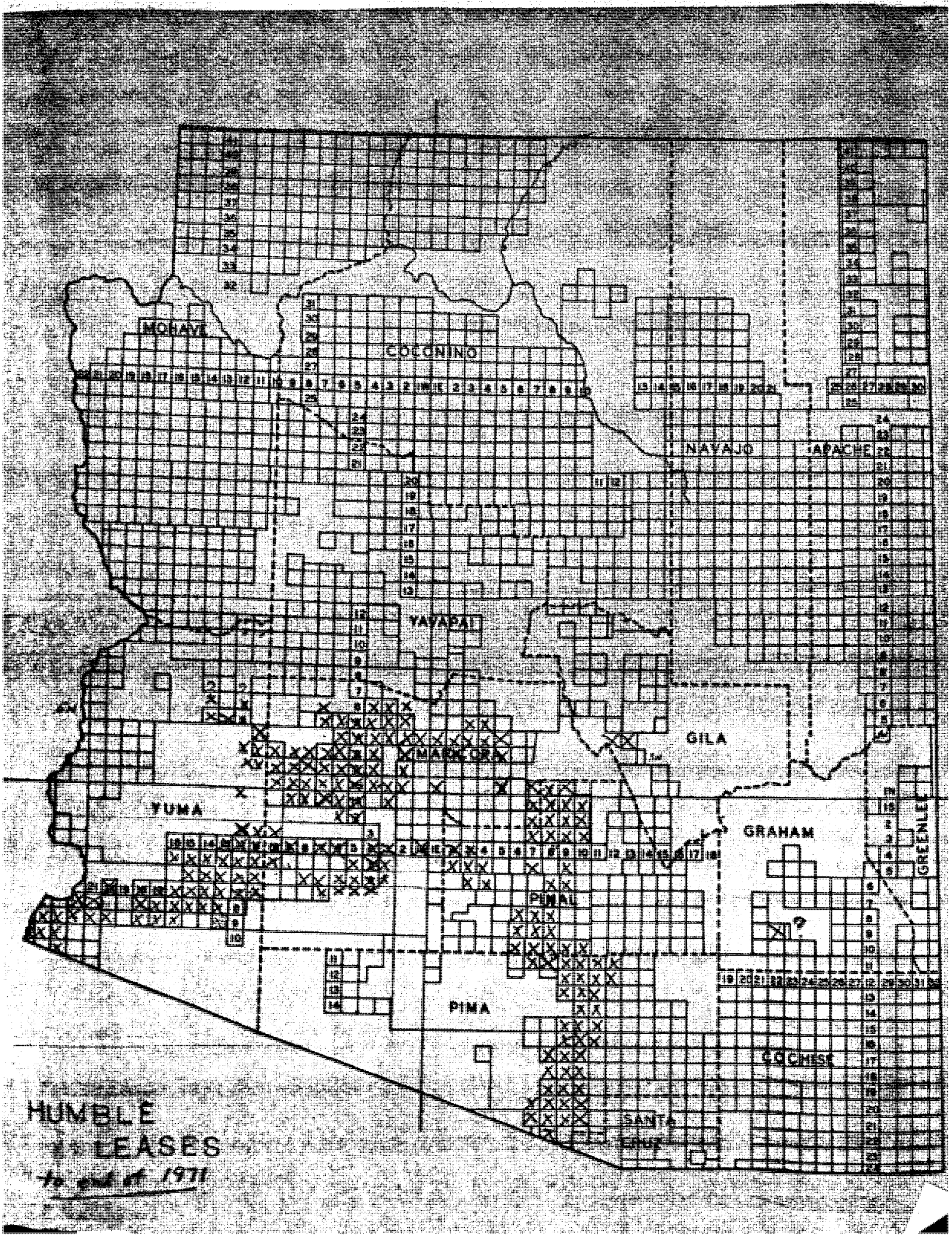
GILA & PINAL COUNTY, ARIZONA

JDS — May, 1970

0 500 1000 2000 4000 6000

1:24000

2273


MOHAVE
COCONINO
NAVAJO
APACHE
YAVAPAI
GILA
YUMA
GRAHAM
GREENLEE
PINAL
PIMA
COCHISE
SANTA CRUZ
HUMBLE
LEASES
to end of 1971