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James Doyle Sell Mining Collection

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October 27, 1976

JHE/WLX

F. T. G.
OCT 29 1976

TO: F. T. Graybeal

FROM: J. D. Sell

Monthly Report - Oct. 1976
Superior East Project
Pinal County, Arizona

Joy's crews and rig on A-8 continue to give good results. NX core was terminated at 3197 feet and casing set. BX coring continued below the casing with a slight problem of broken and lost core. Careful attention to the mud program has helped the problem and excellent core recovery is being made in brecciated and gougy Pinal Schist. The hole is presently at 3478 feet.

Synopsis of the present total hole is as follows:

Surface-1583	Dacite
1583-2213	Earlier Volcanics
2213-3226	Whitetail Conglomerate
3226-3478	Pinal Schist, brecciated

Minor native copper in Whitetail has been scattered in runs from around 2440 depth with persistent, but very low, amounts from around 2850 depth. The last ten feet of Whitetail contained native in diabase and schist clasts as well as some in the matrix. The core was not split but is estimated to run in excess of one percent copper.

Only minor native was found in the schist block from 3226-3240 with none found at deeper levels. The Pinal Schist block is probably the leached capping block found above a flat fault as in A1-1, A-2, & DCA-3A. The first hundred feet of schist core contained a variable amount of black indigenous iron ranging from 10-25%. Since then the iron content has fallen and ranges from 1 to 5%, mostly as indigenous but with minor yellow-orange transported limonite. The schistosity is generally between 10-20 degrees and is often veined by dense, unmineralized white quartz. It is cut by strong breccia and gouge zones which are probably mostly tectonic. Projection of data from the previous holes is complicated by the steep cross-fault cutting the low-angled "oxide-sulfide" fault (or basal fault to the leached capping blocks) and, at present, the low-angled fault is projected to be intercepted around 3700 feet in depth. The schist block is variably altered with clay and sericite being the common product. Biotite is noticeable along schistosity but is thought to be primary.

No map is attached. Estimated balance of authorization is \$39,700.

James D. Sell
James D. Sell

ASARCO

Southwestern Exploration Division

September 28, 1976

TO: F. T. Graybeal

FROM: J. D. Sell

Quarterly Report
July-September 1976
Superior East Project
Pinal County, Arizona

During the quarter, Bryant Construction repaired the road east of Devils Canyon and continued building the road and drill site of A-8. The road had been worked on in March 1975 but was terminated and delayed at that time.

Joy Drilling Co. bid the hole A-8 coring from the surface, after inspection of the available core of rock types anticipated. Joy collared the hole August 5, 1976, using an unmodified Joy 22. They cored NC size to 1971 feet and set NX casing with shoe. An exchange of crews and rigs was made with a Joy 22 Heavy Duty rig continuing the core NX size to a depth of 2271 feet by the end of the quarter.

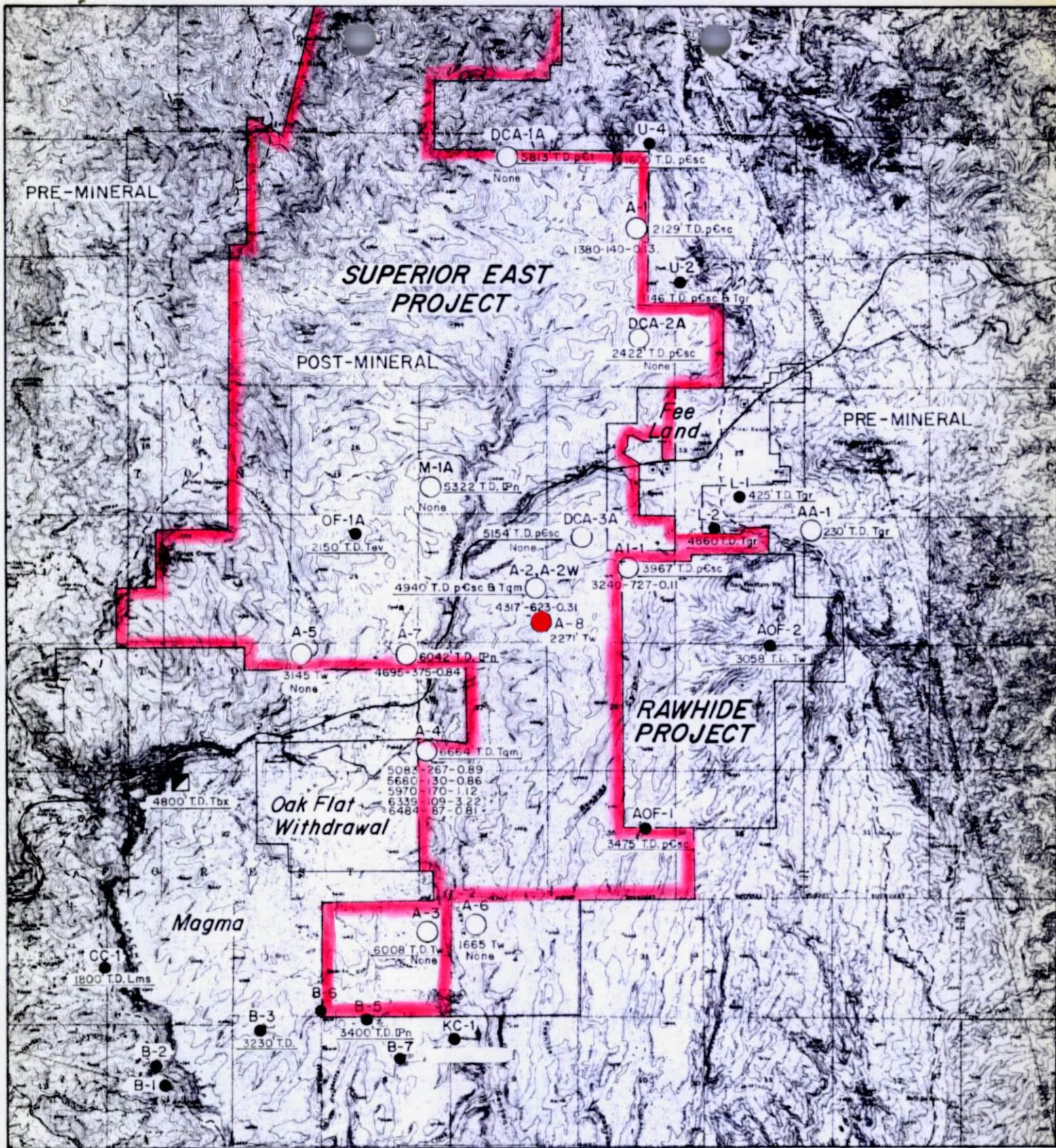
Synopsis of the hole is as follows:

Surface-1583	Dacite with vitrophyre and tuff
1583-2213	Earlier Volcanics
2213-2271	Whitetail Conglomerate

The drilling progress map is attached.

James D. Sell
James D. Sell

JDS:lb
Att.



EXPLANATION

- ASARCO drill hole
- Other drill hole
- Magma's 9 shaft

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

ASSAY DATA KEY

- depth-length-%Cu
- 4317-623-0.31

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- Ps - Supai formation
- IPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

- DCA-1 (hole designation)
- 4011 Tw
- └ Rock type
- └ Bottom hole depth
- TD - Total Depth
- ⊕ Proposed drill site

TO ACCOMPANY	3RD
	QUARTER REPORT
DATED	9-28-76
BY	J.D. SELL

DRILLING PROGRESS MAP
for the month of _____
SUPERIOR EAST
GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile
J.D.S.

ASARCO

JDS/WLX
Southwestern Exploration Division

September 28, 1976

TO: F. T. Graybeal

FROM: J. D. Sell

Monthly Report - Sept. 1976
Superior East Project
Pinal County, Arizona

Drill hole A-8 is continuing to make progress with a minimum of difficulties. The unmodified Joy 22 rig completed the NC coring to the depth of 1971 feet where NX casing was set. The rig was exchanged with a Joy 22 Heavy Duty, along with a change of crews. Coring was resumed NX size, and the hole is presently at a depth of 2271 feet.

Synopsis of the hole is as follows:

Surface-1583	Dacite with basal vitrophyre and tuff
1583-2213	Earlier Volcanics
2213-2271	Whitetail Conglomerate

No map is attached to this report.

Estimated balance of authorization is \$61,000.

James D. Sell
James D. Sell

JDS:lb

ASARCO

WJK/SHC
Southwestern Exploration Division

June 28, 1976

TO: F. T. Graybeal

FROM: J. D. Sell

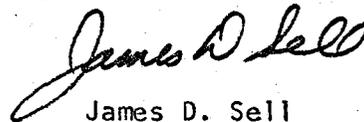
Monthly Report - June 1976
Superior East Project
Pinal County, Arizona

Alternate drill sites and access have been preliminarily checked for drilling south of A1-1 near to the Asarco-ICC boundary line on the Rawhide (ICC) Joint Venture. Olmstead of ICC has also agreed that work expended on a drill site on the Asarco side would be applicable for the assessment expenditures.

The office-core storage has now been moved to a new location on a two-year lease. The building is at 401 Live Oak, the main street in downtown Miami. The building is larger and more useable, with an overhead drive-in door.

Inspiration has now started road and site clean-up preparation for five holes on the Eder (Powers Gulch) oxide copper area in schist east of our drill hole A-1 on the northeast side of the Margaret claim group. The boundary compromise has been worked out and agreed upon.

Estimated balance of authorization is (\$2,300).


James D. Sell

JDS:1b



Southwestern Exploration Division

June 1, 1976

TO: F. T. Graybeal

FROM: J. D. Sell

Monthly Report - May 1976
Superior East Project
Pinal County, Arizona

Cooksley's final report on the seismic line from A-5 eastward to AOF-2 across Devils Canyon has been received. His work suggests the Devils Canyon fault does not cause an abrupt escarpment in the bedrock but only gently uplifts it, where it then continues on a gentle rise until the bedrock surface intercepts the Rawhide Canyon fault. If valid, it opens up the potential for additional copper conglomerate to the east while increasing the depth to bedrock in testing for the primary bedrock zone as involved in hole A-2W.

The SLC gravity report on testing for the Schultze granite-Pinal Schist contact has been received. They find the contact to be resolvable when traversed over outcropping units. They then modeled the response under various thicknesses of volcanic cover rock, and the results suggest a very rapid loss of resolution. It is doubtful that a clear-cut response and interpretation are possible with gravity over the dacite.

Our lease on the core storage-office has been extended monthly. A new location has been found in downtown Miami and is presently being repaired and cleaned. All core, etc. will be moved to the new location.

Preliminary investigation for a new drill site on the Rawhide ground has been made south of AI-1. The site will also test the southeasterly extension of the proposed zoning outward from A-2W.

Estimated balance of authorization is \$4,200.

James D. Sell
James D. Sell

JDS:lb



Southwestern Exploration Division

~~WEX~~
~~JHC~~

March 29, 1976

TO: F. T. Graybeal

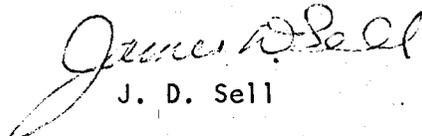
FROM: J. D. Sell

Monthly Report - March 1976
Superior East Project
Pinal County, Arizona

The geophysical group out of SLC has completed four traverses over the Schultze granite-Pinal Schist contact east of the project area. Although the preliminary tests suggested a low contrast, it has been verbally reported that the field work traverses appear to have some variability. Reduction and interpretation of the data are now in progress.

A preliminary seismic profile has been submitted by J. R. Cooksley and a meeting is scheduled for late March or early April.

Estimated balance of the authorization is \$10,000.


J. D. Sell

JDS:lb

ASARCO

Southwestern Exploration Division

April 29, 1976

TO: F. T. Graybeal

FROM: J. D. Sell

Monthly Report - April 1976
Superior East Project
Pinal County, Arizona

Final reports by the geophysical groups (1. the seismic contracted by Cooksley and 2. the gravity by SLC) have not been received. Cooksley visited for a half day but did not have his report, so little was accomplished. Much massaging of the data appears to still be necessary, and it is questionable as to the validity of any data without strong depth control.

Our lease on the core storage-office space is up June 1st and will not be available for another yearly lease. Investigation of alternate areas is presently under way.

Estimated balance of authorization is \$8,700.

James D. Sell
James D. Sell

JDS:1b

JHC

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

May 28, 1975

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - May 1975
Superior East Project
Pinal County, Arizona

Cooksley Geophysics has completed the shooting of the north line. The field records will be submitted to the data processing company this week, but the turn-around time is unknown. All shot records appear to be good and good interpretive processed records are expected.

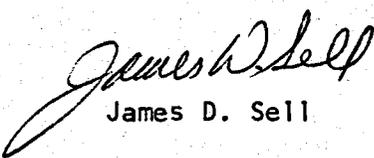
No word has been received from Cal Moss on the gravity interpretation they are doing on the Newmont data.

CXM Drilling has cleaned our drill hole A-3 (State Lease Section 5) to the depth of 1945 feet and set 4" black pipe and flush-joint casing to the full depth. Stabilizers were placed at approximated 100-foot centers in the large diameter hole and 16 cubic yards of cement were pumped around the outside of the casing; plug set, pipe stretched and welded to collar.

Tonto Drilling has accepted the contract for diamond coring in holes A-3 and A-5, but the final contract has not been signed as of this date. Tonto is scheduled to be in Tucson this week. Modification of the newly acquired rigs (CP-50's) may take up to 6 weeks.

Several modified drilling programs have been submitted and an additional appropriation secured.

No map is attached. Unexpended funds are \$144,000.


James D. Sell

JDS:lb

JHC
AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

April 29, 1975

J. H. C.
MAY 2 1975

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - April 1975
Superior East Project
Pinal County, Arizona

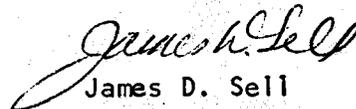
Cooksley Geophysics has shot the west half of the north line with apparent good record returns. The shooting and recording were delayed several weeks due to wet ground and high noise level. They will be moving east of Devils Canyon to complete the survey this week.

Bryant Construction has been pulled off the road work south of A-2 while the 1975 drilling work is being clarified.

Longyear has shown interest in bidding on the drilling and a proposal has been received from Tonto Exploration. A contractor decision should be completed this week.

No map is attached to this report.

Estimated balance of the authorization is \$45,000.


James D. Sell

JDS:1b

JHC

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

March 25, 1975

J. H. C.

APR 2 1975

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - March 1975
Superior East Project
Pinal County, Arizona

Cooksley Geophysics has completed flagging and drilling the north line (A-5 to A0F-2) and is scheduled to start shooting and recording the line on March 24. The work will be separated into two phases and the first line results computed and interpreted prior to initiation of the second line (A-3 to A0F-1).

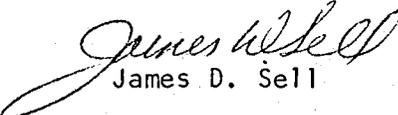
Bryant Construction has moved equipment into the area and will start the road and drillsite for hole A-8, located 1800 feet southeasterly from hole A-2. The road is a modification to a previous cat road and the drill site will be about 1700 feet from the existing access road. The access road will also be trimmed up from Devils Canyon, as the past several year's travel and weather have created a number of high center areas and washout zones. It is estimated to take 18-20 days for the work.

Several drill contractors have been contacted for the rotary and core drilling of A-8. Tonto Exploration has inspected the previous core and investigated the proposed site. No bids have been received on any drilling proposals to date.

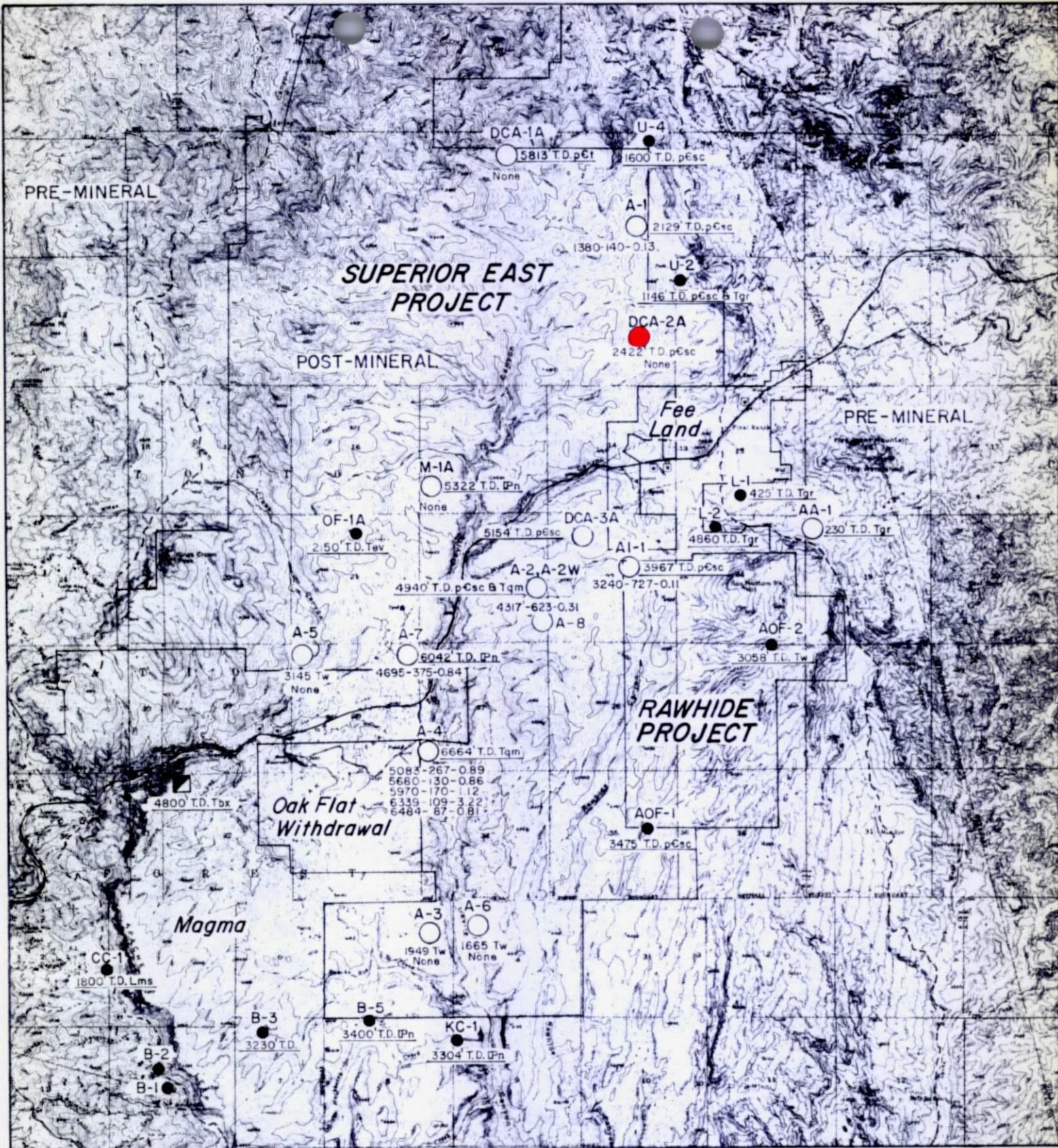
Two Superior East reports have been distributed:

- 1) Cost Summary as of February 1, 1975 (dated Feb. 27, 1975);
- 2) 1974 Summation Report with recommendations for additional exploration (dated March 10, 1975).

Estimated balance of the authorization is \$52,400. Attached is the drilling progress map updated for the past three months.


James D. Sell

JDS:lb
Att.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
- ┌ Rock type
- └ Bottom hole depth
- T.D. - Total Depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- Ps - Supai formation
- IPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

ASSAY DATA KEY

- depth-length-%Cu
- 4317-623-0.31

TO ACCOMPANY Monthly
DRILLING REPORT
 DATED MAR. 25, 75
 BY J. D. SELL

DRILLING PROGRESS MAP
 for the month of JAN-MAR, 1975
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

January 30, 1975

J.H.C.
FEB 6 1975

TO: W. L. Kurtz

FROM: J. D. Sell

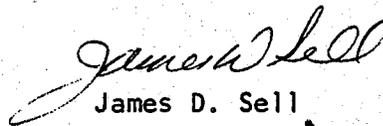
Monthly Report -- Jan. 1975
Superior East Project
Pinal County, Arizona

Assays have been returned on the sulfide intercept of drill hole DCA-2A. The five samples split from the interval 2000 to 2422 ft. averaged 156 ppm Cu, 41 ppm Pb, 84 ppm Zn, and 5 ppm Mo, confirming the low visual estimate. As reported last month, the hole was terminated at 2422 ft. in Pinal Schist with low pyrite content and weak alteration characteristics.

Drilling has been suspended pending review of drilling contracts and anticipated costs.

Although the contract has not yet been signed, Cooksley is slated to start the seismic work sometime in March.

No map is attached to this report. Estimated balance of authorization is \$56,000.


James D. Sell

JDS:1b

JHC

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

December 27, 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - December 1974
Superior East Project
Pinal County, Arizona

Drill hole DCA-2A was continued from 2080 to 2422 feet by BX core drilling. The hole was terminated at this depth due to nearby complete lost circulation conditions and the low incidence of favorable alteration-mineralization characteristics with very low total sulfides. Assays are pending in the sulfide zone, but are estimated to be low copper values based on visual inspection.

A report on the Whitetail copper potential was distributed November 8th and the summation of the project, with specific attention to the porphyry copper potential, is in press.

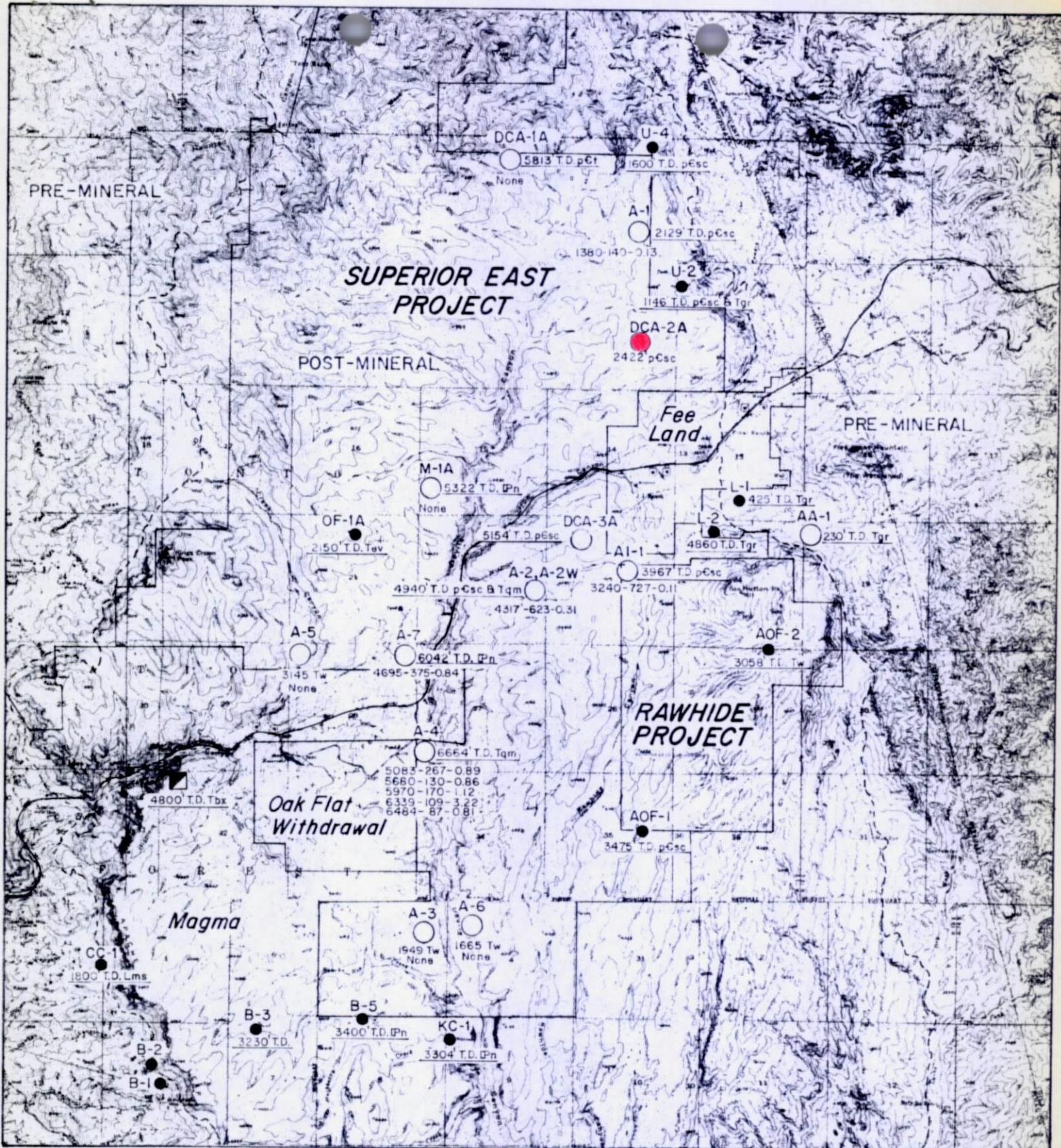
To date no further contact has been made with Newmont concerning the geophysical overruns. Their road contractor, Guzman, is presently cleaning east of Devils Canyon on their State Lease section.

The option for the Clark group of claims around the American Mine has been terminated and the drill-assay information turned over.

Estimated balance of authorization is \$63,500.

James D. Sell
James D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's #9 shaft

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- Ps - Supai formation
- IPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

ASSAY DATA KEY

- depth-length-%Cu
- 4317-623-0.31

- DCA-1 (hole designation)
- 4011 Tw
- Rock type
- Bottom hole depth
- T.D. - Total Depth
- ⊕ Proposed drill site

TO ACCOMPANY MONTHLY
DRILLING REPORT
 DATED 12-27-74
 BY J. D. SELL

DRILLING PROGRESS MAP
 for the month of DEC, 74
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

October 25, 1974

J.H.C.
OCT 30 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - Oct. 1974
Superior East Project
Pinal County, Arizona

Drill hole DCA-3A was completed and terminated at a depth of 5154 feet in Precambrian Pinal Schist. A synopsis of the deviated hole is as follows:

<u>Footage-Depth</u>	<u>% Copper</u>	<u>Unit-Remarks</u>
4244-4297	0.02	Whitetail Conglomerate
4297-4394	0.08	Slideblock of Schultze Granite (oxidized)
4394-4454	0.12	Whitetail Conglomerate
4454-4666	*	Schultze Granite. Probably a moved block with cataclastic textures (oxidized)
4666-4670	-	Fault Gouge. Interval shears at 50°-60°, slips and shears above and below at 10°-45°
4670-4806	0.10 ox. 0.09 sulf.	Schultze Granite (oxidized to 4720')
4806-4809	-	Fault Gouge. Upper contact at 60°-70°
4809-4948	0.01	Pinal Schist, totally crushed
4948-4953	-	Gouge and Sand. Contacts at 30°-40°
4953-5154	**	Pinal Schist. Massive but fractured

*Note: A chrysocolla zone ran 1.40% and 0.32% copper, while two other samples with no obvious copper averaged 0.07% copper.

-Note: No sample cut in this interval.

**Note: Sample assays not received by report date.

Geochemical sampling on irregular intervals shows variable values in the blocks as listed above. Minor infilling by assays will be conducted.

An oriented deviation survey was conducted and the hole at 4975 feet in depth was found to be 495 feet south and 42 feet east of the collar. The temperature survey showed 138°F at 4975 feet, with a gradient of 1° per 100 feet in the last 500-foot run.

The Sale Lake City GP department successfully ran down-the-hole measurements from 3000 to 4800 feet and emplaced an antenna probe at 4800 feet for future work.

The road north to DCA-2 has been repaired and a culvert stabilized with a cement pier and cap to support the vehicular drill traffic. The CP-50 machine is presently moving and operations should start soon. The reentered hole is renumbered as ASARCO DCA-2A and the present anticipated work will be to clean the hole and set casing to 1475 feet and wedge off into Whitetail Conglomerate. The hole was originally drilled in 1964-65 and is reported to have cut the following units.

0-1095	Dacite
1095-1300	Earlier Volcanics
1300-1525	Whitetail Conglomerate
1525-1772	Pinal Schist and Schultze Granite (with oxide copper values ranging from 0.016% to 0.095% copper. The bottom sample, partially oxidized, ran 0.18% copper.)

The hole was probed by ASARCO in 1971 and found to be open to a depth of 1295 feet.

Arizona Mining Company requested ASARCO to log their Grayback No. One hole to see if we wished to participate in deepening the hole. Logging shows surface oxidation extended to 125 feet in Pinal Schist. The schist continued to 669 feet and assay intervals ran 0.03% to 0.28% copper. The Schultze Granite was logged from 669 feet to the bottom at 1248 feet. Assay value ran from 0.01% to 0.24% copper. In both units the mineralization is confined to 1/8"-1/4" quartz-pyrite-chalcopyrite veinlets at a steep angle, separated by 1 to 3 feet of barren rock. The veining is similar to that found on the surface.

ASARCO declined to deepen the hole, but AMC was going to continue for another "100 to 500 feet."

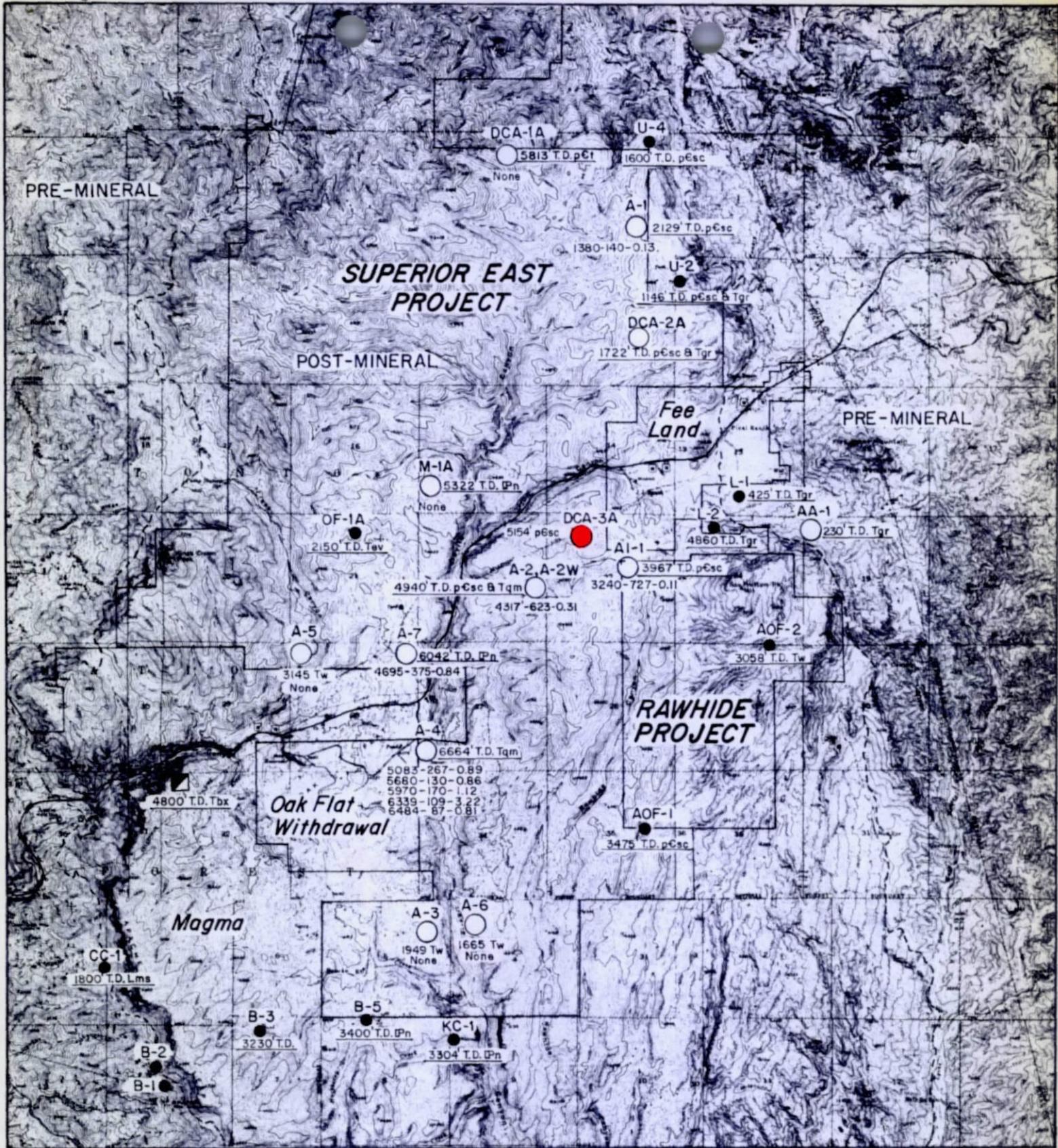
Discussion was made with Arizona Mining Company for permission to log their 4900-foot hole, Lindburg L-2, but we have not received permission to date.

Dave McLean, a Newmont geophysicist, has approached us on a further discussion whereby they wish to extend their geophysical work over our State Lease Sections 4-5. As reported earlier, they have run lines over our ground without prior permission and to date we have not received the data as requested, but Dave says it is forthcoming.

Unexpended funds are \$96,000.

J. D. Sell
J. D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's 9 shaft
- DCA-I (hole designation)
- 4011 Tw
- Rock type
- Bottom hole depth
- T.D. - Total Depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- Ps - Supai formation
- IPn - Naco limestone
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- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

ASSAY DATA KEY

- depth-length-%Cu
- 4317-623-0.31

TO ACCOMPANY MONTHLY
 DRILLING REPORT
 DATED OCT 1974
 BY J.D. SELL

DRILLING PROGRESS MAP
 for the month of OCT 74

SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile
 J.D.S.

J.H.C.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

August 29, 1974

J.H.C.
AUG 29 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report -- August 1974
Superior East Project
Pinal County, Arizona

Assessment work on the Clark option ground was completed during the month by deepening our drill hole AA-1. The hole was continued from 120 feet to 230 feet in Schultze Granite, with low geochemical values recovered.

Drill hole DCA-3A has been in trouble with holes developed in the casing and broken rock being cored. At 4338 feet the rods became stuck during a wireline core pull and ultimately 128 feet of rods, core barrel, and bit were lost after McCullough found the fill point and cut the drill rods free. The hole was cemented at the cut zone and we are in the process of deviating the hole in continued NX size.

Synopsis of the core portion is:

2980-4081	Whitetail Conglomerate
4081-4159	Schist-granite slideblock in Whitetail
4159-4274	Whitetail Conglomerate
4274-4328	Quartz monzonite slideblock
4328-4338	Quartz monzonite (bedrock?)

Assays have been returned for the initial Whitetail intercept and values are 427 ppm Cu, 47 ppm Pb, 58 ppm Zn, and 13 ppm Mo. A tuffaceous sandstone was noted and the matrix of the Whitetail became much darker and contains slip surfaces below the marker bed. Geochem values in copper and moly are essentially a third higher than the average reported above.

The two slideblock zones contain quartz-sericite and clay altered products with oxidized iron products and copper limonite to jarositic capping. Minor copper oxides were noted in the upper block.

The probable bedrock is highly crushed and cataclastic deformed quartz monzonite with increased quartz-sericite and iron oxides along fractures. Pyritic pseudomorphs are also present with total oxidation. Samples within the slideblocks and below have not been returned. The highly deformed nature of the last ten feet of core makes it difficult to determine if the intercept is true bedrock or part of the slideblock. Drilling will continue for a sulfide bedrock intercept.

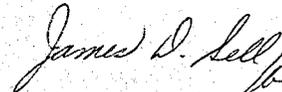
W. L. Kurtz

- 2 -

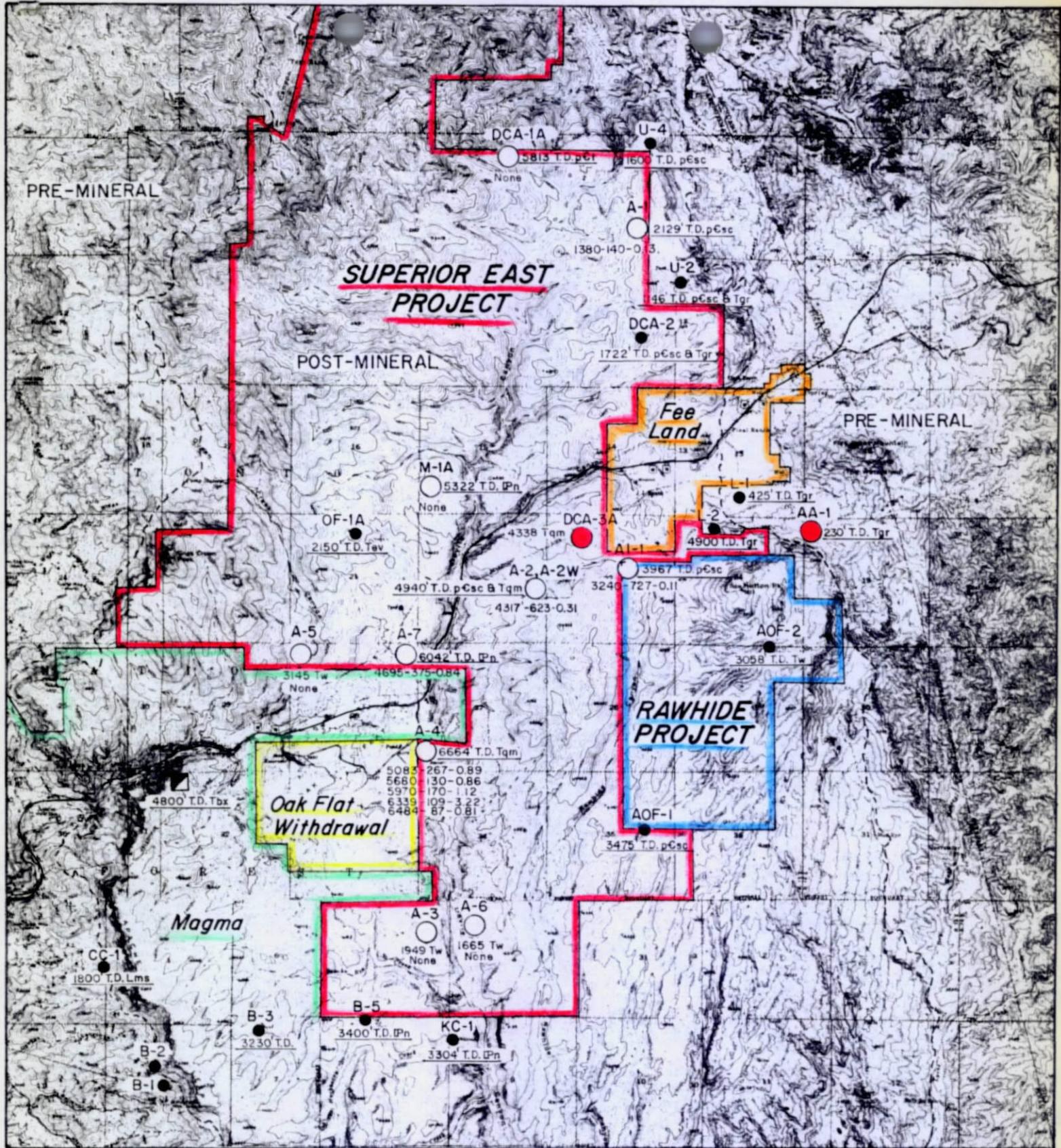
August 29, 1974

The Arizona Mining Company rig at L-2 has been removed. They apparently bottomed around 4900 feet. We have two sludge pile samples and one of core chips of fresh Schultze Granite, but the results are not yet available. It is rumored that Phelps Dodge has taken an option on the Lindburg-Grayback claims. In an aerial flight last week, we noted a Boyles-type rig set up on the north end of the Grayback claims in the area of the ICC drill holes 12, 12A, & 13. These appeared to be the most indicative of the ones drilled previously.

Unexpended balance is estimated at \$142,500.


James D. Sell

JDS:1b
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ⊕ Magma's #9 shaft

- DCA-1 (hole designation)
- 40ft Tw
- └ Rock type
- └ Bottom hole depth
- T.D. - Total Depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- Ps - Supai formation
- IPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

ASSAY DATA KEY

- depth-length-%Cu
- 4317-623-0.31

TO ACCOMPANY *Monthly*

Drilling Report

DATED *Aug 29, 1974*

LY *J.D. Sell*

DRILLING PROGRESS MAP
for the month of *August, 1974*
SUPERIOR EAST
GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

July 31, 1974

JAC
J. H. C.
AUG 5 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report -- July 1974
Superior East Project
Pinal County, Arizona

Drill hole DCA-3A, which was cleaned out and set with casing earlier in the year, was occupied with the core drill during the month. The depth to the first core was 2980 feet and was Whitetail Conglomerate. As of the end of the month, the hole continues in Whitetail to the present depth of 4040 feet. Coring for a bedrock intercept continues.

Most of the rock clasts in the Whitetail are Pinal Schist, diabase, and quartz monzonite. All rock units in the clasts have been affected by hydrothermal alteration and numerous clasts show good capping characteristics. Of the total clasts, probably 20% show alteration-leached mineralization features, while the remainder are fresh or nearly so. No assays are presently available and visually only rare to trace native copper has been noted, although a tuff bed was encountered and the Whitetail matrix below is of the dark brown color with some slippage surfaces.

Newmont's drill hole B-5 was terminated after the hole was lost due to caving ground. The decision to deviate by use of the dynadrill was cancelled. Numerous core chips were found and of the several hundred examined, it appears that they may have terminated in black shales and limestones of the Naco sequence. Numerous chips of diabase and quartzite were also noted and many were "recored", suggestive of rubble falling in from the Whitetail. A sample collected from the sludge ditch returned: 228 ppm Cu, 107 ppm Pb, 57 ppm Mo and 1.10% Zn. These values are especially high in moly and zinc, but no identifiable minerals were noted in the chip samples studied.

Apparently the Newmont geophysical crew has returned to the east to digest their findings. I talked to Hugh Steele of the local office and mentioned to him that one of their wire lines was well within the ASARCO State Lease section 5 and suggested we would appreciate the data found. He stated such would be reasonable and he would check the gp lines and data when it was available.

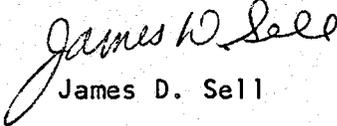
W. L. Kurtz

- 2 -

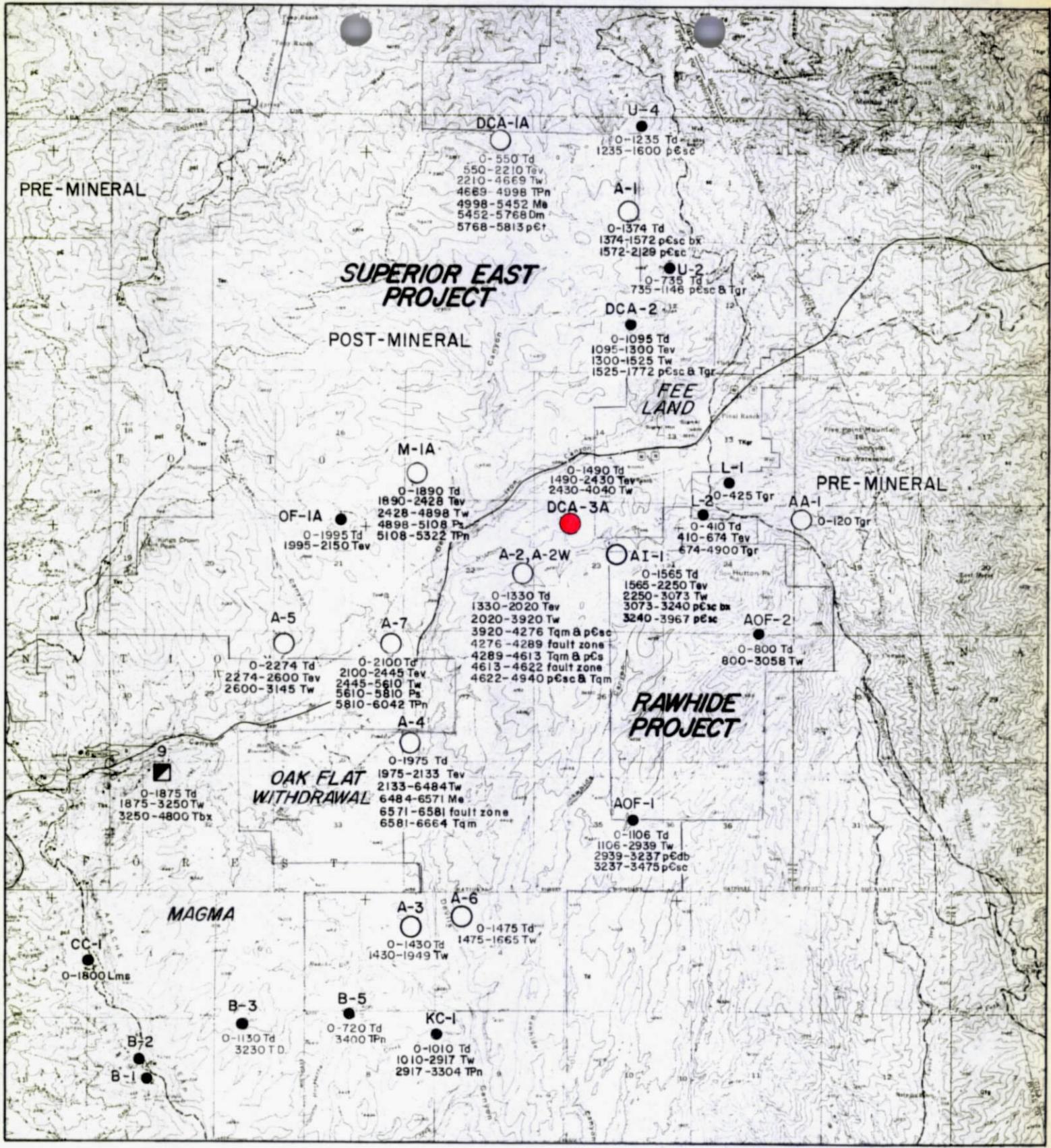
July 31, 1974

The Arizona Mining Company continues to core their L-2 at a depth below 4900 feet, apparently still in Schultze granite with low geochemical values.

Unexpended funds are estimated at \$157,300.


James D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's 9 shaft
- DCA-1 (hole designation)
- 40 || Tw
Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escobrosa limestone
- Dm - Martin lms
- pEt - Troy qtz
- pEdb - Diabase
- pEsc - Schist

TO ACCOMPANY *Monthly Drilling Report*
 DATED *July 31, 1974*
 BY *J.D. Sell*

DRILLING PROGRESS MAP
 for the month of *July 1974*
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

J.H.C.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

June 25, 1974

J. H. C.
AUG 9 1974

TO: W. L. Kurtz
FROM: J. D. Sell

Monthly Report - June 1974
Superior East Project
Pinal County, Arizona

Copper State Exploration completed the lease work on State Section 4, hole A-6, by deepening the hole to 1665 feet. The bottom of the dacite is at 1475 feet and the remainder of the hole is in Whitetail Conglomerate.

Three rotary cuttings assay samples in A-6 averaged 57 ppm Cu, 28 ppm Pb, 113 ppm Zn, and 5 ppm Mo. These values are similar to other Whitetail samples in the upper sections. The hole was filled with heavy mud and capped for later entry.

Cuttings from A-3, five samples, averaged 93 ppm Cu, 57 ppm Pb, 235 ppm Zn, and 4 ppm Mo in the Whitetail interval from 1430-1949 feet.

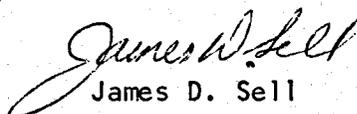
Newmont continues to core hole B-5 located just south of our section 5. They have had cementing problems in the Whitetail which is rumored to be at least to 3200 feet. A half box of core at around 3400 feet appeared to be massive limestone of the Naco type. Shortly after my unofficial visit to the site, the hole was lost some 1400 feet above bottom and it is rumored they will use a dynadrill to establish a deviated hole.

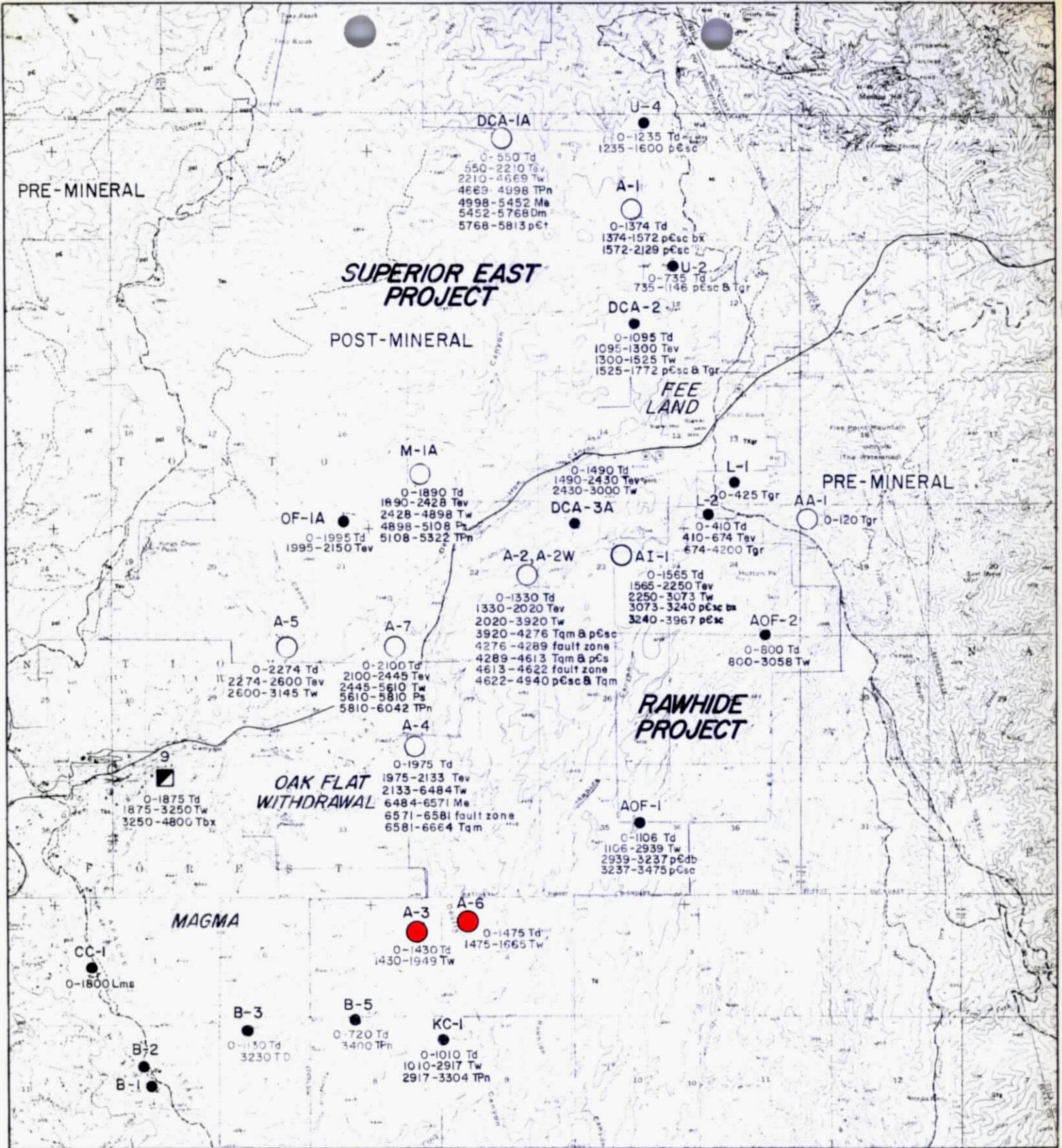
The Newmont geophysical crews have been busy running various probes and seismic over much of the area to the south.

F. T. Graybeal has submitted his report on the thin-section and fluid inclusion study of bedrock samples from drill holes A-2 and A1-1. His concluding remarks were as follows: "The apparent stronger alteration in A-2 may be related to the abundance of granite porphyry, the probable source rock. Nothing can be said about the relative depth of the two holes in the hydrothermal system. The fluid inclusions in the granite porphyry in A-2 are similar to but not as abundant or saline as fluid inclusions examined from a single granite porphyry sample collected from the Oxhide deposit. Thus it is possible that the center, or most intense zone of alteration-mineralization has not yet been intersected in the Superior East area, if indeed one was or is still present."

Unexpended funds are \$180,300.

JDS:lb
Attach.


James D. Sell



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
→ Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dolomite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tam - Quartz Monzonite
- Tgr - Granite
- TPh - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY MONTHLY
REPORT
DATED 6-25-74
BY J.D. SELL

DRILLING PROGRESS MAP
for the month of JUNE 74
SUPERIOR EAST
GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile
J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

May 31, 1974

JHC
MAY 31 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - May 1974
Superior East Project
Pinal County, Arizona

Copper State Exploration has commenced the assessment work drilling on the State Lease land.

Hole A-3 in Section 5 was deepened from 1445 feet to 1949 feet, staying in Whitetail Conglomerate. The hole drilled very cleanly and, with the experience of other holes, it was decided to fill the hole with heavy mud and leave it uncased.

Hole A-6 in Section 4 was barely occupied by the end of the month and Copper State Exploration had deepened the hole from 1358 feet to 1375 feet with the hole staying in dacite. The hole will be deepened to complete the assessment work during the coming month.

Arizona Mining Company continues coring on their L-2 site and Kayser reported (to R. B. Crist) that they were at 4200 and still in granite. Kayser asked if ASARCO was interested in his area and Crist replied that we would first be interested in evaluating his drill data.

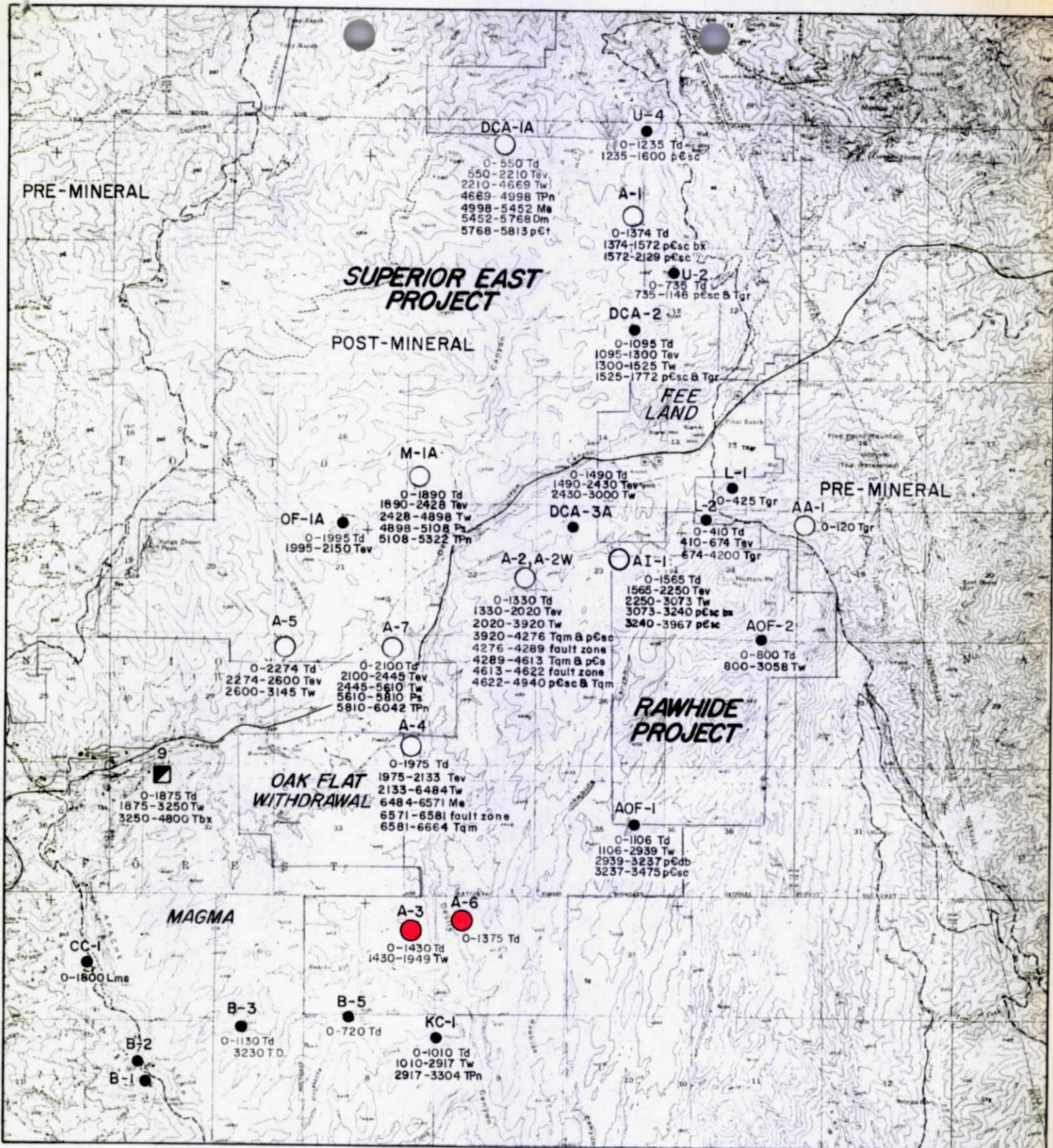
No new information was screened concerning Newmont's hole B-5, other than the depth to the base of the dacite.

No new information on ICC's drilling to the northeast.

Unexpended funds are \$181,000.

James D. Sell
James D. Sell

JDS:1b
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's 9 shaft
- DCA-1 (hole designation)
- 40ft Tw
- Rock type
- p Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escobrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY REPORT
DATED MAY 31, 1974
BY J. D. SELL

DRILLING PROGRESS MAP
 for the month of May, 1974
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile
 J. D. S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

May 1, 1974

J.H.C.

J.H.C.
MAY 2 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - April 1974
Superior East Project
Pinal County, Arizona

Sulphides? →
In drill hole A-7, the assaying in the upper part of the Supai redbeds, immediately below the Whitetail Conglomerate, indicated a copper value of 1.06% in the first ten feet, confirming the visual estimate. The copper values dropped to 0.12%, 0.67%, 0.16%, 0.07%, 0.06%, 0.05%, and 0.05% in each successive ten-foot interval below the first ten feet, which started at a depth of 5610 feet.

Boyles Brothers successfully cleaned out the old drill hole DCA-3 and set casing to a depth of 2993 feet. The hole is now redesignated as DCA-3A and is scheduled for diamond coring as soon as the CP-50 is available from the Bohme Project.

The Arizona Mining Company hole L-2 is now slightly below 3700 feet in Schultze granite. Values are apparently very low geochemically, but visual inspection has not yet been possible.

Newmont, as reported previously, reentered the old Kerr-McGee DC-1 drill hole on the far south (off the attached map) and rotaried to 2800 feet where they set casing. Diamond drilling continued the hole to 3270 feet and is rumored to still be in Whitetail Conglomerate. Inspection of the site and numerous core chips strongly supports the rumor.

The Boyles Brothers DMX drill rig, used by Newmont, moved back to B-3 and apparently cleaned the hole of some geophysical probes and plastic pipe and reinserted new plastic pipe for additional geophysical probes. (See Newmont 1973 Annual Report for pictures and words on their geophysical people on the project).

The DMX rig was then borrowed by us long enough to clean out DCA-3 as stated above. Following our clean-out, the DMX moved to hole B-5 for Newmont and commenced the hole. The location is some 350 feet south of our State Lease Section 5. No information is known on the hole at this time.

May 1, 1974

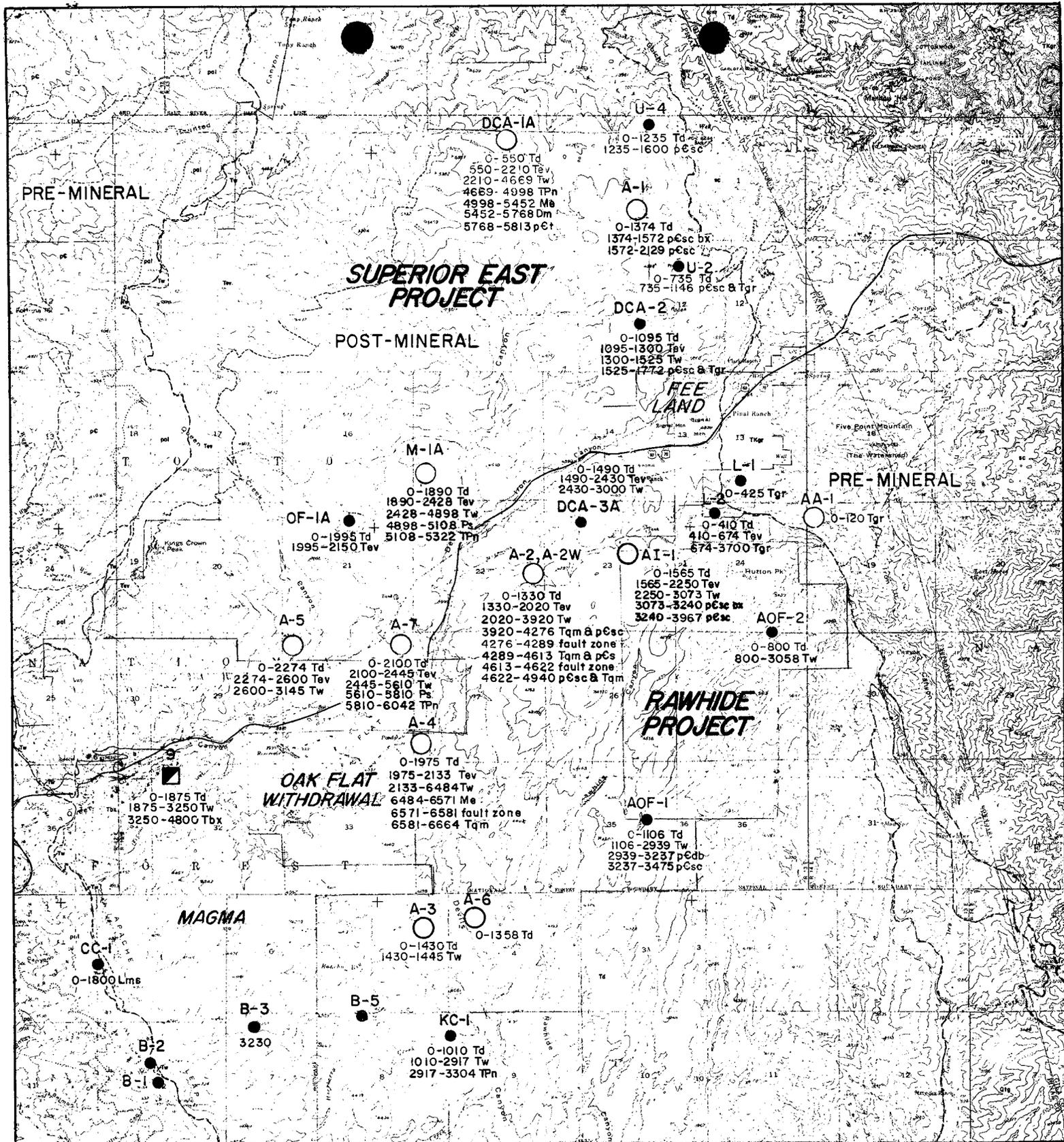
Inspiration has now completed a road from the Eder area up onto the Dacite Plateau and has constructed some 12 to 20 drill sites scattered north, south, and easterly from our drill hole A-1 and between old drill holes U-2 and U-4. A Boyles Brothers rig with down-the-hole hammer has drilled the first hole adjacent to the drill hole U-4 and set casing. The rig moved some 300 feet south to the second location and is now drilling. Rumor is that the air hammer rig will drill and case the holes to 600 feet each up on the dacite area and diamond drilling will commence below. It is assumed that ICC will churn drill the holes located easterly in the schist areas as they did on the program several years ago (see Monthly Report of September 1973).

A contract is now out to deepen our drill hole AA-1 located on the Clark Option ground to the east. The hole is presently at 120 feet in Schultze granite.

Unexpended funds are \$206,600.

J. D. Sell
J. D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
- Rock type
- Bottom hole depth
- P
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY Report
 DATED May 1, 1974
 BY J.D. Sell

DRILLING PROGRESS MAP
 for the month of April, 1974
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

JHC

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

March 27, 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - March 1974
Superior East Project
Pinal County, Arizona

No additional field work has been undertaken on the project area. Additional sampling has been undertaken on drill hole A-7 in the lower portions. Assays received to date indicate the following values, which correspond to the lower Whitetail interval cut in drill hole A-4.

<u>Interval</u>	<u>Ft.</u>	<u>% Copper</u>	<u>% Zinc</u>
5360-5490	130	0.14	
(5360-5440)	(80)		0.04
5490-5540	50	0.07	
5540-5610	70	0.18	
<u>(5440-5610)</u>	<u>(170)</u>	<u> </u>	<u>0.21</u>
5360-5610	250	0.14	0.15

Sampling also reveals that fine native copper and probably some chalcocite are found in the top forty feet of the Supai redbeds. The samples are in the assay lab for determination.

The individual cost summaries for the work performed since September 1972 have been prepared and submitted, along with the cost summary for the entire project since the last report in September 1972.

The Arizona Mining Company hole L-2 is rumored to be at 3300', still in Schultze Granite, and having numerous mechanical problems.

Newmont at the last report period had reentered the old Kerr-McGee DC-1 drill hole on the far south. It is rumored that they had troubles in the hole and may have abandoned the hole prematurely. At present the DMX rig has moved which means that about three weeks of in-hole time was spent at DC-1.

The DMX rig has moved back to B-3 of Magma (which was abandoned at 3230' about six weeks ago). Apparently some sort of probe was placed in the hole as the DMX crew has borrowed a rotary bit to clean the hole in preparation to resume coring. Word was earlier that a core barrel and wire line had been lost in the hole. Core chips suggested the hole was deep in the Apache Group sediments at the 3230 depth.

W. L. Kurtz

- 2 -

March 27, 1974

Mr. Scott-Fleming has submitted his findings along the Margaret-Eder group claim boundary and recommends certain work to be undertaken. The road being constructed by ICC to the plateau (via old hole U-4) is some 1000 feet from the saddle. This should place a passable road up to our A-1 drill site by the middle of next week.

James D. Sell
James D. Sell

JDS:1b
Attach.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

J. H. C.

March 1, 1974

MAR 15 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - Feb. 1974
Superior East Project
Pinal County, Arizona

Drill hole A-7 terminated during the month at a depth of 6042 feet in units high in the Pennsylvanian Naco Limestone. As reported last month, coring in the Whitetail intercepted a substantial zone of cuprite and native copper. The zone is similar to that found in drill hole A-4. Most of hole A-7 has been split and assayed and the mineralized zone results verified by a second split and assay from the original crushed reject bags.

Comparative assays between American Analytical (AARL) and Southwestern Assayers (SW) are as follows:

<u>Intercept Depth</u>	<u>Footage</u>	<u>Total Copper</u>	
		<u>AARL</u>	<u>SW</u>
4695-4750	55 ft. @	1.17	1.24
4750-4800	50 ft. @	0.10	0.10
4800-4910	110 ft. @	1.46	1.51
4910-4960	50 ft. @	0.16	0.13
4960-5070	110 ft. @	0.70	0.58
5070-5120	50 ft. @	0.31	0.32
5120-5170	50 ft. ^{425'} @	0.05	0.07
5170-5360	190 ft. ^{180'} @	0.06	Not checked
5360-5490	130 ft. ^{130'} @	0.14	Not checked
5490-5610	120 ft.	Scattered assays suggest 0.05-0.08 range.	

Total intercepts suggest the following combinations:

4695-4910, 215 ft. @ 1.07 (American Analytical)
or
4695-5070, 375 ft. @ 0.84 (American Analytical)
or
4695-5120, 425 ft. @ 0.78 (American Analytical)

As noted, the other mineralized zones failed to materialize in A-7 compared to A-4, although a slight increase is noted in the lower horizon zone around 5400 feet.

An I.P. geophysical probe was implanted to a depth of ± 5000 feet and the hole capped and padlocked.

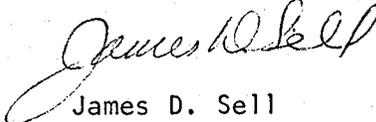
A directional and temperature survey by Parsons Surveying was also conducted and a report submitted. From 3000 to 6000 feet, the temperature gradient increases 1.53° F. per 100 feet of depth. The two temperatures recorded in the mineralized zone were 149° F at 4500 feet and 156° F at 5000 feet.

Shelton Drilling successfully moved onto the old hole DCA-3, located north of A-2 and AI-1 sites, and cleared the obstruction and cleaned to around 1950 feet. The hole was left as is and we anticipate having a large rig move on capable of cleaning the hole to its former depth of 3000 feet and set 3-1/2" casing for diamond drilling.

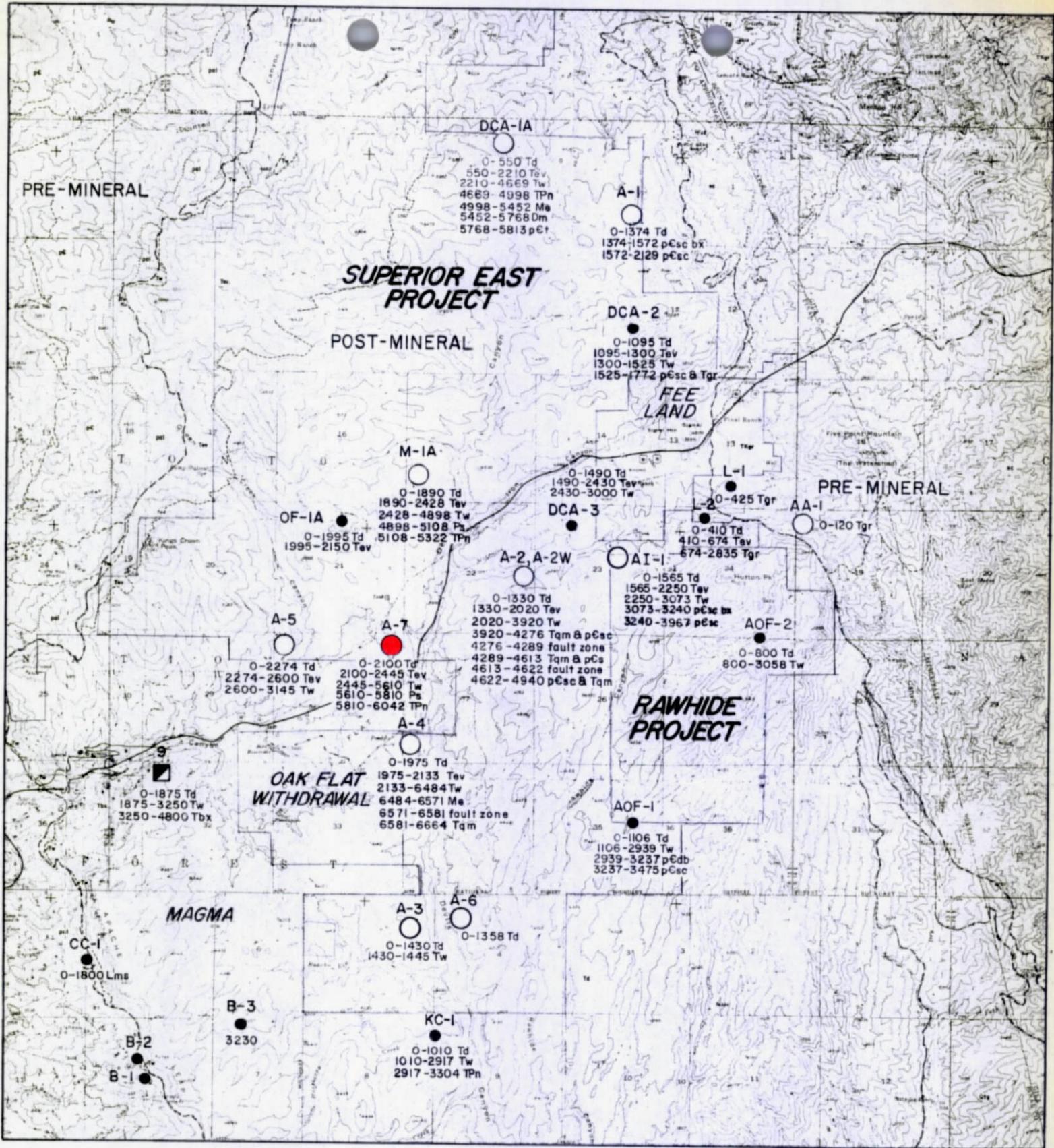
The DMX rig moved south onto Coryell's State Lease sections now under option to Newmont. One hole was rotaried to approximately 1000 feet by spending \$6500.00. The rig then moved far south and onto the old Kerr-McGee hole DC-1 (in Sec. 16) where K-M had abandoned it at 3304 feet in Whitetail Conglomerate. The hole was apparently successfully cleaned and cased as the DMX is reported to be coring.

The Arizona Mining hole L-2 is being cored by Longyear and is at a depth of 2835 feet in unaltered(?) and unmineralized Schultze granite. They call the hole LB#4 (apparently the original hole by Cox was LB#2, the original hole by Whatley LB#3, and the second hole by Whatley LB#4, which is being cored. All are on the same drill site. The first two holes were abandoned around 670 feet due to rig capacity or bad ground).

Estimated deficit is \$8,000.


James D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's #9 shaft
- DCA-I (hole designation)
- 40ft Tw
- Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td -Dacite
- Tev-Early volcanics
- Tw-Whitetail

PRE-MINERAL ROCK UNIT

- Tbx-Breccia
- Tqm-Quartz Monzonite
- Tgr-Granite
- TPn-Naco limestone
- Me-Escabrosa limestone
- Dm-Martin lms
- pCt-Troy qtz
- pCdb-Diabase
- pCsc-Schist

TO ACCOMPANY *Monthly Report*
 DATED *March 1, 1974*
 BY *J.D. Sell*

DRILLING PROGRESS MAP
 for the month of *Feb., 1974*
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

February 4, 1974

JHC
I H C.
MAR 15 1974

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - Jan. 1974
Superior East Project
Pinal County, Arizona

ASARCO drill hole A-7 continues coring in Whitetail Conglomerate. As of the end of the month, the hole had progressed to 5410 feet. As reported last month, spot 10-foot samples cut above a Schultze Granite slide block in Whitetail Conglomerate returned values ranging from 0.03% to 0.21% copper. The slide block had a value of 0.16% copper, while other spot samples below the slide block returned 0.01% to 0.20% copper.

At a depth of 4695 feet, the matrix changed to a dark brown to reddish black with abundant slickensides and a remarkable increase in native copper and cuprite mineralization. This same change of characteristics in drill hole A-4, located some 4000 feet south, occurred at a depth of 5080 feet. In hole A-7, the following depth, footage, assays have been received.

4695-4750	55 ft. @ 1.17% copper
4750-4800	50 ft. @ 0.10%
4800-4910	110 ft. @ 1.46%
4910-4960	50 ft. @ 0.16%
4960-4980	20 ft. @ 0.93%
4980-5020	40 ft. @ 0.28%
5020-5060	40 ft. @ 1.12%
5060-5410	Samples split and being assayed. Visual estimate of the copper content within this interval suggests low values.

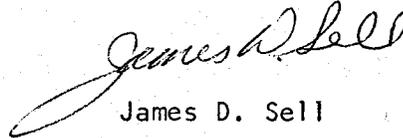
The total mineralized footage from 4695 to 5060, or 365 feet, averages 0.86% copper. This compares favorably with the initial 270 feet of mineralized ground in hole A-4 which averaged 0.89% copper and then had 330 feet of relatively barren conglomerate below until the top of the next mineralized interval. Similarly, the extent of cuprite and minor green oxide copper in A-7 of 215 feet is comparable to the 267 feet found in A-4, both being found only in the top intervals of the mineralized section.

February 4, 1974

The DMX rig has been moved from Magma B-3 drill hole. The hole was air-hammer and rotary to 2100 feet and cored to the final depth of 3230 feet. Core chips found on site suggest they penetrated the Paleozoic section and into the underlying Precambrian diabase, quartzites and limestone. No chips were found indicating any mineralization. The rig has moved to the east side of Devils Canyon and south of our A-6 hole.

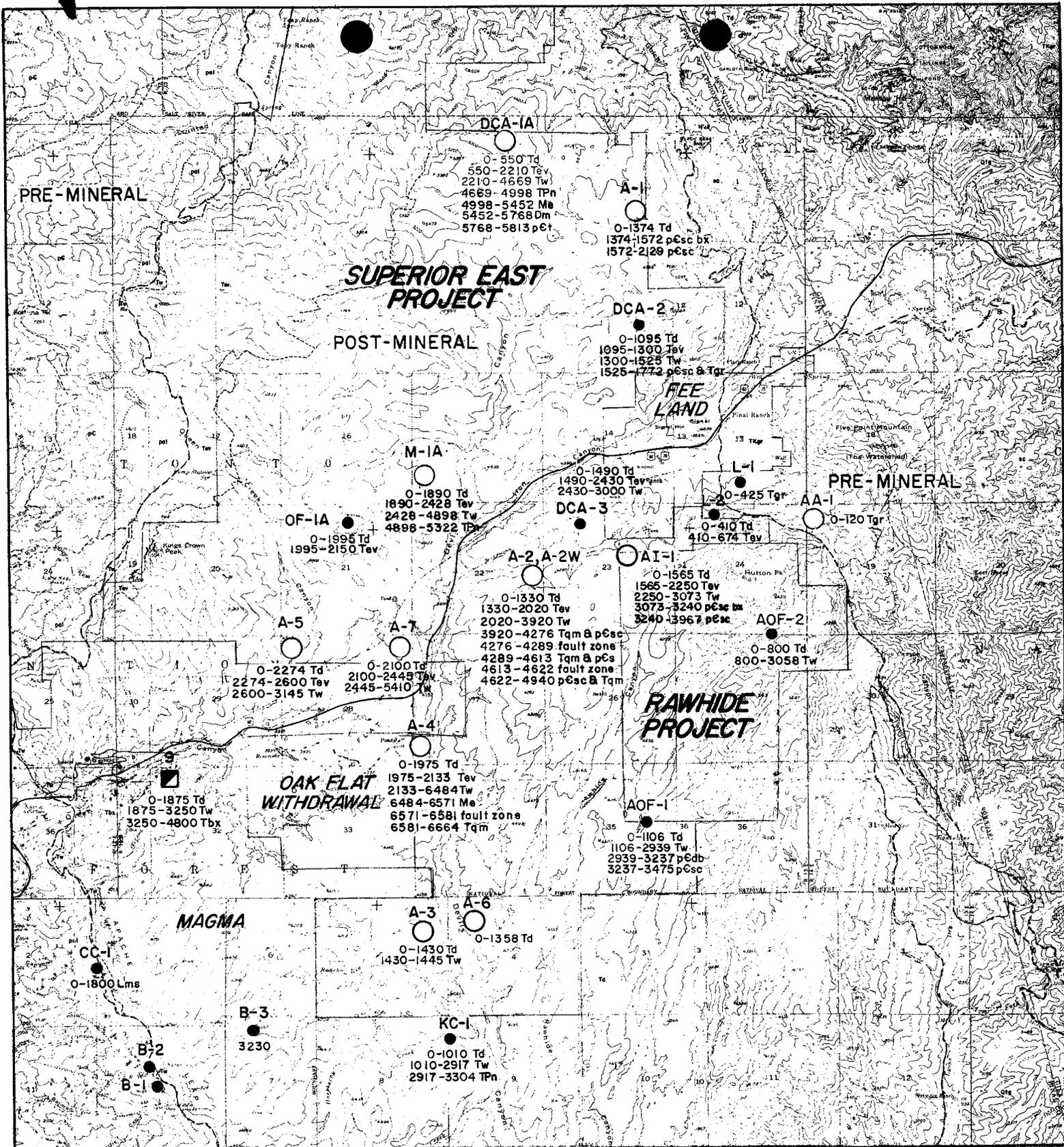
The Arizona Mining hole L-2 solved some of the drilling problems and continued rotary drilling to 2300 feet, where 4" ID casing was set. Longyear has moved a large coring rig onto the site. Rotary chips in fresh Schultze Granite at 900 feet geochemed 31 ppm Cu, 770 ppm lead, 59 ppm zinc, and 10 ppm moly. This is slightly higher lead and moly than found in other samples studied in the project and surrounding area.

Estimated unexpended balance is \$24,000.



James D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
- Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY *Monthly Report*
 DATED *Feb. 1, 1974*
 BY *J.D. Sell*

DRILLING PROGRESS MAP
 for the month of *Jan, 1974*
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

JHC

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

December 18, 1973

J. H. C.

DEC 21 1973

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - Dec. 1973
Superior East Project
Pinal County, Arizona

Boyles Brothers has moved to drill hole A-7 and commenced coring on November 29 at a depth of 3150 feet. No time was lost going through the casing shoe and into bedrock, although two feet of fill was below the casing.

The hole is coring well in Whitetail Conglomerate. Average footage per day is running around 70 feet. The top of the conglomerate was intercepted by rotary drilling at 2445 feet and as of day shift of December 14th, the hole was at 4060 feet in Whitetail Conglomerate. It is estimated that the hole will be around 4600 feet by the end of the month.

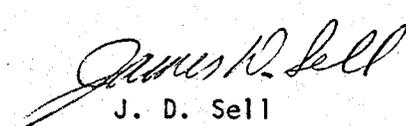
The Whitetail to date is mainly a weakly cemented, brown, muddy to gritty matrix with predominantly altered Pinal Schist clasts, with minor porphyry, Schultze Granite, quartzite, and diabase. Four samples have been returned and show copper values from 0.03 to 0.09% copper. The samples are ten-foot cuts every hundred feet starting at 3200 feet.

An M-1A, unaltered, Schultze Granite type slide block has been encountered at 3682 feet. Typical Whitetail with a good cemented gritty matrix is found below the slide block.

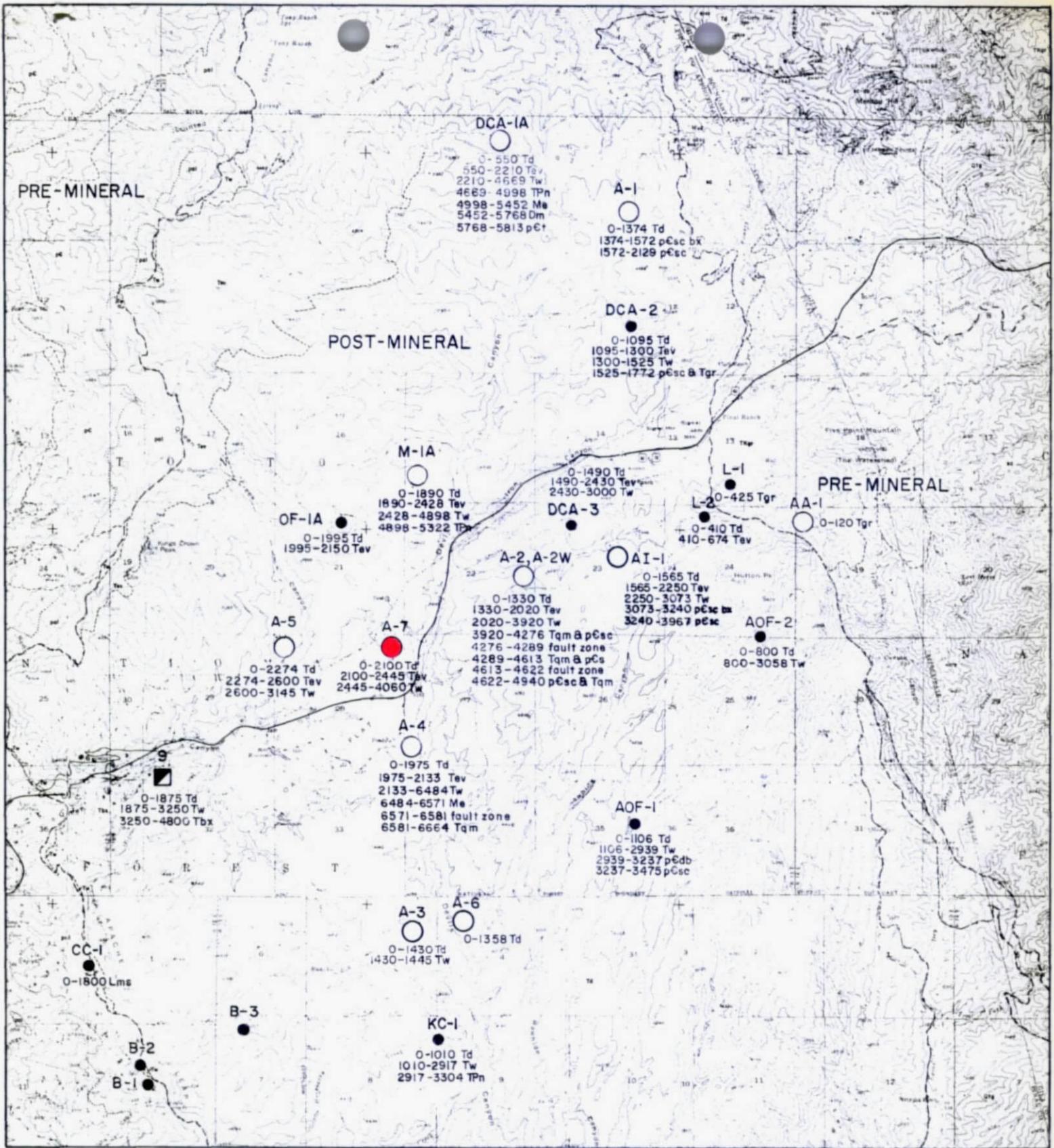
Copper occurs mainly in the schist fragments and sparingly in the matrix.

Elsewhere, Magma hole B-3 continues coring slowly in limestones. Arizona Mining hole L-2 has intercepted, by rotary, fresh Schultze Granite and they are having hole troubles at 900 feet.

Estimated unexpended balance is \$53,800.


J. D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's #9 shaft
- DCA-I (hole designation)
- 4011 Tw
- Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dolomite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy quartz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY *Monthly Report*

DATED *Dec. 18, 1973*

BY *J.D. Sill*

DRILLING PROGRESS MAP
for the month of *Dec., 1973*

SUPERIOR EAST
GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile
J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

J. H. C.

December 4, 1973

DEC 5 - 1973

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - Nov. 1973
Superior East Project
Pinal County, Arizona

No new drilling is in progress on the project. Boyles' core rig is on the adjacent Rawhide Project hole A1-1. (See the Rawhide report for details on the hole.) The hole was terminated at 3967 feet in schist with minor aplite dikes and was cut by quartz (several stages) and quartz-feldspar veinlets. Magnetite occurs disseminated and in veinlets. Minor clay-anhydrite(?) veinlets are also found. Total sulfides are low (less than 0.5%), with a high chalcopyrite to pyrite ratio. Values received to date suggest the total run of sulfides will average between 0.10-0.20% copper.

Boyles' core rig is moving to site A-7, which is cased to 3150 feet in Whitetail Conglomerate.

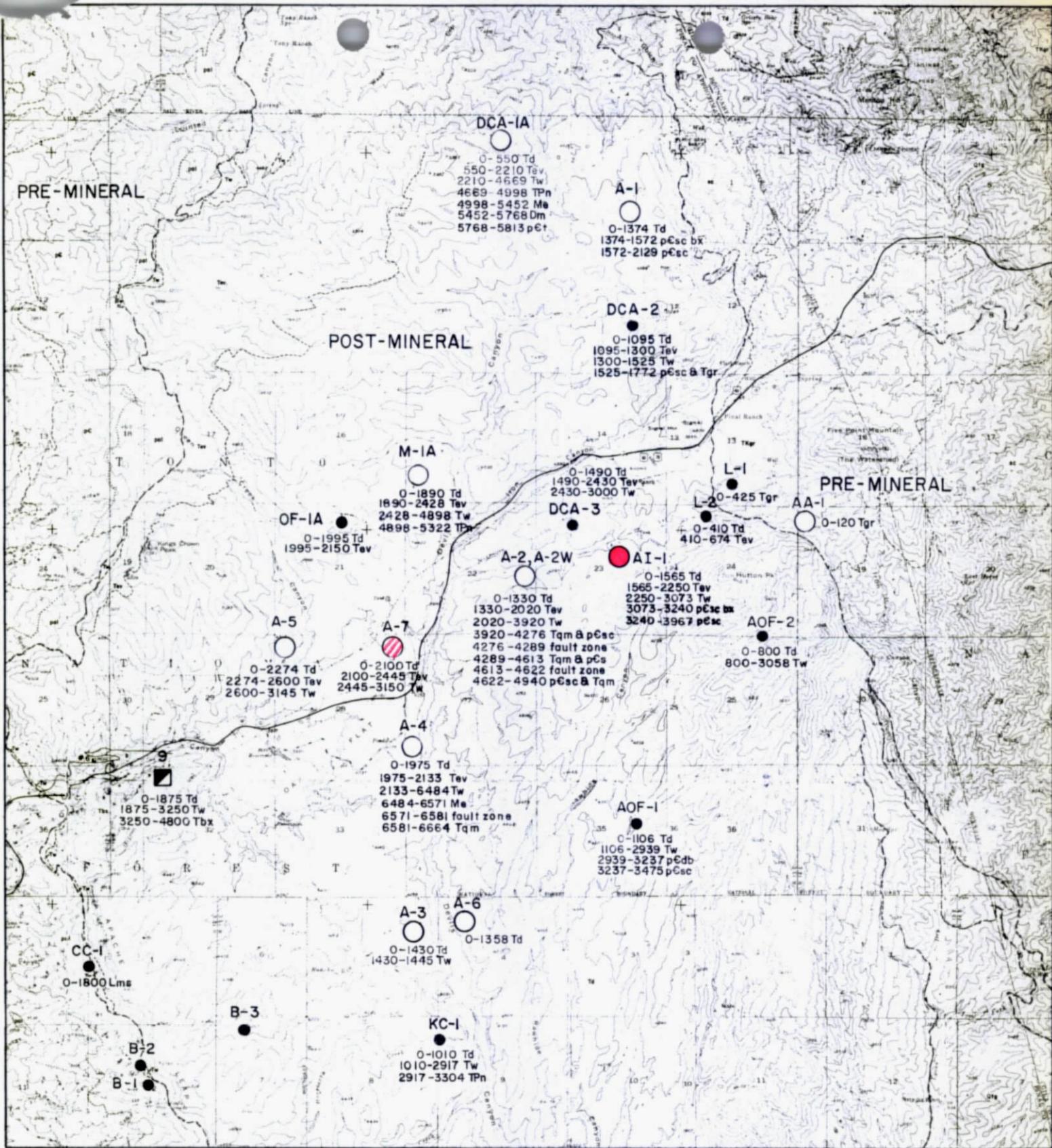
Whatley Drilling Company has set up on the site of L-2 on the adjacent Arizona Mining Company holdings. The hole is some 125 feet north of our claim boundary and a new hole started. Mr. Paul Kayser of AMC has informed us that the hole went through a caved zone between 310-345 and into a black rock. Hole caving conditions terminated the hole at 674 feet. They cemented the hole and upon reentering drilled ten feet of cement before deflecting off into the wall rock, repeated through the cave area and again the hole was terminated by the caving conditions (prior to reaching 674 feet). Mr. Kayser has moved the rig some 200 feet north of our boundary and will drill a new hole with the hopes of casing (8-1/4") off the cave zone and continuing to an ultimate depth of 3000 feet.

Boyles Brothers' DMX rig has set up on Magma's B-3 site and air-hammered down to water (± 900 feet), then converted to mud drilling. At some point (± 1200 feet?) all the mud and water was lost. Lost circulation material (sawdust) was added for nearly a week before circulation was restored. Rumor has it that drilling is going very slowly now. Apparently they cased the hole at ± 2100 feet after hitting the limestones at ± 1900 feet. The rig will core the hole from the casing point. Magma is building other roads in their block south of the B-3 location. Also, they are building south of our A-6 hole to get onto Coryell's state lease section 9.

Estimated unexpended balance is \$83,800.

James D. Sell
James D. Sell

JDS:lb
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's 9 shaft
- DCA-I (hole designation)
- 40ll Tw
- Rock type
- P Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Docite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pQtz - Troy qtz
- pCdb - Diabase
- pCsc - Schist

TO ACCOMPANY *Monthly Report*
 DATED *Dec. 4, 1973*
 BY *J.D. Sell*

DRILLING PROGRESS MAP
 for the month of *NOV 1973*
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile J.D.S.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.
DEC 1 - 1972

November 28, 1972

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report
Superior East Project
November 1972

No new road or drill work has been done on the project area under our expenditure.

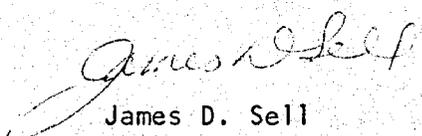
The joint-venture road of K. Coryell and Magma was completed south in section 32 and into the Rancho Rio Creek drainage in section 6. It then cut across the SW1/4 of section 5 and into the Hackberry Creek drainage in section 8, which it followed eastward into the NW1/4 of section 9.

Lohman Drilling (Salt Lake City) has moved a Gardner-Denver 1500 onto the site and commenced mud-drilling a 5-1/8 inch rotary hole. The hole is designated as KC-1 (Attachment A). The rig has been visited twice. The dacite-Whitetail contact is approximate and the depth presently reported was secured verbally as of the 23rd. Probable ultimate depth is around 2500 feet for the rig, at which time the hole will be cased and a diamond drill moved in. The rotary driller suggested that Coryell had several more holes in the "Globe area" for the rig.

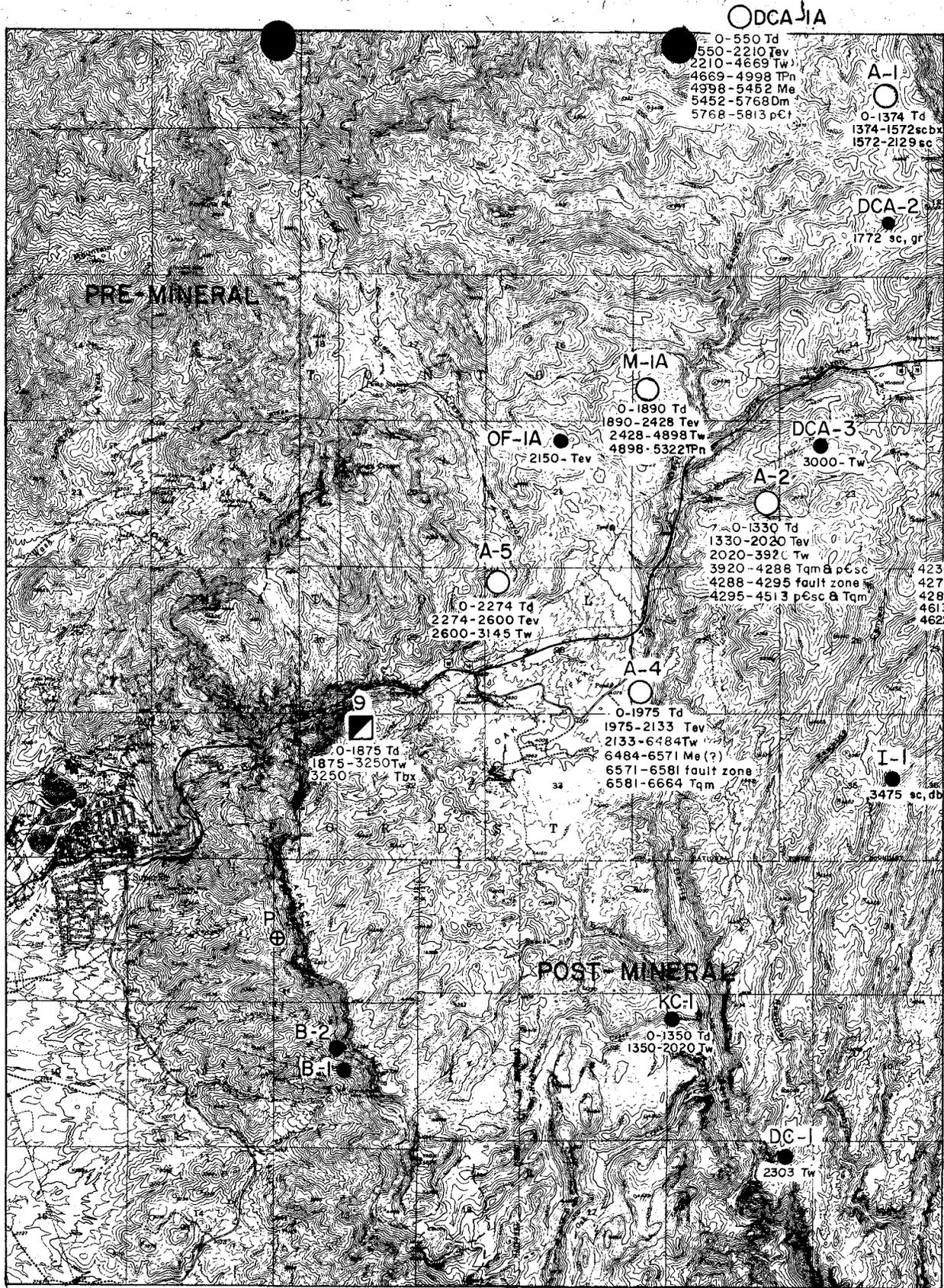
Magma completed two diamond drill holes (B-1 & B-2) in the Belmont area. Both holes started in the Pennsylvanian Naco Limestone and were verbally reported to have been completed into the quartzite below the Devonian Martin Limestone. No core chips were found on the sites, nor was any pyrite or other sulfides (or oxides) noted in the mud ditches. Drill results were reported as "discouraging". Magma has completed the drill site above Cross Canyon (marked as "P" on the map), but as of the 25th a drill had not been moved onto the site. The hole will be collared in Pennsylvanian Naco Limestone.

Examination for section and quarter corners around section 33 (Oak Flat) has been completed and flagged for future use.

The estimated unexpended balance remains at \$7,866.00.


James D. Sell

JDS:lab
Attach.



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ◻ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
- Rock type
- Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

DRILLING PROGRESS MAP
 for the month of NOV. 1972
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile
 J.D.S.
 2463

JHC

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 26, 1972

J. H. C.

AUG 3 - 1972

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report
Superior East Project
June 1972

Work during the month has been the drafting of maps and reports finalizing the project activities. The drilling progress attachment submitted last month completed the drilling activities under the present authorization.

Mr. R. B. Cummings' report Drill Hole Geology 1971 and 1972, Superior East Project covers the geology as now interpreted from the drilling. The report was distributed during the month, with a cover letter containing the geology log of the wedged hole A-2W and assays.

As reported last month, Century Geophysical ran a temperature probe in A-2 and reported a strong reversal in the gradient. Mr. Paul Laird of Century Geophysical reported by phone that their laboratory measurements had found a reproduceable defect in their temperature probe. A separate memo on the subject has been submitted. Mr. Laird affirms that the temperature survey from start to 125°F is valid, but above that temperature the probe circuits kick out and give incorrect readings. In hole A-2 (A-2W), assuming the temperature gradient to 125°F is correct, we can project the temperature at 5000 feet to be between 136° and 142°F. Century is not submitting an invoice for the survey or subsequent testing. They have apparently corrected the malfunction and would be interested in doing further work.

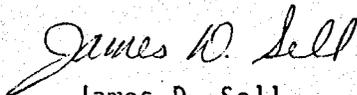
During the week of June 5, the SLC geophysical group placed electrodes in drill hole A-2 (A-2W). The surface EM measurements indicated a response restricted to within 800 feet of the hole (report dated June 13).

Mr. Paul Bryant, equipment contractor, has cleaned and filled drill sites DCA-1A and A-2. Both sites were then seeded by Mr. Benavidez of this office and a letter sent to the Forest Service at Globe.

Mr. H. L. Crittendon is completing a drilling cost-technique report on the Superior East Project.

The unexpended authorization is estimated at \$9,000.00. Rental on the Claypool office and facilities continue.

JDS:lad


James D. Sell

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 26, 1972

J. H. C.
MAY 26 1972

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report
Superior East Project
May 1972

Attached is the Superior East progress map and the drill log continuation for A-2W, the only hole in progress during the month.

200' Hole A-2W was deepened during the month from 4526 feet to a terminal depth of 4940 feet; a progress of 414 feet for the month. Hole A-2W continued in Pinal Schist cut by dikes and masses of quartz monzonite. The schist contains variable alteration and mineralization, as does the quartz monzonite. The chalcocite zone from the base of leaching at 4320 feet to 4528 feet averaged 0.37% copper, while the sulfide zone from 4528-4610 averaged 0.31% copper. A heavy gouge-fault zone occurs at 4613-4622 feet. The alteration decreases below the fault at 4622, but quartz and quartz-sericite veinlets are present, along with pyrite, chalcopyrite, and specularite with some molybdenite. The assays from 4610-4790 averaged 0.13% copper, while the remainder of the hole to 4940 feet averaged 0.42% copper. Stuck rods caused a termination of the hole at 4940 feet and 818 feet of rods and core barrel were lost.

Approximately 1-1/4 miles of road have been constructed into State lease section 5.

Mrs. Webb states that she has sold the ranch to Mr. Dees.

Century Geophysics conducted a temperature survey on drill hole A-2W. The surface temperature was 63°F and incrementally rose to 126°F at depth of 4070 feet, where it retrograded to 50°F at 4090 feet, then to 38°F at 4200 feet, where it stabilized and incrementally increased again to 42°F at 4900 feet, the last reading. The instrument was checked and four runs were made thru the retrograde zone. It is believed that the survey is real, but interpretation as to the cause is open. Interestingly, Longyear determined that the first free point in the stuck rods is at 4115 feet.

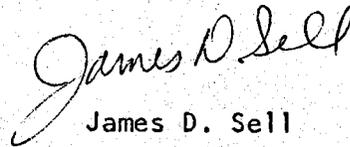
W. L. Kurtz

- 2 -

May 26, 1972

Map and section revisions have been made for incorporation into Mr. Cummings' report, which is in the final typing.

Estimated unexpended balance for Superior East authorization is \$11,300.


James D. Sell

JDS:lad
Encs.

**AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG**

PROPERTY Superior East Project

MINING DISTRICT Pioneer

COUNTY, STATE Pinal County, Arizona

DRILL HOLE A-2W (Wedge)

FINAL DEPTH 4940 NW1/4 NE1/4 SE1/4

Sec. 22, T 1 S, R 13 E

PAGE 1 of 3

DATE 4/19/72 - 5/17/72

LOG BY J.D.Sell

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
			NOTE: Drill hole A-2W is wedged off of the original drill hole A-2.		
4230	4238	pεpi	Limonite, 1-4% after sulfides. Minor leached chalcocite qtz veins.	Silica and qtz-sericite in schist & monzonite. Argillic in monzonite.	Monzonite dike @ 4233-4236. All rock broken somewhat sheared & crushed.
4238	4276	Tqm	Oxidized, leached, 1-3% after sulfides. Minor leached chalcocite. Veinlets & disseminated.	Argillic with some qtz, qtz-sericite veinlets.	Increased shearing at base.
4276	4289	pεpi	Oxidized, leached, 2-4% after sulfides.	Otz-sericite and silica injection and veinlets.	Crushed and brecciated.
			Probable base of faulted section.		
4289	4320	Tqm	Oxidized, leached, 1-2% after sulfides. Minor qtz veining.	Argillic with weak qtz-sericite, some silicification.	Base of intense oxidation @ 4317.
4320	4357	pεpi & Tqm	Qtz & pyrite, minor chalcocite.	Argillic in monzonite. Silica in monzonite & schist.	Minor oxidation in monzonite @ 4330-4337.
4357	4488	pεpi	Filter-press quartz & veining with py, cp, cc & bornite, & disseminated.	Qtz & minor qtz-sericite as stockwork, veining.	Tqm @ 4396-4397, aplitic @ 4408-4410. Few gouge seams.
4488	4512	Tqm	Py, cp, cc, bornite in shear veinlets & disseminated.	Argillic w/ qtz-sericite & qtz veinlets & flooding.	Entire zone cataclastic texture with numerous slips, shears, & gouge zones.

**AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG**

PROPERTY Superior East Project

PAGE 2 of 3

MINING DISTRICT _____

DRILL HOLE A-2W

DATE _____

COUNTY, STATE _____

FINAL DEPTH _____

LOG BY _____

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
512	4521	p&pi	Filter press qtz & complete silica overflowing @ 4516-4519. Py, minor cp, cc.	Qtz & minor qtz-sericite.	Stockwork qtz.
521	4528	Tqm	Minor diss. py, less cp, cc films.	Argillic, minor qtz-sericite.	No qtz veining; highly fractured, steep angled gouge.
528	4542	Tqm	Smoky qtz veinlets w/py, cp, moly. Some dissemination, 2-4% sulf.	Increased qtz and qtz sericite	
542	4578	Tqm and p&pi	Smoky qtz veinlets & masses w/py, cp, moly; also dissem. 2-3% sulfides	Qtz veinlets and pervasive incipient qtz-sericite.	Crushed and shear zones @ 4550-4553; 4555; 4561-4562; 4564; and 4565-4566.
578	4613	p&pi	Dissem. & veinlet py, cp, minor moly & specularite, 1-2% sulf.	Qtz veining & flooding with incipient qtz-sericite	Gouge & shear zone at 4582-4598. Mineral decreasing below zone.
613	4622	Fault	Heavy gouge and crushed p&pi	with qtz seams & dissem. veinlets of py & cp.	
622	4639	p&pi	Minor dissem. & veinlets of py; very minor cp. <1% sulf.	Minor qtz seams	Upper eight feet badly broken and gougy.
639	4646	Tqm	Intersecting qtz veinlets & dissem. w/py, minor cp.	Very weak argillic w/intersecting qtz-sericite veinlets	Included schist bands one foot wide at 4641 and 4643.
646	4658	p&pi	Minor (<1%) py & cp.	Fresh, cut by few qtz veins.	
658	4678	Tqm	Minor diss. py & qtz veins w/py, rare cp.	Weak argillic; few qtz-sericite veinlets & qtz. veinlets	1% total sulfides; minor inclusions of schist.

**AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG**

PROPERTY Superior East Project

PAGE 3 of 3

MINING DISTRICT _____

DRILL HOLE A-2W

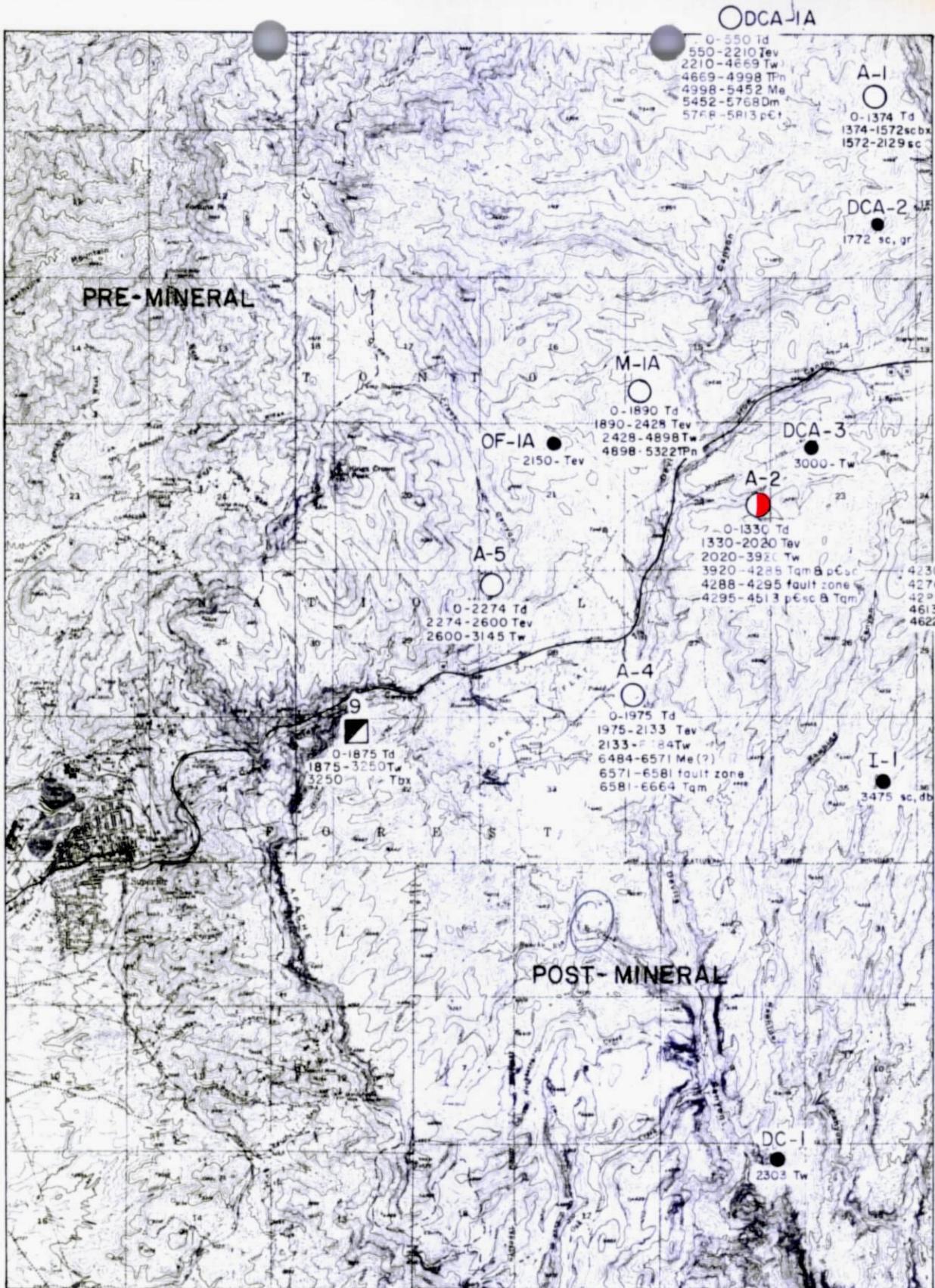
DATE _____

COUNTY, STATE _____

FINAL DEPTH _____

LOG BY _____

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
4678	4748	p&pi	Minor pyrite throughout; with discrete qtz-py-cp, moly, specularite veins @ 4692-4693, 4707-4708, 4722, 4729-4736, @ 45-60° to core.	Barren qtz veinlets, except in vein areas where qtz & qtz-sericite are associated.	Essentially fresh qtz-biotite schist with dikelets of Tqm @ 4690-4692, 4713, 4718. Fault vein @ 4746.
4748	4830	p&pi & minor Tqm	Barren qtz veinlets; increasing with py, cp, specularite towards bottom (1% sulfides) in qtz-sericite veinlets.	Schist fresh at top, increasing incipient qtz-sericite & veinlets towards base. Tqm weak argillic.	Increasing crushed and shear zones with gouge development toward base.
4830	4834	Fault	Minor py, cp, specularite		Steep angled zone, +60° to core.
4834	4848	p&pi	Minor py, cp, specularite	Otz veinlets, weak qtz-sericite	Few gouge zones.
4848	4940	Tqm (73%) & p&pi (27%)	Increasing py, cp, specularite qtz veining and silica overflooding from top to bottom. Up to 3% sulfides in zones.	Moderate argillic alt. in Tqm increasing qtz veins & qtz-sericite alt. throughout. Silica overflooding towards base. Biotites partly chloritized.	Tqm increases to base, last 34 feet is Tqm. Entire zone cut by numerous slips, shears, & gouge zones, at +60° to core.
Drill pipe stuck seven feet off of bottom. Pipe cut at 4115 feet and recovered.					
18 feet of NQ(NX) rods, connectors, and core barrel lost.					



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- Magma's #9 shaft
- DCA-1 (hole designation)
- 40ft Tw
- ↘ Rock type
- ↘ Bottom hole depth
- P Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- Dm - Martin lms
- pCt - Troy qtz
- pCdb - Diabase
- pCsc - Schist

DRILLING PROGRESS MAP
for the month of MAY, 1972

SUPERIOR EAST

GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile J.D.S.
2463

J. H. Courtwright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

February 1, 1972

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - January 1972
Superior East Project
Pinal-Gila Counties, Arizona

R. B. Cummings' report is attached. As noted, DCA-1A entered Devonian Martin limestone at 5452 feet and coring has progressed to 5619 feet in Devonian. At that point, on January 12, caving hole conditions prevented further work. After consultations it was decided to clean out the hole in segments, cement the interval, drill out the cement and clean another interval, and repeat. This has been done several times and the cement is set to a depth of 5000 feet. The last cement is being drilled (Jan. 31) and it is hoped the hole will then be usable to the full depth of hole after cleaning.

A-2 site, occupied by a Mayhew 3000, is air drilling and is at 3550 feet as of the end of the month. Dacite, early volcanics, and Whitetail conglomerate have been encountered. The Whitetail contains noticeable native copper in the upper part with increasing cuprite content to the present depth. Several cores have been cut in the Whitetail, but the recovery has been very poor.

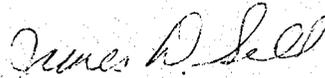
Some fossil identification by E. Nieves on core from DCA-1A confirms the limestone at 4716 feet is Pennsylvanian, as is the limestone at 4889 feet. The other sample, at 5201 feet, was indeterminate in age (our work suggests Mississippian).

C. Rees has completed and distributed his report on the Bohme-Coryell ground. Samples have been taken as per his suggestion on additional work. Integration of these samples is not complete.

Samples of Whitetail, one each from DCA-1, M-1A, and A-4, have been submitted for permeability-porosity tests.

February 1, 1972

K-Ar age dates have been received from Geochron Labs. The quartz monzonite slide block in M-1A is dated at 59.9 ± 2.2 m.y. The quartz monzonite porphyry at the bottom of A-4 has a date of 62.6 ± 2.3 m.y. Both dates are Laramide and equivalent to the Schultze granite and its porphyry equivalents in the Miami district.



James D. Sell

JDS:lad
Attachs.

J. H. Courtwright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

December 27, 1971

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - December 1971
Superior East Project
Pinal-Gila Counties, Arizona

R. B. Cummings' monthly report will follow his return from vacation.

Only drill hole DCA-1A is in operation this month and, as of December 23rd, it was at a depth of 5222 feet, for a cumulative 915 feet since the November report. As shown on the attached progress drilling map, the hole penetrated Pennsylvanian limestone units from 4669-4998 and Mississippian limestone units from 4998 to the present depth. Several zones of typical alteration replacement limestone have been cut, but to date none contained any mineralization. Drilling progress has been slow in the fractured limestone and with recent logistic troubles due to road conditions.

Petrographic study of units in A-4 has confirmed the monzonite affinity and indicates that the secondary K-spar reported earlier is not K-spar. The alteration in the bottom of A-4 is weak argillic similar to other fringe-zone alteration halos.

The microprobe examination report has been received and distributed. No unusual findings were reported.

The seismic exploration results on work conducted by J. W. Cooksley have been received, but not distributed. It appears that by using a velocity analysis curve a close pick of units can be made when coupled with the correct time-unit data.

The Brown-Coffey rig is being assembled and should be drilling early in January at the prepared site in section 22.

James D. Sell
James D. Sell

JDS:lad
Attach.

J. H. Courtright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.
DEC 8 1971

December 7, 1971

TO: W. L. Kurtz
FROM: J. D. Sell

Monthly Report - November 1971
Superior East Project
Pinal-Gila Counties, Arizona

Attached is R. B. Cummings' monthly report on the project area. As written, the drill hole A-4 has been bottomed at 6664' in a biotite quartz monzonite. Samples of the rock and other units in the hole have been sent off for thin-section examination. The results of this phase are not yet reported. Also, a sample of the monzonite from A-4 and the granite from M-1A has been submitted for age-date determination. Microprobe examination of cuprite-native copper samples has been requested from the New Jersey research group.

Drill hole DCA-1A was at 4572' on December 1 and drilling was progressing well.

C. Rees' work is continuing in the Miami block and additional sampling work has been laid out for control.

James D. Sell
James D. Sell *lad*

JDS:lad

Attachs.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

December 2, 1971

TO: J. D. Sell

FROM: R. B. Cummings

MONTHLY REPORT
SUPERIOR EAST PROJECT
NOVEMBER, 1971

During the month (October 26 through November 25) coring proceeded slowly on drill hole A-4. A final depth of 6664' was reached on November 4, 1971. Delays included a broken wire line, stuck rods, geophysical surveys and adverse drilling conditions. The rig was moved to DCA-1A and coring started on November 17 at a depth of 4002'. Drilling has proceeded smoothly since that time to a depth of 4307' on November 25.

Direct drilling costs on holes A-4 and DCA-1A are estimated as follows:

Hole A-4

Coring - footage charges - 203'	\$7901.70
Materials	472.70
Hourly charges - seismic survey	390.00
Water truck	<u>600.00</u>
Total	\$9,364.40

Hole DCA-1A

Coring - footage charges - 305'	\$ 6,588.00
Materials	1,053.81
Hourly charges - setup	2,760.00
Water truck	<u>900.00</u>
Total	\$11,301.81

See Attachment 1 for a generalized log of hole A-4. In all, two separate limestone slide blocks were penetrated. Beneath the lower block is a flat fault. Beneath the flat fault is schist intruded by biotite quartz monzonite (to a depth of 6610.5') and biotite quartz monzonite to a depth of 6664'. The schist and intrusive contains traces (locally strongly developed) of pyrite, chalcopyrite, and molybdenite. Veinlets of quartz and secondary K-spar and blebs of secondary K-spar occur in the quartz monzonite.

All assays have been completed on A-4 and a separate report is in preparation.

See attachment 2 for a generalized log of hole DCA-1A. All rock cut so far has been whitetail conglomerate with a predominance of diabase fragments. No copper has been seen.

The estimated unexpended balance for Mining Authorization No. 0010-04 after all November accounts are paid is \$230,433.7.

RBC:sg
attach.

R.B. Cummings
R. B. Cummings

AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG

PROPERTY Superior East
MINING DISTRICT Pioneer
COUNTY, STATE Pinal County, Arizona

DRILL HOLE A-4
FINAL DEPTH 6664'

SW1/4 SW1/4 SW1/4 Sec.27
T 1 S, R 13 E

PAGE 1 of 4

DATE 5/1/71 - 11/10/71
LOG BY R. B. Cummings

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
0	570	Td			Dacite - gray
70	1030	Td			Dacite - orange
30	1772	Td			Dacite - brown
72	1776	Td			Vitrophyre
76	1970	Td			Dacite - brown
70	1975	Td			Vitrophyre
75	2133	Tev			Andesitic basalt
33	2330	Tw			Whitetail - limy mudstone conglomerate and limestone.
30	2920	Tw	Minor exotic native copper. 2703'-2737'-core run		Whitetail - as above
20	4161	Tw	Minor exotic native copper. 3092'-3119'-core run coring initiated at 3593'		Whitetail conglomerate with brown gritty matrix. Fragments are approximately 80% schist, 15% diabase, and 5% QM and quartzite. Minor fine grained silty or muddy zones - horizontal.
31	5083	Tw	Minor exotic native copper		Whitetail - conglomerate as above but fragments are 45% diabase, 35% schist, 20% limestone and quartzite and traces of QM. Bedding - 15°.
33	5102	Tw	Wk. exotic cuprite on fractures and in disseminated blebs. Cu estimated at 0.2% - 0.3%.		Whitetail - fine grained lithic tuft.

**AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG**

PROPERTY Superior East Project
 MINING DISTRICT _____
 COUNTY, STATE _____

DRILL HOLE A-4
 FINAL DEPTH 6664'

PAGE 2 of 4
 DATE _____
 LOG BY _____

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
102	5336	Tw	Minor to wk. amounts of exotic cuprite, native copper, and malachite. Mostly on fractures and fragment boundaries.		Whitetail conglomerate with reddish brown matrix. Fragments are 45% schist, 35% diabase, 20% limestone and quartzite, and traces of QM.
336	5644	Tw			Whitetail conglomerate with light brownish red matrix. Fragments are 85% schist, and 15% diabase, quartzite, limestone, and QM.
644	6068	Tw	Sparce native copper and cuprite in Schist Cg. Wk to strong native copper in some areas of the typical Cg. Better areas as follows: 5687-5707, 5717-36, 5740-83, 5800-13, 6019-41.		Whitetail. Schist conglomerate (as 5336-5644) interbedded with typical type conglomerate (dark brn. gritty matrix and fragments - 45% diabase, 35% schist, 20% limestone, quartzite and mudstone, and traces of QM.
668	6339	Tw	Trace to strong native copper from 6068-6190. Sparce native copper from 6190-6339.		Whitetail. Typical type conglomerate as above. Sediments and QM fragments total 30-40%.
339	6386	Me?	Trace to strong native copper (exotic) on fractures. Sparce FeOx → py.		Limestone Breccia. Gray, fine to medium grained limestone fragments up to 2". Spaces between fragments filled with greenish and reddish talcy gouge. Slickensides common.

AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG

PROPERTY Superior East Project

MINING DISTRICT _____

COUNTY, STATE _____

DRILL HOLE A-4
FINAL DEPTH 6664'

PAGE 3 of 4

DATE _____

LOG BY _____

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
16	6396		Very strong native copper, and cuprite with chrysocolla and tenorite - all exotic.		Gouge Zone. High angle (60°-80°) fracturing with reddish talcy gouge, silicified limestone, and limestone fragments.
16	6422	Me?	Very strong chrysocolla with some cuprite and tenorite to 6407.5. Sparce FeOx → py.		Limestone Breccia. Gray medium grained limestone fragments up to 6". Matrix is chrysocolla to 6407.5 and reddish gouge to 6422.
2	6423				Fault gouge. Hemetitic. 70°
3	6437	Me?	Sparce native copper.		Limestone Breccia. Similar to above. Matrix is ground limestone with hemetitic stain.
7	6438				Fault gouge. Hemetitic. 70°.
8	6447.5	Me?	Moderate amounts of native copper in matrix.		Limestone Breccia. Fragments are angular, gray, very fine grained limestone (?). Matrix is reddish brn. gritty material. Weak shearing (0-45°) near base.
7.5	6484	Tw	Moderate native copper.		Conglomerate. Reddish brn. to brown gritty matrix. Fragments 60% limestone, 30% qtz. porphyry, and 10% diabase and schist(?). Some shearing (30°-60°) at 6447.5 to 6452.
4	6539	Me?	Strong native copper along fractures.		Escabrosa Limestone? Completely replaced by specularite and red earthy hematite.

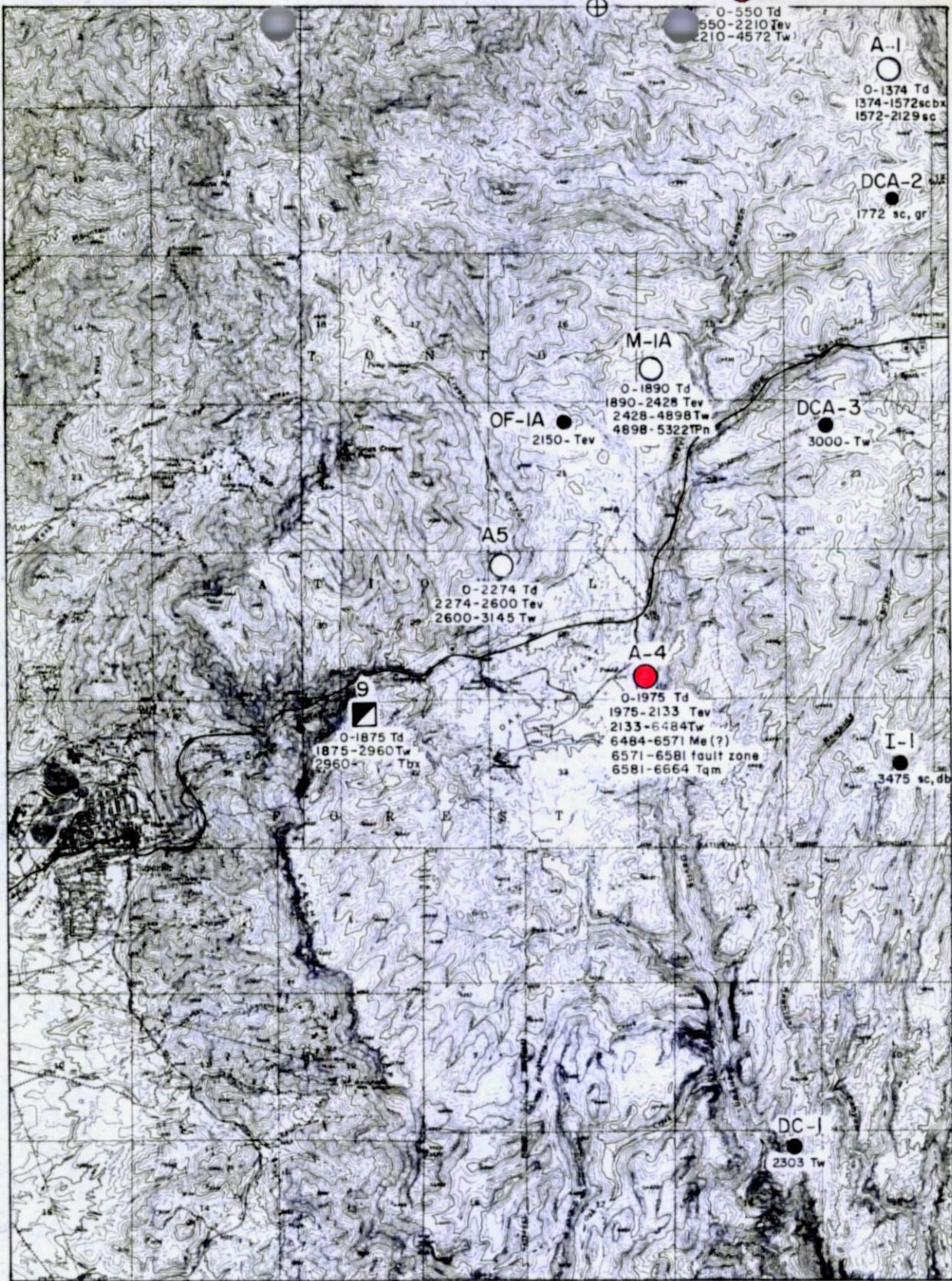
AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG

PROPERTY Superior East Project
MINING DISTRICT _____
COUNTY, STATE _____

DRILL HOLE A-4
FINAL DEPTH 6664'

PAGE 4 of 4
DATE _____
LOG BY _____

DEPTH		ROCK	MINERALIZATION	ALTERATION	REMARKS
FROM	TO				
539	6563	Me?	Sparce native copper	Very fine grained incipient silicification	Escabrosa Limestone? Well fractured & brecciated. Bedding 20°.
563	6566	Fault	Nil		Brecciated rock as above with shearing and hemetic to chloritic gouge. Dip - 30°.
566	6571	Me?	Nil		Escabrosa Limestone. Replaced as 6484-6539.
571	6575	Fault	Sparce native copper. Strong chalcocite.		Cemented gritty fault gouge with minor silicified fragments. Cataclastic lineation - 30°.
575	6580	Tqm	Nil		Biotite quartz monzonite. Sheared and faulted. Strong chloritic material. Shearing 20-40°.
580	6610.5	PCpi & Tqm	Trace - moderate cpy. Traces py. and mo.	Minor quartz veinlets and secondary k-spar.	Fine grained quartz-biotite schist intruded by thin dikes of biotite quartz monzonite.
610.5	6664	Tqm	Traces of cpy., py., & mo.	Minor quartz veinlets and secondary k-spar.	Medium grained biotite quartz monzonite.
END OF HOLE					
			NOTE: All dips are in reference to a plane at right angles to the axis of the core.		



EXPLANATION

- Previous drill hole
- ASARCO drill hole
- ▣ Magma's #9 shaft
- DCA-1 (hole designation)
- 4011 Tw
- Rock type
- Bottom hole depth
- ⊕ Proposed drill site

POST-MINERAL ROCK UNIT

- Td - Dacite
- Tev - Early volcanics
- Tw - Whitetail

PRE-MINERAL ROCK UNIT

- Tbx - Breccia
- Tqm - Quartz Monzonite
- Tgr - Granite
- TPn - Naco limestone
- Me - Escabrosa limestone
- pCdb - Diabase
- pCsc - Schist

DRILLING PROGRESS MAP
 for the month of *Nov. 1971*
SUPERIOR EAST
 GILA & PINAL COUNTY, ARIZONA
 SCALE: 1" = 1 mile
 J. D. S.
 2463

CH 02KPA

J. H. C.

DEC 13 1971

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

November 8, 1971

TO: W. L. Kurtz

FROM: J. D. Sell

Monthly Report - October 1971
Superior East Project
Pinal-Gila Counties, Arizona

Attached is the monthly report by R. B. Cummings. At the end of the month, the core drill on A-4 was at 6588 feet in heavily faulted, sheared, and brecciated biotite quartz monzonite of probable Tertiary age. The intrusive rock is porphyritic, contains numerous inclusions of schist, and has substantial orthoclase alteration patches and veining. Pyrite is disseminated, but chalcopyrite and molybdenite are found principally along some orthoclase and quartz veinlets.

As reported in R. B. Cumming's log, a block of limestone and limestone breccia was cut from 6339 to 6448 with Whitetail Conglomerate from 6448 to 6484. At 6484, replaced limestone (probably Mississippian in age) and limestone breccia were cut to a depth of 6571. The replaced limestone contains massive oxidized hematite-limonite in variable amounts and contains appreciable native copper to a depth of 6539. The base of the limestone section is sheared and a "cemented" fault gauge was cut from 6571 to 6575. An open fault and breccia zone was then penetrated to 6588 at the end of the month. The rock, an intrusive biotite quartz monzonite, becomes less sheared away from the fault contact.

The entire units cut are being sampled for assay purposes and selected units prepared for thin-section identification. The intrusive rock will also be age dated, as it has several characteristics suggesting a possible Precambrian age.

Some assays are available and show:

- 2212-2785 = 573 feet at 0.05% copper
- 2785-3138 = 353 feet at 0.12% copper
- 3138-3593 = 455 feet at 0.06% copper
- 3593-5070 = assays not available
- 5070-5080 = 10 feet at 0.03% copper
- 5080-5350 = 270 feet at 0.89% copper
- 5350-5680 = 330 feet of approximately 0.08%
- 5680-5810 = 130 feet at 0.86% copper
- 5810-5970 = 160 feet at 0.16% copper
- 5970- = assays not available

The sampled interval from 5080-5810 = 730 feet of 0.53% copper.

November 8, 1971

All of the above assays are principally native copper in the Whitetail Conglomerate. Coring started at 3593 and the assays represent samples of split core. Above 3593 the assays are on splits of the rotary cuttings.

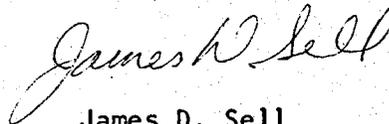
Cummings has completed Drill Hole Summaries and Costs on M-1A (total), A-1 (total), A-4 (rotary portion), and A-5 (rotary portion). Summaries on Daily Drill Data-Unit Contacts have also been completed for the cored portions of holes M-1A, A-1, and A-4. Memorandums on the remaining portions of the respective holes are in progress, as are Drill Hole Assay Result Logs.

In compliance with the agreement between ASARCO and Continental Copper, a Quarterly Report was submitted for the work ending October 1 covering Continental's ground.

A bore hole survey of drill hole A-4 was run by H. L. Crittendon and the results distributed. Three readings were taken (to 5760) and the fourth point projected to 6500. At this depth the hole is estimated to have drifted only 396 feet, S4°40'W from the collar.

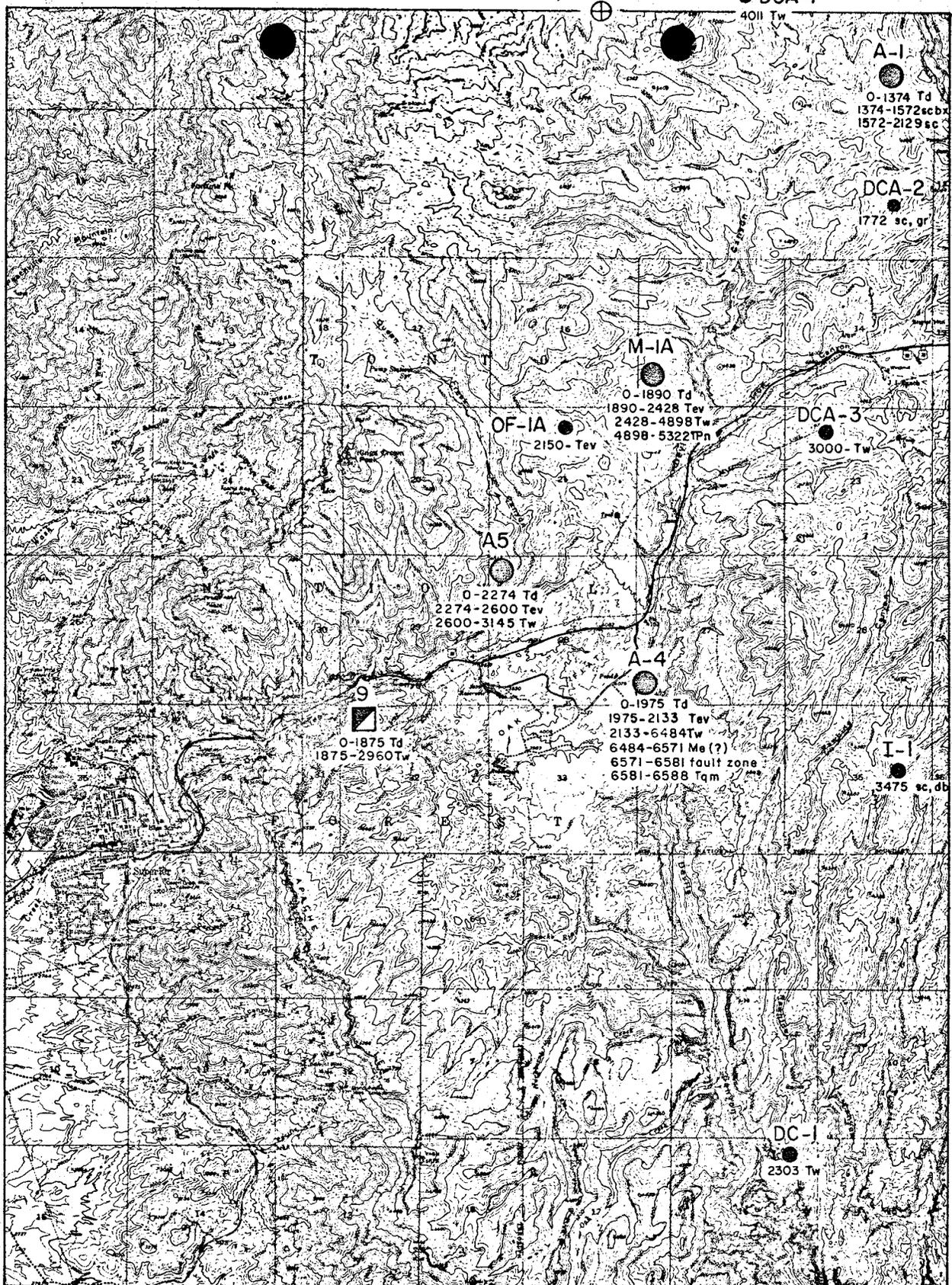
Mr. J. Cooksley was unable to test the down-the-hole velocity equipment during the month, but the work was accomplished early in November.

Clyde Rees continues to work in the Miami area and has found several interesting facets previously unknown. One is several areas of Manitou Hill type intrusive east of the suspected Needle Mountain fault and another is tourmaline near the newly reported Barney ore-body area. Integration of information continues.



James D. Sell

JDS:lad
Attach.



EXPLANATION

- | | |
|--------------------------|--------------------------|
| ● Previous drill hole | POST-MINERAL ROCK UNIT |
| ● ASARCO drill hole | Td - Dacite |
| ■ Magma's #9 shaft | Tev - Early volcanics |
| | Tw - Whitetail |
| DCA-1 (hole designation) | PRE-MINERAL ROCK UNIT |
| 4011 Tw | gr - Granite |
| Rock type | Me - Escabrosa Limestone |
| Bottom hole depth | db - Diabase |
| | Tbx - breccia |
| | sc - Schist |
| | Tqm - Quartz Monzonite |
| | TPn - Naco limestone |

DRILLING PROGRESS MAP
for the month of *Oct. 1971*
SUPERIOR EAST
GILA & PINAL COUNTY, ARIZONA
SCALE: 1" = 1 mile J.D.S.
2463

July 15, 1992

The following is a list of core presently being stored in the four containers at the Ventura warehouse.

CONTAINER 1: **NW BY FENCE (OLD STYLE)**

LEFT BAY 1: BB-7, BB-6
LEFT BAY 2: BB-6, BB-5
LEFT BAY 3: BB-5, BB-4
LEFT BAY 4: BB-4, BB-3
LEFT BAY 5: BB-3, BB-2
LEFT BAY 6: BB-2

RIGHT BAY 1: EMPTY
RIGHT BAY 2: BB-7
RIGHT BAY 3: SKELETON HOLE 2 BOXES 2-7
RIGHT BAY 4: TM-5 SKELETON BOXES 1-2
TM-6 SKELETON BOXES 1-5
TM(LOG 9) SKELETON BOXES 1-3
TM-1 SKELETON BOXES 1-2
TM-5 1277'-1677'
RIGHT BAY 5: TM-5 CONT.
TM-1 12'-624
V-39
RIGHT BAY 6: V-39

CONTAINER 2: **NE (OLD STYLE)**

LEFT BAY 1: RW-5 SKELETON BOXES 1-5 0-2502'
A-1 SKELETON BOXES 1-5 0-2127'
A-10 SKELETON BOXES 1-7 23'-2037'
QDC-5 SKELETON BOXES 1-6 0-4409'
LEFT BAY 2: AH-4 ROTARY BOXES 1-7 0-1966'
AH-4 SKELETON BOXES 1-2 1940'-2807'
M1A SKELETON 2916'-2926'
AH-5 SKELETON BOXES 1-2 0-894'
AH-2 ROTARY BOXES 1-2 0-1995'
AH-2 SKELETON BOXES 1-3 2019'-3781'
A-16 SKELETON BOXES 1-10 2454'-3808'
A-16 4127'-4177'
A-13 SKELETON 1
A-6 ROTARY BOXES 1-2 0-1655'
AH-1 ROTARY BOXES 1-2 0-1690'
AH-1 SKELETON BOXES 1-3 1710'-3863'
AI-1 ROTARY BOXES 1-3 0-2766'
AI-1 SKELETON BOXES 1-6 2800'-3967'
AI-2 SKELETON BOXES 1-5 0-2740'
M-1 SKELETON BOXES 2-8 0-2402'
LEFT BAY 3: A-2 4079'-4504'
A-2 SPOT CORE 2559'-4080'
A-2-W SKELETON BOXES 1-3 4230'-4940'
A-2-W 4230'-4940'

LEFT BAY 4: A-4 4989'-6287'
 LEFT BAY 5: A-4 3513'-4928'
 LEFT BAY 6: A-4 4938'-4989'
 AI-2 SKELETON 2842'-3612'
 A-15 SKELETON BOXES 1-17
 A-15 3608'-4159'
 RIGHT BAY 1: NC-EMPTIES
 RIGHT BAY 2: A-8 SKELETON BOXES 1-10 24'-2621'
 A-9 SKELETON BOXES 1-8 0-2186'
 A-3 SKELETON BOXES 1-10 0-6808'+TUFF
 A-10 2747'-2821'
 A-10 SKELETON 2822'-3339'
 RIGHT BAY 3: A-8 3225'-4907'
 A-10 2251'-3881'
 RIGHT BAY 4: A-10 3881'-4289'
 A-9 SKELETON BOXES 1-4
 2186'-2352', 3400'-3669'
 A-9 2878'-4903'
 RIGHT BAY 5: A-4 6287'-6664'
 A-4 SPOT CORES 2708'-10', 2716'-21',
 2734'-37'
 A-4 3602'-3641'
 A-4 ROTARY BOXES 1-5 0-3599'
 A-5 ROTARY BOXES 1-4 40'-3265'
 DCA-1A SKELETON BOXES 1-19 4002'-5813'
 RIGHT BAY 6: DCA-2 SKELETON 1352'-1901'
 DCA-2A SKELETON 1910'-2422'
 DCA-3 5144'-5154'
 DCA-3A SKELETON 2980'-4800'

CONTAINER 3: **(OUTER MOST NEXT TO WHS)**
 LEFT BAY 1: A-13 1716'-2775'
 LEFT BAY 2: A-13 3530'-4656'
 LEFT BAY 3: A-13 3062'-3530'
 A-15 SKELETON 0-590'
 A-15 4186'-4699'
 LEFT BAY 4: A-14 SKELETON BOXES 1-6 1534'-3978'
 A-14 2232'-2897'
 LEFT BAY 5: A-14 ROTARY BOXES 1-3 0-1535'
 A-14 2956'-3724', 5231'-5738'
 LEFT BAY 6: A-14 3978'-5231'

 RIGHT BAY 1: A-13 2775'-3062'
 A-13 SKELETON BOXES 1-5 0-3062'
 A-16 SKELETON BOXES 4-7 1028'-2231'
 A-12 5452'-5724'
 RIGHT BAY 2: A-12 4217'-5452'

A-12 SKELETON BOXES 1-5 2754'-4217'
RIGHT BAY 3: A-11 SKELETON BOXES 1-12 12'-3479'
A-11 3479'-5167'
RIGHT BAY 4: A-7 SKELETON BOXES 1-8 3157'-4679'
A-7 4679'-6042'
A-12-A 4093'-4240'

2

RIGHT BAY 5: M-1A SKELETON BOXES 1-5 2400'-3340'
M-1A 3340'-5322'
RIGHT BAY 6: EMPTY

CONTAINER 4: ~~THIS~~ (INNER MOST NEXT TO WHS)
LEFT BAY 1: EMPTY
LEFT BAY 2:
LEFT BAY 3:
LEFT BAY 4:
LEFT BAY 5:
LEFT BAY 6:

RIGHT BAY 1: EMPTY
RIGHT BAY 2: NCP-1 766'-1553'
RIGHT BAY 3: NCP-1 0-766'
RIGHT BAY 4: EMPTY
RIGHT BAY 5: A-16 4250'-5212'
RIGHT BAY 6: A-16 3118'-4250'

CORE TRACK
CAVEN