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James Doyle Sell Mining Collection

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AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

November 16, 1967

TO: Mr. J. H. Courtright

FROM: J. R. Wojcik

Santa Rosa Project
Casa Grande, Arizona

During the exploration of the Sacaton "ore" deposit, reconnaissance disclosed anomalous molybdenum values in ground water samples obtained from an area about 15 miles southwest of the Sacaton project. An induced polarization survey outlined an area of +9 Mv/v response as shown on the attached map.

Drilling begun in March 1967 failed to find a sulphide source for the I.P. response nor any source for the molybdenum.

The anomaly proved to be parallel to and on the down thrown side of a major basin and range type fault. Thickness of gravels and conglomerate varies from about 400' in hole SR-8 to almost 1800' in hole SR-4. Pre-mineral bedrock is granite, monzonite porphyry, or andesite porphyry. The rocks are weakly altered in the vicinity of holes SR-1 and SR-6 but the alteration noted in SR-6 may be associated with ground water circulation in the fault zone. Hole SR-6 also contained some copper values up to about 700 ppm but again the copper may have been deposited from ground water circulating along the fault. An area of mineralization may lie in the deeper portion of the basin but sufficient evidence is not available at this time to locate it.

Eight holes were drilled totaling 9407' at a direct cost of $4.42/ft. Sampling, supervision, and assaying added another $0.91/ft. for an overall cost of $5.33/ft. The entire sequence, except for 43', was drilled with a large non-coring type rotary as at Sacaton and Santa Cruz. Forty-three feet of coring was accomplished with the rotary drill at an average cost of about $31/ft.

The information derived from the drill holes suggests that the anomalous I.P. response was from water-saturated clays shallow enough to be detected by the ASARCO equipment. The source of the molybdenum in the ground water was not located and could represent a future exploration target.

JRWojcik
J. R. Wojcik

JRW:lmi
encls.: Asarco Geologic-Assay Logs
Nos. SR-1 through SR-8
Map--Sacaton-Santa Cruz Area, Pinal Co., Ariz.

Final Depth 1091.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-1
Sheet No. 1 of 1
Date Completed 4-1-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu Total	Non-S	Average	Mineralization Oxides	Pyrite	Cpy	Cc	Other	Alteration		Rock Type	Remarks
132.0	132.0	4 3/4"RB													Qal	
990.0	858.0	RB													QTg	Conglomerate
031.5	41.5	RB											Wk	Arg	Tmp	Altered, leached, capping
036.25	4.75	2 1/8"		<50				FeOx					Wk	Arg	Tmp	Dark gray monzonite porphyry, tr hem on fracs, No Cu stain
060.0	23.75	RB											Wk	Arg	Tmp	
			(1060-1087)		.025											
082.4	22.4	RB											Wk	Arg	pCgr	
091.0	8.6	2 1/8"		<50									Wk	Arg	pCgr	Coarse grained granite, crushed, sheared and gougy

Final Depth
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-2
Sheet No. 1 Of 1
Date Completed 4-5-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
245.0	245.0	4-3/4" RB													Qal	
670.0	425.0	RB													OTg	conglomerate
693.0	23.0	RB													pCgr	
706.0	13.0	2-1/8"											None		pCgr	

Final Depth 1480.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-3
Sheet No. 1 of 1
Date Completed 4-11-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
265.0	265.0	4-3/4"	RB												Qal	
1435.0	1170.0	RB													QTg	Fine grained, clayey, pebble conglomerate
1450.0	15.0	RB													Ld	Medium grained diorite
1453.0	3.0	2-1/8		67											Ld	Diorite similar to Laramide intrusive in Sacaton Mtns.
1480.0	27.0	RB													Ld	

Final Depth 1807.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-4
Sheet No. 1 of 1
Date Completed 4-18-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
296.0	296.0	4-3/4"	RB												Qal	
1310.0	1314.0	RB													QTg	Conglomerate
1780.0	170.0	RB													QTg-Flt?	Yellow-Orange to Red stained quartz and red clay
1800.0	20.0	RB											-NONE-		pCgr	
1807.0	3.0	2-1/8"		67											pCgr	

Final Depth 687.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-5
Sheet No. 1 of 1
Date Completed 4-20-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
211.0	211.0	4-3/4"RB													Qal	
673.0	462.0	RB													QTg	Fine grained, clayey, pebble conglomerate
685.0	12.0	RB													pCqtzt	
687.0	2.0	2-1/8"		100											pCqtzt	Vy. fine grained, light gray quartzite or argillite. Possibly pC Dripping Springs

Final Depth 1352.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-6
Sheet No. 1 of 1
Date Completed 4-26-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
10.0	110.0	4-3/4"RB													Qal	
00.0	790.0	RB													QTg	Fine grained, clayey, pebble conglomerate
					sludge											
20.0	220.0	RB			.025										An Por	
80.0	160.0	RB													Flt. ?	Red clay, no coarse fraction, rapid drilling
40.0	60.0	RB			.045											
															Flt.?	ditto
49.0	9.0	RB													An Por	
52.0	3.0	2-1/8"		67									Wk Arg		An Por	Dark coarse grained andesite porphyry

Final Depth 1673.0
Collar Elevation
Coordinates
Inclination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-7
Sheet No. 1 of 1
Date Completed 5-2-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
255.0	255.0	4-3/4"RB													Qal	
1040.0	785.0	RB													QTg	Fine, clayey pebble conglomerate
1440.0	400.0	RB													Flt ?	Red clay, rapid drilling, no coarse fraction in sample.
1591.0	151.0	RB													QTg	Mostly andesite and granite pebbles
1620.0	29.0	RB													QTg	Some red clay with rapid drilling
1669.0	49.0	RB											None		pCgr	Coarse grained biotite granite
1673.0	4.0	2-1/8"		100									None		pCgr	ditto

Final Depth 615.0
Collar Elevation
Coordinates
Inclination

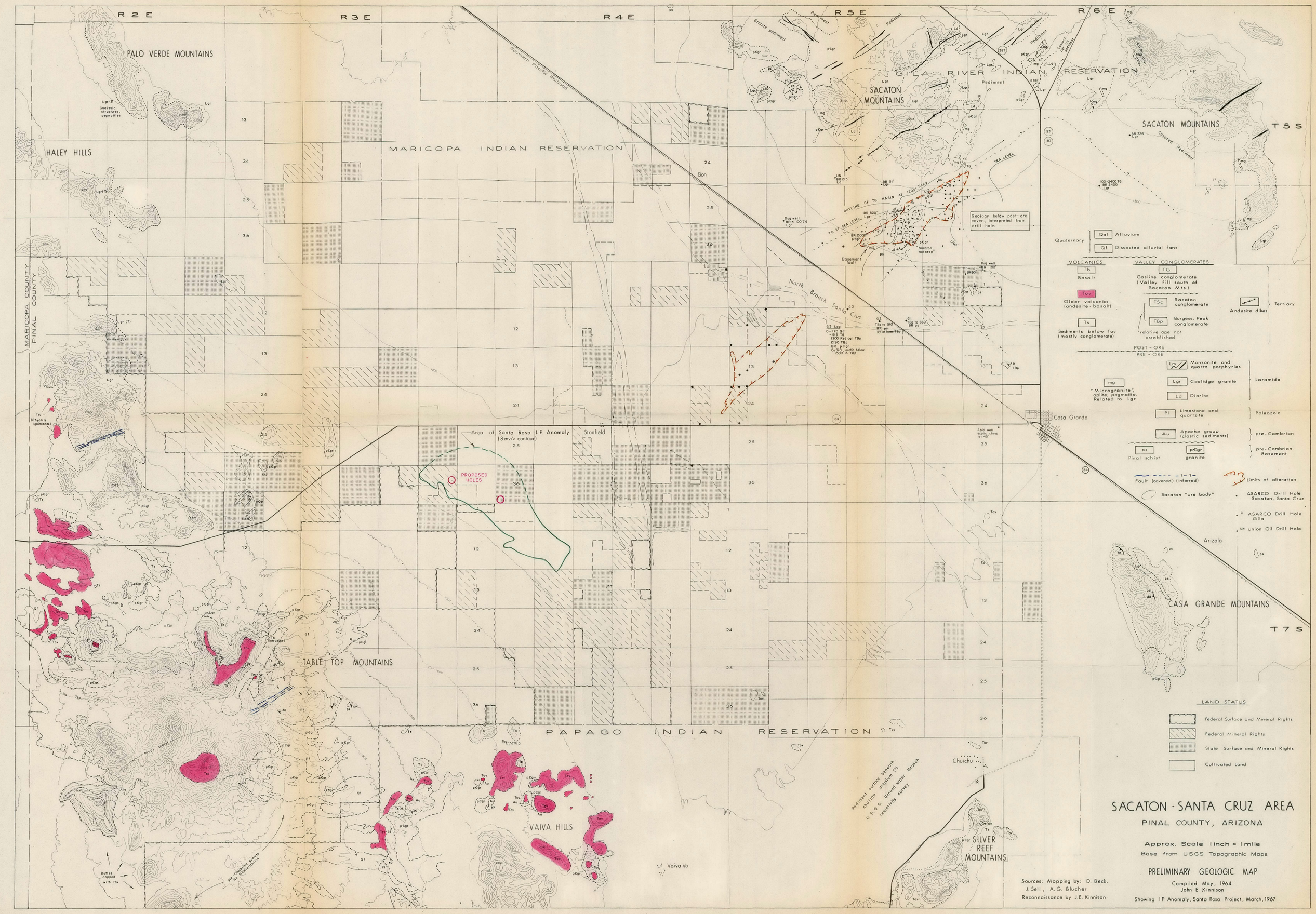
ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-8
Sheet No. 1 of 1
Date Completed 5-5-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
125.0	125.0	4-3/4" RB													Qal	Alluvium
435.0	310.0	RB													QTg	Coarse boulder conglomerate, gneiss & schist boulders
480.0	45.0	RB													QTg	Coarse boulder conglomerate, monzonite boulders
615.0	135.0	RB											None		Lmz	Light buff to pink, fine grained quartz monzonite porphyry

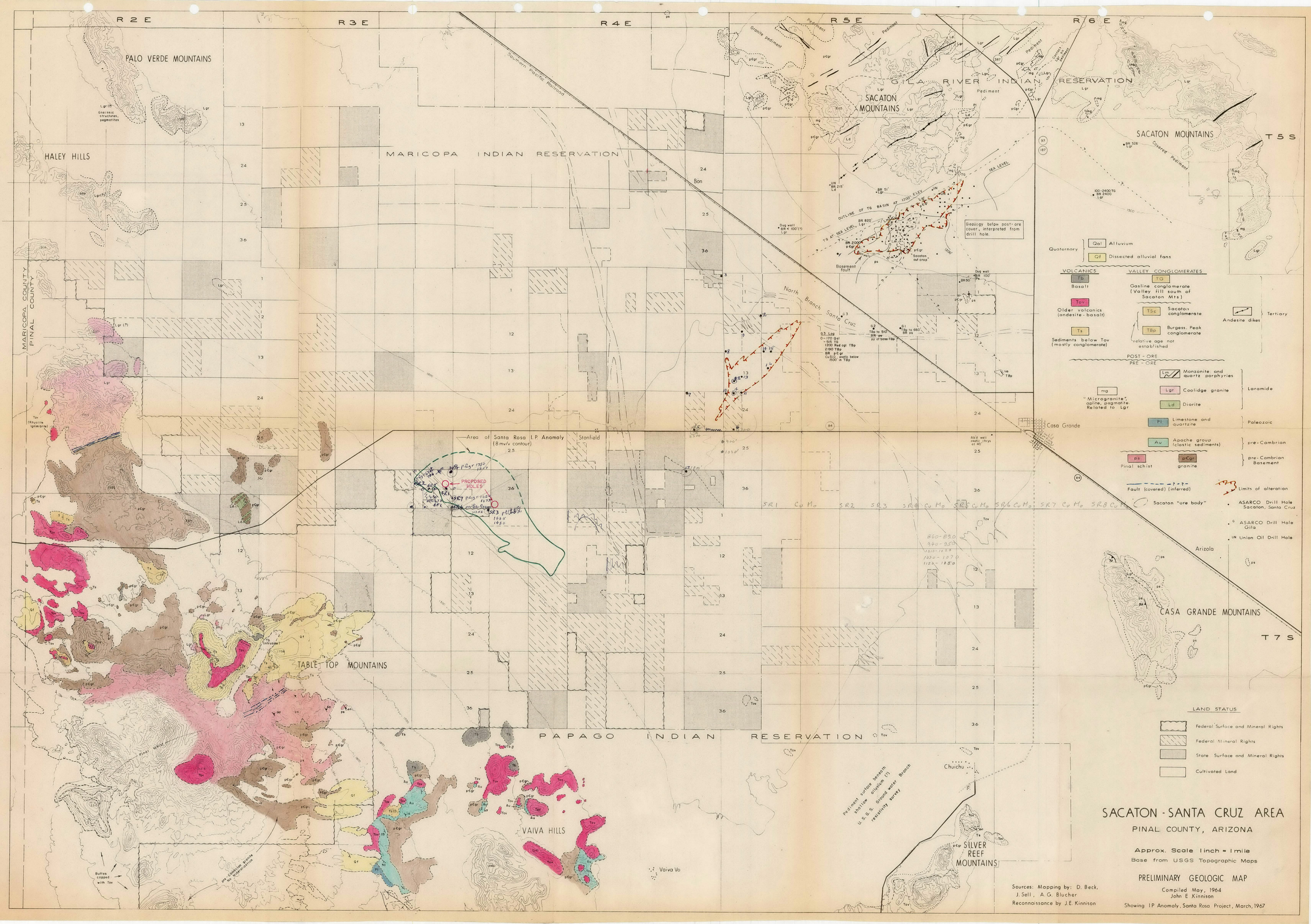

R 2 E
R 3 E
R 4 E
R 5 E
R 6 E
T 5 S
T 7 S
PALO VERDE MOUNTAINS
HALEY HILLS
MARICOPA COUNTY
PINAL COUNTY
MARICOPA INDIAN RESERVATION
Southern Pacific Railroad
SACATON MOUNTAINS
GILA RIVER INDIAN RESERVATION
Granite pediment
Pediment
Covered Pediment
Contact in Pediment
SEA LEVEL
OUTLINE OF TG BASIN AT 1300' ELEV.
TG AT SEA LEVEL
Basement fault
Sacaton out crop
Geology below post-ore cover, interpreted from drill hole.
North Branch Santa Cruz
Area of Santa Rosa I.P. Anomaly (8 mv/v contour)
PROPOSED HOLES
Stanfield
Casa Grande
Arizola
CASA GRANDE MOUNTAINS
TABLE TOP MOUNTAINS
PAPAGO INDIAN RESERVATION
VAIVA HILLS
Vaiva Vo
Chuichu
SILVER REEF MOUNTAINS
Pediment surface between shallow alluvium (?) U.S.G.S. Ground water Branch resistivity survey
Buttes capped with Tov
pre-Cambrian granite no mineralization
Pinal shist
Quaternary
Qal Alluvium
Qf Dissected alluvial fans
VOLCANICS
Tb Basalt
Tov Older volcanics (andesite - basalt)
Ts Sediments below Tov (mostly conglomerate)
VALLEY CONGLOMERATES
TG Gasline conglomerate (Valley fill south of Sacaton Mts.)
TSc Sacaton conglomerate
TBp Burgess Peak conglomerate
relative age not established
Andesite dikes
Tertiary
POST - ORE
PRE - ORE
Lm Monzonite and quartz porphyries
Lgr Coolidge granite
Ld Diorite
Laramide
mg "Microgranite", aplite, pegmatite. Related to Lgr
Pl Limestone and quartzite
Paleozoic
Au Apache group (clastic sediments)
pre-Cambrian
ps Pinal schist
pCgr granite
pre-Cambrian Basement
Fault (covered) (inferred)
Sacaton "ore body"
Limits of alteration
ASARCO Drill Hole Sacaton, Santa Cruz
ASARCO Drill Hole Gila
Union Oil Drill Hole
LAND STATUS
Federal Surface and Mineral Rights
Federal Mineral Rights
State Surface and Mineral Rights
Cultivated Land
SACATON - SANTA CRUZ AREA
PINAL COUNTY, ARIZONA
Approx. Scale 1 inch = 1 mile
Base from USGS Topographic Maps
PRELIMINARY GEOLOGIC MAP
Compiled May, 1964
John E. Kinnison
Showing I.P. Anomaly, Santa Rosa Project, March, 1967
Sources: Mapping by: D. Beck, J. Sell, A. G. Blucher
Reconnaissance by J.E. Kinnison

SACATON - SANTA CRUZ AREA
PINAL COUNTY, ARIZONA

SLUDGE ASSAYS

SR1	Cu	Mo	SR2	SR3	SR4	Cu	Mo	SR5	Cu	Mo
1030 - 1040	.01	<.001	unaltered rock no sludges collected		1620 to 1800 in 10' intervals	<.01	<.001	680-685	<.01	<.001
1031.5 - 1036.5	.01	<.001								
1040 - 1050	.01	<.001								
1050 - 1060	.01	<.001								
1060 - 1070	.03	<.001								
1082 - 1087	.02	<.001								

SR6	Cu	Mo	SR7	Cu	Mo	SR8	Cu	Mo
810 - 820	<.01	<.001	1570 to 1672.6 in 10' intervals	<.01	<.001			
820 - 830	<.01	<.001						
830 - 840	<.01	<.001						
840 - 850	<.01	<.001						
850 - 860	<.01	<.001						
890 - 903	.01	<.001						
903 - 910	.07	<.001						
910 - 920	.05	<.001						
920 - 930	.05	<.001						
930 - 940	.02	<.001						
950 - 960	.04	<.001						
960 - 970	.03	<.001						
970 - 980	.05	<.001						
980 - 990	.03	<.001						
990 - 1000	.03	<.001						
1000 - 1010	.04	<.001						
1020 - 1030	.02	<.001						
1070 - 1080	.02	<.001						
1080 - 1090	.02	<.001						
1090 - 1100	.01	<.001						
1100 - 1110	.02	<.001						
1110 - 1120	.05	<.001						
1150 - 1160	<.01	<.001						
1160 - 1170	<.01	<.001						
1170 - 1180	.01	<.001						
1180 - 1190	.01	<.001						
1190 - 1200	.01	<.001						
1200 - 1210	.01	<.001						
1210 - 1220	.01	<.001						
1220 - 1230	.01	<.001						
1230 - 1240	.01	<.001						
1240 - 1250	.01	<.001						
1250 - 1260	.01	<.001						
1260 - 1270	<.01	<.001						
1270 - 1280	.01	<.001						
1280 - 1290	.02	<.001						
1290 - 1300	.06	<.001						
1300 - 1310	.10	<.001						
1310 - 1320	.04	<.001						
1320 - 1330	.02	<.001						
1330 - 1340	.03	<.001						


R 2 E
R 3 E
R 4 E
R 5 E
R 6 E
T 5 S
T 7 S
PALO VERDE MOUNTAINS
HALEY HILLS
MARICOPA COUNTY
PINAL COUNTY
MARICOPA INDIAN RESERVATION
Southern Pacific Railroad
GILA RIVER INDIAN RESERVATION
SACATON MOUNTAINS
Pediment
Granite pediment
Covered Pediment
Contact of pediment
Geology below post-ore cover, interpreted from drill hole.
OUTLINE OF TG BASIN AT 1700' ELEV.
TG AT SEA LEVEL
SEA LEVEL
Basement fault
"Sacaton out crop"
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Area of Santa Rosa I.P. Anomaly (8 mv/v contour)
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Casa Grande
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Vaiva Vo
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VAIVA HILLS
CASA GRANDE MOUNTAINS
SILVER REEF MOUNTAINS
PAPAGO INDIAN RESERVATION
Pinal schist
Buttes capped with Tov
Pre-Cambrian granite
Pediment surface beneath shallow alluvium (?) U.S.G.S. Ground water Branch resistivity survey
Quaternary
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Qf Dissected alluvial fans
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relative age not established
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Tertiary
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PRE - ORE
Lm Monzonite and quartz porphyries
Lgr Coolidge granite
Ld Diorite
Laramide
mg "Microgranite", aplite, pegmatite. Related to Lgr
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Sources: Mapping by: D. Beck, J. Sell, A. G. Blucher
Reconnaissance by J.E. Kinnison

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.

July 17, 1967

JUL 19 1967

Mr. Philip McLaughlin
Insurance Department
New York Office

Re: Santa Rosa Prospect
Arizona, Pinal County
Casa Grande District

Dear Sir:

A Prospecting Permit Bond in the amount of $2000 was issued by Federal Insurance Company on April 27, 1967, in connection with State Prospecting Permit 10565. I am enclosing a Xerox copy of this bond, as apparently you were not sent one at the time.

On June 2, 1967, we requested that the permit be canceled, which was done by Mr. Murphy's letter of July 7. You will note that in that letter, a copy of which was sent you with my letter of July 10, that Mr. Murphy refers to "the unnumbered bond". Apparently the bonding company has not yet gotten round to advising the number which has been assigned to this bond. We have no record of any number, which comes from your office.

Yours very truly,

S. I. Bowditch

SIB:bam
Enclosures
cc: JHCourtright
KvdSteinen

J. H. C.

APR 27 1967

April 27, 1967

State Land Department
State Office Building
Phoenix, Arizona

Prospecting Permit 10565

Gentlemen:

Enclosed is our check for $872.48 as payment for the first years rent under Prospecting Permit 10565, and a Surety Bond issued by Federal Insurance Company for $2000.00, for the same permit.

We will expect the permit in due course.

In connection with permits 10555 and 10564, we have decided not to proceed with these, and you may consider our application withdrawn for these permits.

Yours very truly,

S. I. Bowditch

SIB:bam
Enclosure - check
cc: JHCourtright
KvdSteinen

Copy for [illegible]d S, 5113, WEF

New York, N. Y., March 27, 1967

J. H. C.

APR 3 1967

Mr. C. P. Pollock

The following is an extract from the minutes of the meeting of the Advisory Committee held on March 22, 1967:

Mining Authorization No. 22-67
Santa Rosa Prospect, Casa Grande
District, Pinal County, Arizona

It was reported that the Company's geologists recommend the drilling of three holes aggregating 2,500 feet over an area of three square miles in the Sacaton and Santa Cruz copper areas, and owned by the Federal and State Governments in the Casa Grande District, Pinal County, Arizona, a possible copper prospect. The cost of the work, including rental of 1,800 acres of State land and setting corners on 70 Federal claims, will be approximately $60,000.

There was approved an expenditure of $60,000 for drilling and related expenses at the Santa Rosa Prospect, Pinal County, Arizona.

Harold Howe

FCHamrick
HLGoodenough
TASneddon
RMKeen
JHCourtright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J.H.C.
MAR 23 1967

March 21, 1967

To: J. H. Courtright

From: S. I. Bowditch

Santa Rosa Prospect

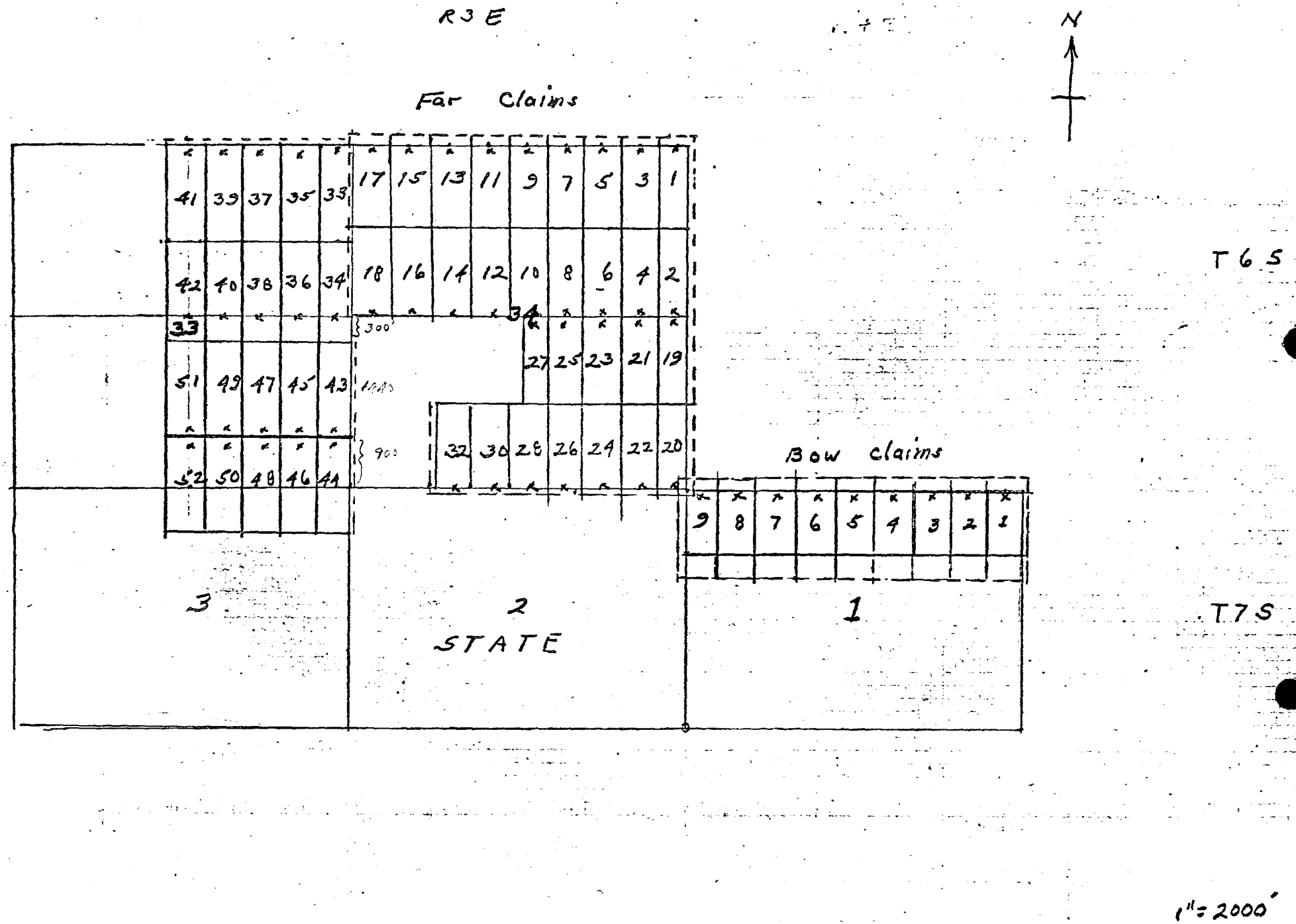
On March 21 Mr. Sell and I staked 10 claims, the Far 43-52, in the southeast quarter of Section 33, T6S, R3E, which overlap into the NE part of Section 3, T7S, R3E, as shown on the attached map.

If we wish to keep these claims, corners must be set and the notices recorded by June 20, and the location work completed and recorded by July 20.

S. I. Bowditch

S. I. Bowditch

SIB:bam


R3E
N
Far Claims
41 39 37 35 33
17 15 13 11 9 7 5 3 1
42 40 38 36 34
18 16 14 12 10 8 6 4 2
33
300'
34
27 25 23 21 19
51 49 47 45 43
HAD
900
32 30 28 26 24 22 20
52 50 48 46 44
Bow claims
9 8 7 6 5 4 3 2 1
3
2
STATE
1
T6S
T7S
1" = 2000'

cc: CPPollock, w/ attach.
JHCourtright, w/ attach.
WESaegart, w/ attach.

Aa-16A.3.19E

J. H. C.

MAR 17 1967

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 17, 1967

TO: R. J. LACY

FROM: W. G. FARLEY

INDUCED POLARIZATION
SANTA ROSA PROSPECT
PINAL COUNTY, ARIZONA

This report is a supplement to my report of March 14, 1967, to explain in more detail the anomalous I. P. response obtained on the Santa Rosa prospect.

The question has been brought up of the possibility of the I. P. anomaly being extraneous response from clays in the water saturated conglomerate rather then sulfides from a bedrock source. As you know, a large extraneous I. P. anomaly was obtained on our Casa Grande prospect on the northeast side of the Casa Grande Valley with values up to 13.2 m.v./v. The Casa Grande extraneous I. P. anomaly was drilled and the drill hole logged by I. P. and resistivity. It was determined that the extraneous I. P. response came from clays in the water saturated conglomerate. A surface I. P. depth probe was run and the depth to the top of the polarizer was determined to be about 165 feet. The drill hole showed this to be the approximate depth to the water table. The maximum extraneous response on this anomaly came from a water saturated conglomerate having apparent resistivity values between 100 and 150 ohm•feet. Water from wells in this area showed a normal molybdenum background of less than 15 PPB.

Extraneous I. P. response was also obtained from the conglomerate over the Sacaton ore body. Drill hole logs detected values to 6.5 m.v./v and surface work indicated values to 7.0 m.v./v. Resistivity values from the polarizing conglomerate in this area were under 100 ohm•feet. Water from wells around the area showed anomalous molybdenum values.

The higher I. P. values on the Santa Rosa prospect come from an area having apparent resistivity values between 150 and 250 ohm•feet. This is the range of apparent resistivity values one would expect with bedrock at a depth of 600-1000 feet and being covered by low resistivity material. The apparent resistivity of the overlying conglomerate in this area was obtained from the readings taken with the three electrode 1000 foot "a". The values ranged between 115 and 135 ohm•feet. These values are in the same range as those obtained from the strongly polarizing conglomerate on the Casa Grande prospect. The extraneous I. P. response from the water saturated conglomerate on the Santa Rosa prospect, as shown by the three electrode 1000 foot "a", ranges from

6.5 to 7.3 m.v./v. with an average of 6.9 m.v./v. over the strongest part of the anomaly. The water table in this area ranges from 400 to 500 feet in depth (Arizona Water Resources Report No. 16). If the Santa Rosa I. P. anomaly was coming from the water saturated conglomerate, depth determination would show the top of the polarizer to be at the water table. It will be demonstrated (using Induced Polarization Response Curves for Two-Dimensional Bodies - C. K. Moss, March 1967) that the top of the deep polarizer is at a depth of about 1000 feet and therefore more likely to be coming from a sulfide source. The theoretical curves used for the depth determinations (Fig. 32 and Fig. 33) are attached to this report. These two sets of curves are for bodies having great strike length, width, and depth extent and having no resistivity contrast with the enclosing rock. Two independent methods will be used and an average taken of the two.

First, a comparison of the response will be made between the I. P. values obtained with the wenner 2000 foot "a" and the three electrode 1000 foot "a". Using Fig. 32 where 1 unit is equal to 1000 feet, the theoretical response from a polarizer at 1000 feet in depth will be 50 units for the wenner 2000 foot "a" and 17.5 units for the three electrode 1000 foot "a". The response from the three electrode 1000 foot "a" should be 35% of the response obtained from the wenner 2000 foot "a". On the Santa Rosa anomaly the wenner 2000 foot "a" gave a maximum response of 12.4 m.v./v which is 5.5 above the average background of 6.9. The three electrode 1000 foot "a" gave a maximum (average of two peaks) of 8.5 which is 1.6 above background. The three electrode 1000 foot "a" thus gave 29% of the peak response obtained using the wenner 2000 foot "a" which is close to the theoretical value expected.

Second, a comparison is made between the response between the wenner 2000 foot "a" and the wenner 1000 foot "a". On the theoretical curves using Fig. 32 and Fig. 33 the wenner 1000 foot "a" should give 35% (17.5/50 x 100%) of the response obtained with the wenner 2000 foot "a". On the Santa Rosa anomaly the wenner 1000 foot "a" (2.2 above background) gave 40% of the response obtained with the wenner 2000 foot "a" (5.5 above background).

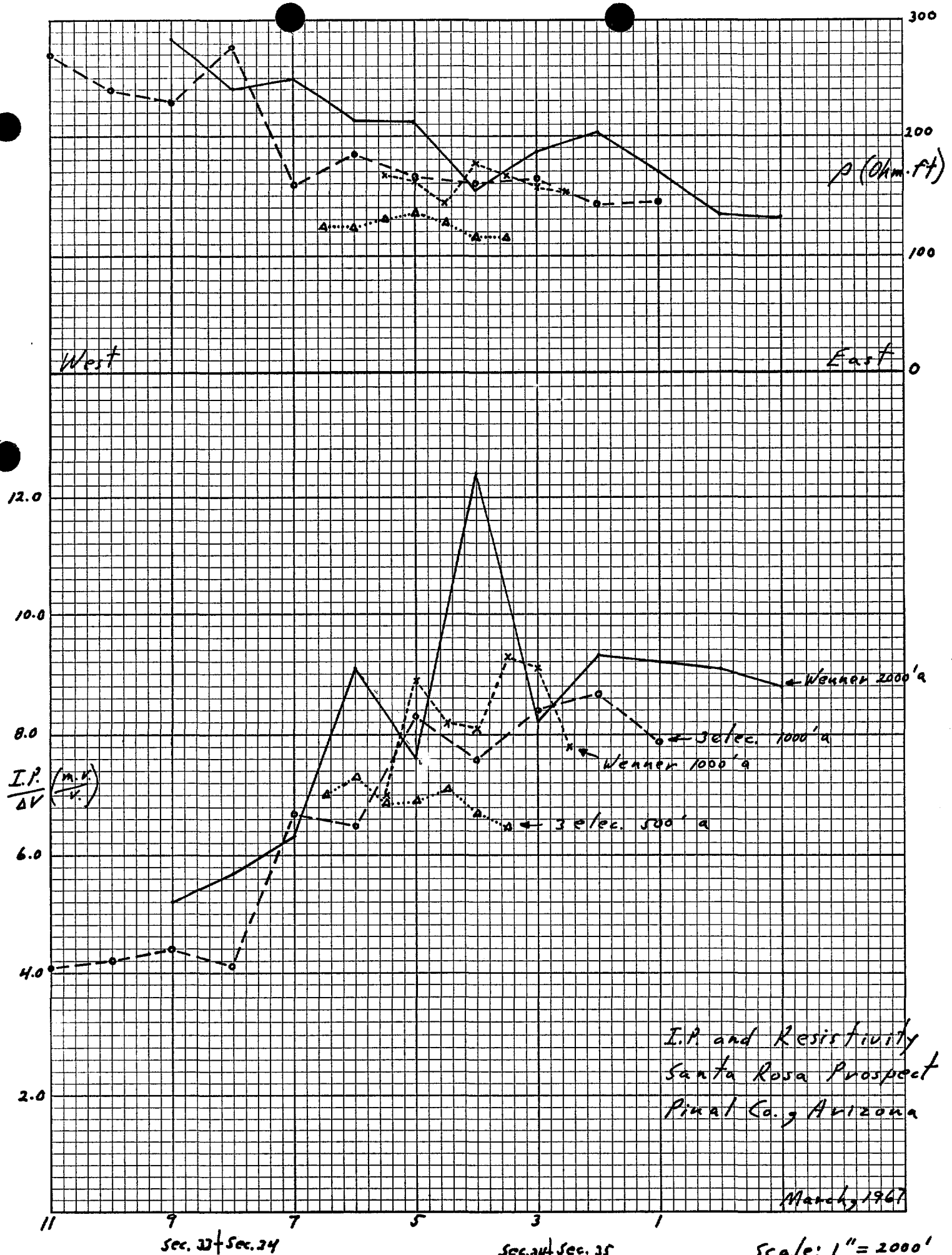
Using the two different methods of depth determination, the theoretical ratio for each should come out to 35%. An average of the ratios obtained in the field comes out to 34.5% (40% + 29%/2). It is, therefore, my conclusion that the Santa Rosa I. P. anomaly is coming from a sulfide source in bedrock with the top of sulfides at a depth of approximately 1000 feet below the surface. Since the I. P. anomaly is coincident with a molybdenum geochemical anomaly in ground water is is likely that copper sulfides are present. The over-all average content of sulfide mineralization indicated by the I. P. response appears to be about 4% of the rock.

Further I. P. surveys are now continuing to the northwest and southeast on projection of the axis of the Santa Rosa I. P. anomaly to check for any possible extensions.

Wayne G. Farley

WAYNE G. FARLEY

WGF/pjc
Attachments (3)



K+E 10 X 10 TO THE INCH 46 0703
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

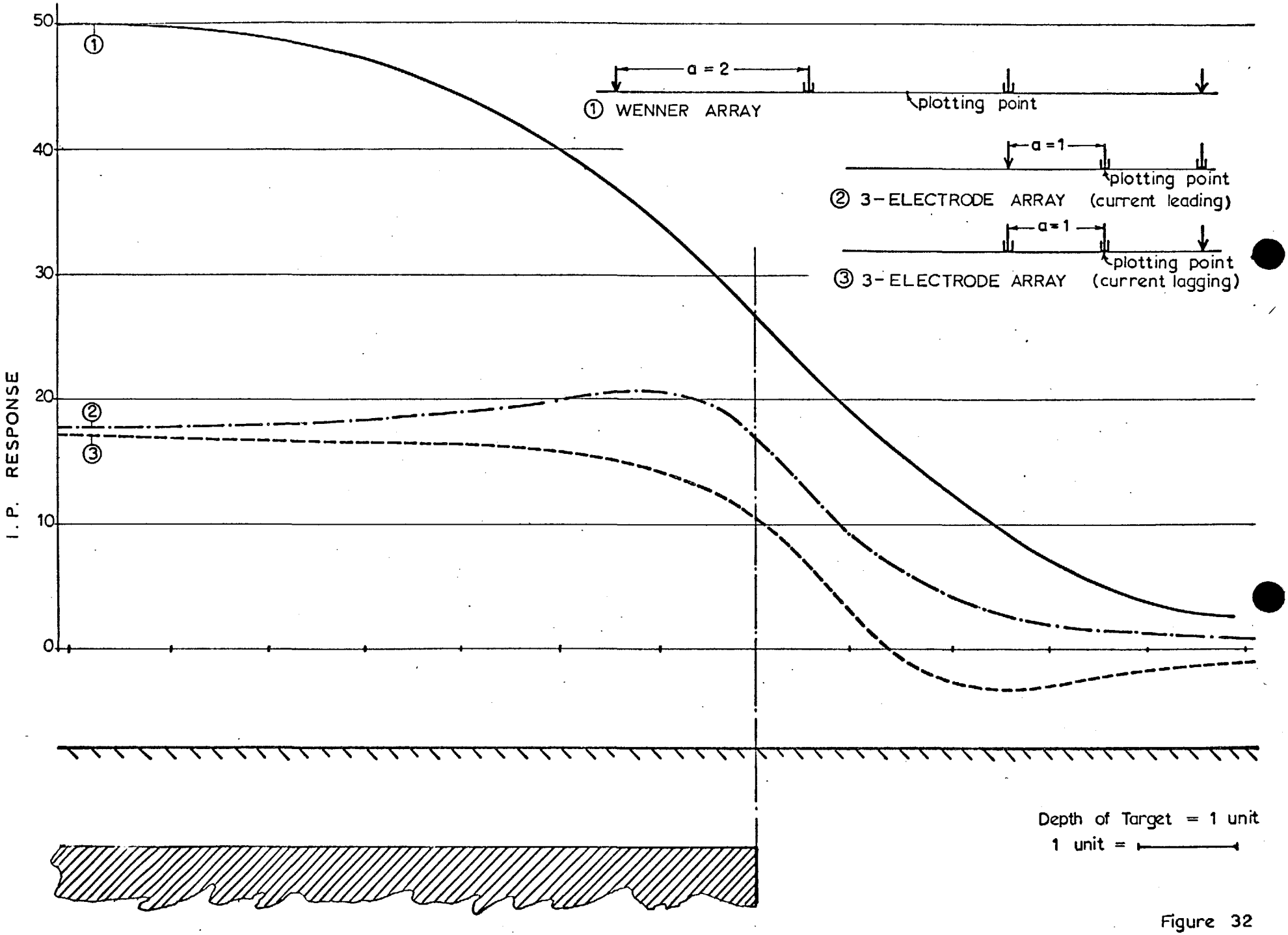

50
40
30
20
10
0
I. P. RESPONSE
①
②
③
a = 2
① WENNER ARRAY
plotting point
a = 1
plotting point
② 3-ELECTRODE ARRAY (current leading)
a = 1
plotting point
③ 3-ELECTRODE ARRAY (current lagging)
Depth of Target = 1 unit
1 unit =

Figure 32

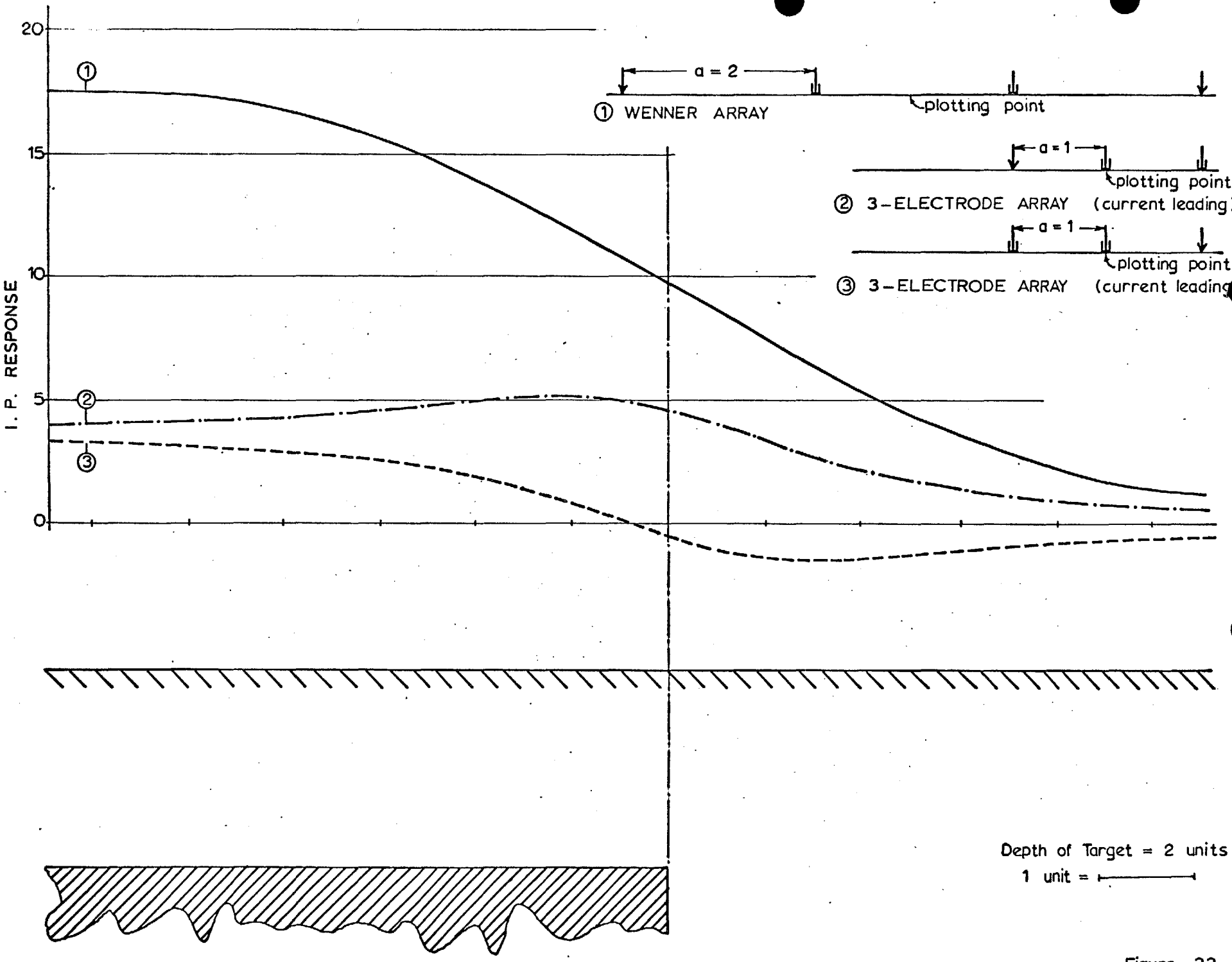

20
15
10
5
0
I. P. RESPONSE
①
②
③
a = 2
① WENNER ARRAY
plotting point
a = 1
plotting point
② 3-ELECTRODE ARRAY (current leading)
a = 1
plotting point
③ 3-ELECTRODE ARRAY (current leading)
Depth of Target = 2 units
1 unit =

Figure 33

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 17, 1967

Mr. K. E. Richard, Chief Geologist
American Smelting and Refining Company
120 Broadway
New York, N. Y. 10005

SANTA ROSA PROJECT
CASA GRANDE DISTRICT
PINAL COUNTY, ARIZONA

Dear Sir:

Enclosed are a property status map, a report by Mr. Farley, and a geologic plan showing the location of the I. P. anomaly in relation to the Santa Cruz and Sacaton copper deposits.

Last month the I. P. surveying in the Owlhead District was temporarily interrupted and the crews moved to Casa Grande for the purpose of re-checking earlier work and extending coverage in that district. The surveying there was started in an area southwest of the Santa Cruz where weak I. P. response had previously been obtained. Using the same equipment, but different techniques, significantly higher response was recorded over an area 3 miles long and 1 mile wide, trending northwest. The anomaly lies over a northwest trending group of water wells with anomalously high moly. The source of the moly could be a disseminated copper deposit at depth in the immediate vicinity, or some distance upstream to the southeast.

Farley considers the I. P. response to be derived from a bedrock source from 600' to 1000' in depth. This estimate is based in part on water well logs wherein "hard rock" is designated as "bedrock", thus the drillers' bedrock could be the Sacaton conglomerate. However, the anomaly occurs in a favorable position --- on the southwest projection of the Sacaton-Santa Cruz trend --- and therefore merits at least a limited amount of exploratory work.

As you will note on the attached property map which shows the location of 2 of the 3 proposed drill holes, much of the ground is privately held with some Federal and State land in disconnected parcels. We have staked the Federal ground and applied for prospecting permits on the State ground. Since our Federal claims cover the area of highest I. P. response, it is recommended that at least one hole be completed before attempting to option the private ground. This involves some risk of inflation in the price of private land, but it would be less costly and less time consuming than the alternative which would be optioning all the private ground in the area before proceeding to drill.

According to previous experience in the area, direct cost for rotary drilling with spot coring should be about $4 per foot and indirect costs such as sampling, assaying and supervision, $3 per foot. The first two

years' rental on State ground, which is to be paid in advance, amounts to $2 per acre. Estimated costs are as follows:

3 holes, 2500' each @ $7/ft	$52,500.
Rental 1800 acres State land	3,600.
Setting corners 70 Federal claims	1,400.
Contingencies	2,500.
TOTAL	$60,000.

If you are in agreement with this proposal, please request a mining authorization in the amount of $60,000.

Yours very truly,

J. H. Courtright

J. H. COURTRIGHT

JHC/kw
Enclosures
cc: KERichard, w/full report
WESaegart, " "
JRWojcik, " "
KvdSteinen, w/letter only
SIBowditch, " "
WGFarley, " "

Route file copy to: JEKinnison
BNWatson

J H.C.

MAR 15 1967

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 14, 1967

TO: R. J. LACY

FROM: W. G. FARLEY

INDUCED POLARIZATION
SANTA ROSA PROSPECT
PINAL COUNTY, ARIZONA

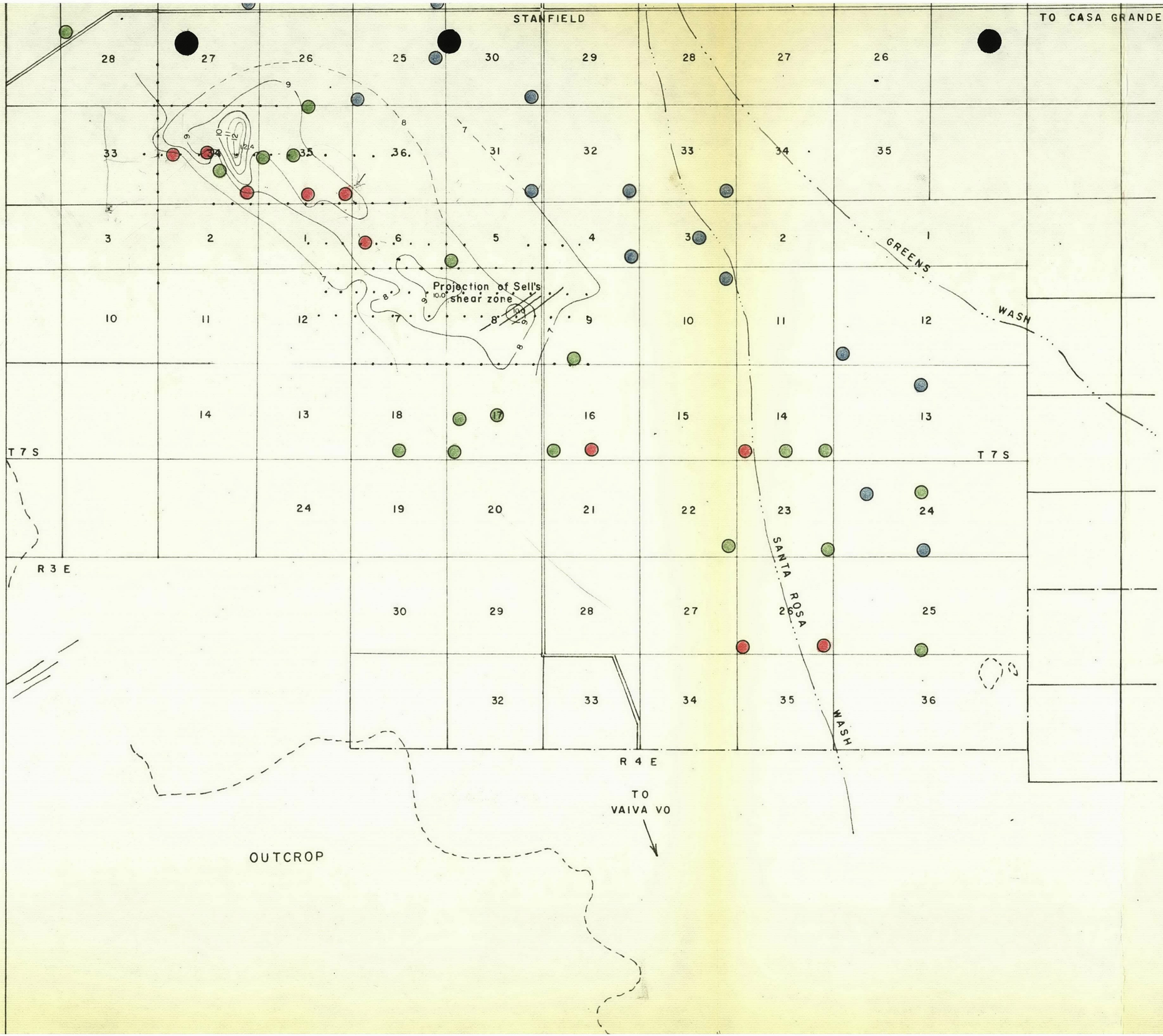
Attached is a map showing a coincident I. P. anomaly approximately 1 by 3 miles in extent and a molybdenum in ground water anomaly (D.B. Beck 1965) in the southwest corner of the Case Grande valley. This anomalous zone falls on the Sacaton mineral lineament projected southwest from the Sacaton and Santa Cruz mineral zones. The I. P. anomaly was obtained using a wenner 2000 foot "a" and a three electrode 1000 foot "a". The highest reading of 12.4 m.v./v. occurred with the wenner 2000 foot "a", 1300 feet east of the center of section 34, R3E, T6S. A repeat of the station the following day gave a reading within 0.2 m.v./v. of the first reading. The traverse was rerun using a wenner 1000 foot "a" and a three electrode 500 foot "a". The wenner 1000 foot "a" gave a maximum response of 9.3 m.v./v. which is 3.1 m.v./v. less than the maximum response using the 2000 foot "a". This indicates that the anomalous I. P. response is coming from depth. The three electrode 500 foot "a" gave a flat response of about 7.0 m.v./v. across the anomaly which appears to be the background over the anomalous zone. Water well logs from wells in section 34 indicate the ground water table to be about 400 feet in depth and bedrock 600 to 1000 feet in depth. This is substantiated by gravity and resistivity data. The anomalous I. P. response in section 34 appears to be coming from a bedrock source. With regard to magnetics, the I. P. anomaly occurs on the southwest nose of the large magnetic high which was the north boundary of the Sacaton and Santa Cruz mineral zones.

The geophysical features plus geological projection make the Santa Rosa prospect a promising drill target. I recommend initial drilling on the zone of maximum I. P. response which would be the northeast quarter of section 34, R3E, T6S.

WAYNE G. FARLEY

WGF/pjc
Attachment
cc: CPPollock, w/ attachment
JMCourtright, w/ attachment
WESaegart, w/ attachment

K+E 10 X 10 TO THE INCH 46 0703
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.



Geophysical Data - Santa Rosa Prospect

..... I.P. Station

$\frac{I.P.}{\Delta V}$ (millivolts/volts - ASARCO Standard)

Contour Line

Electrode Configeration - Wenner 2000' "a"

W. G. Farley March, 1967

MOLYBDENUM IN PPB

- Background ≤15 PPB
- Threshold 15PPB-40PPB
- Anomalies > 40PPB

GEOCHEMICAL MAP

MOLYBDENUM IN GROUND WATER
West Pinal County, Arizona

SCALE 1" = 1 Mile

D B BECK APRIL 65'

J H C

Santa Rosa

J. H. C.

MAR 16 1967

Jim Montgomery
Ph. 622-8539 - Tucson.

Sampler hired for Santa Rosa project (worked previously as sampler at Sacaton on Barnes Rig)

Taking physical March 20 — will be available to start anytime thereafter — call at above phone

Hired as "Head Sampler" @ 2.50/hr. will have $10.00/day per diem allowance while at Casa Grande —

ϕ

Aa-16A.3.19E

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.
MAR 16 1967

March 14, 1967

To: J. H. Courtright

From: S. I. Bowditch

Santa Rosa Prospect
Pinal Co., Casa Grande Dist.
Arizona

On March 13, Messrs. Luning, Farley and I staked the Far 33-42 claims in the NE corner of Section 33, T6S, R3E. The NE 1/4 of the section has private surface ownership and Federal Mineral rights - the rest of the section is entirely Federal ~~mineral~~. The land is desert, but the NE 1/4 has been subdivided for real estate development. No houses have as yet been built.

If we wish to validate these claims, corners must be put in and the claims recorded by June 12 and location drilling done by July 12.

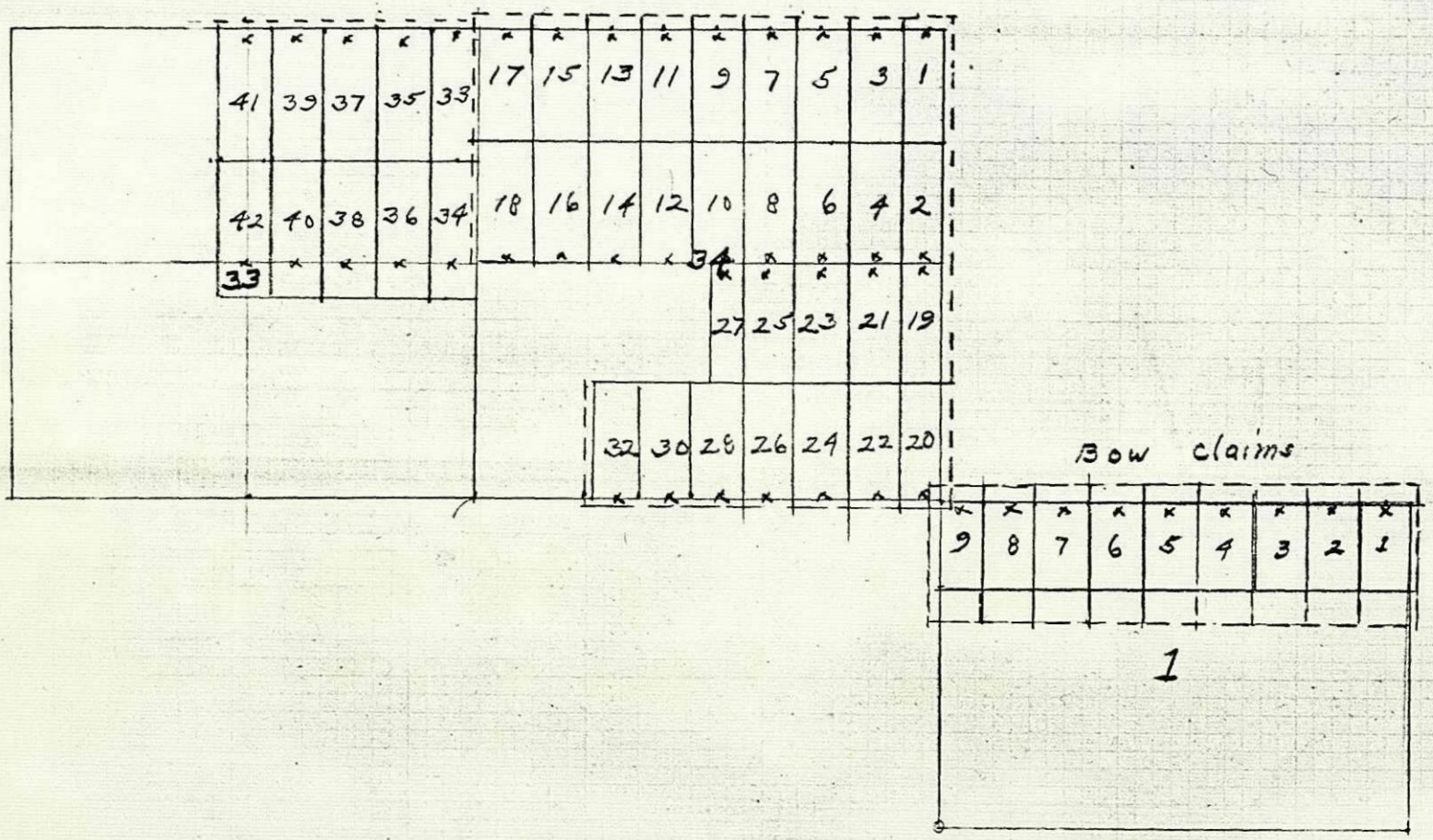
S. I. Bowditch

S. I. Bowditch

SIB:bam
cc: WGFarley

R3E

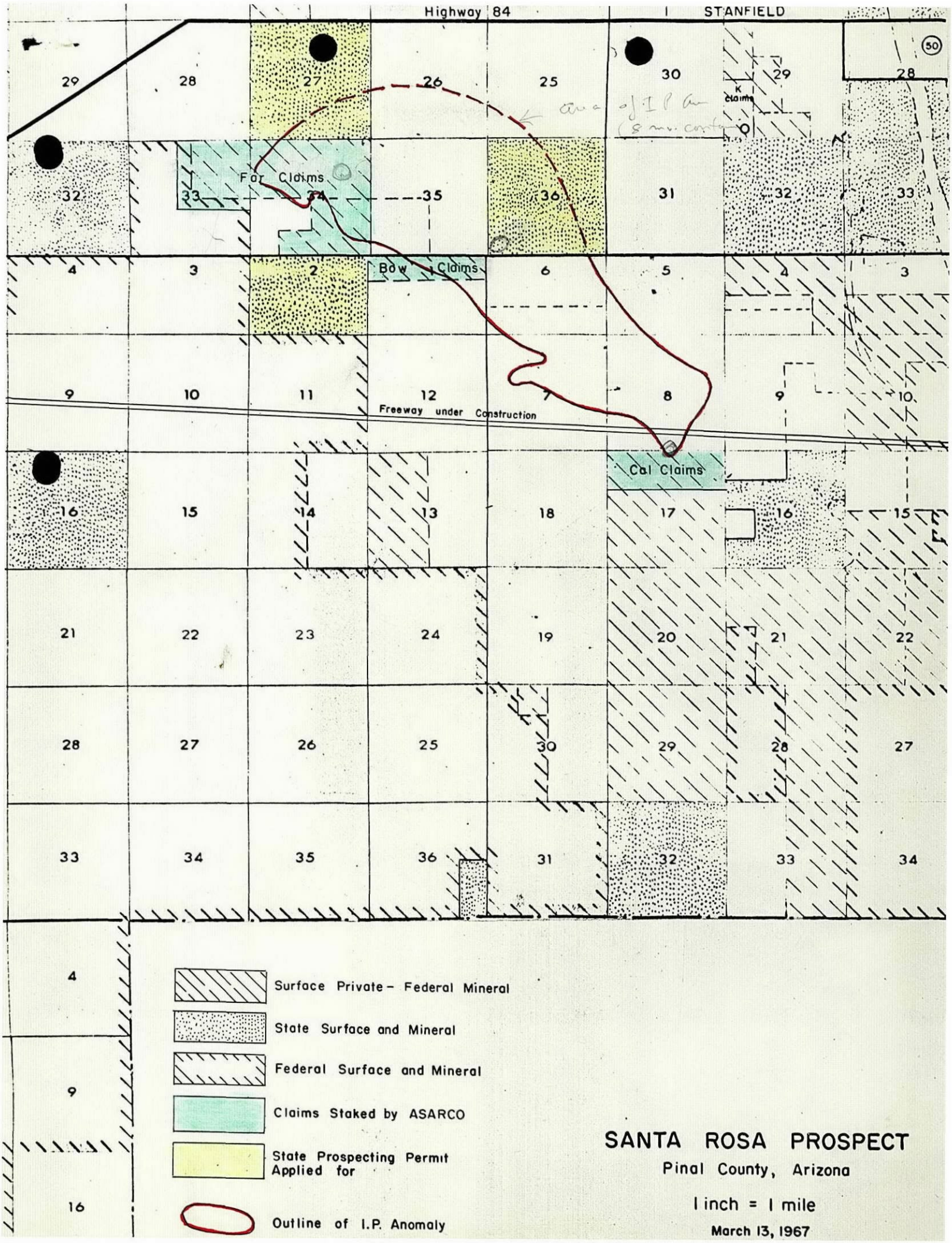
Far Claims



T6S

T7S

1" = 2000'


Highway 84
STANFIELD
50
For Claims
Bow Claims
Cal Claims
K claims
Freeway under Construction
Surface Private - Federal Mineral
State Surface and Mineral
Federal Surface and Mineral
Claims Staked by ASARCO
State Prospecting Permit Applied for
Outline of I.P. Anomaly
SANTA ROSA PROSPECT
Pinal County, Arizona
1 inch = 1 mile
March 13, 1967

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.
MAR 10 1967

March 10, 1967

To: J. H. Courtright

From: S. I. Bowditch

Santa Rosa
~~Santa Cruz~~ Prospect

On March 9, Mr. Farley, Mr. Luning and I located 48 claims in the area southwest of Stanfield. These are:

Far 1-28, 30 and 32 - in section 34, T6S, R3E
Bow 1-9 in section 1, T7S, R3E
Cal 1-9 in section 17, T7S, R4E

The arrangement of the Far and Bow claims is shown on the accompanying sketch. The Cal claims cover the north 1500 feet of section 17, and are numbered from east to west as are the Bow claims.

If we wish to keep these claims, corners must be placed and the claims recorded by June 8, and location work (drilling) by July 8.

In section 34 we found posts and notices for the Erie group of claims located Nov. 3, 1966, by Nick Knez, witnessed by Ralph J. Smith. The signatures were typed, not hand written, and the claims were not recorded, so that they no longer have any validity.

The geophysical crew report that Mr. Knez is the man who is farming the section.

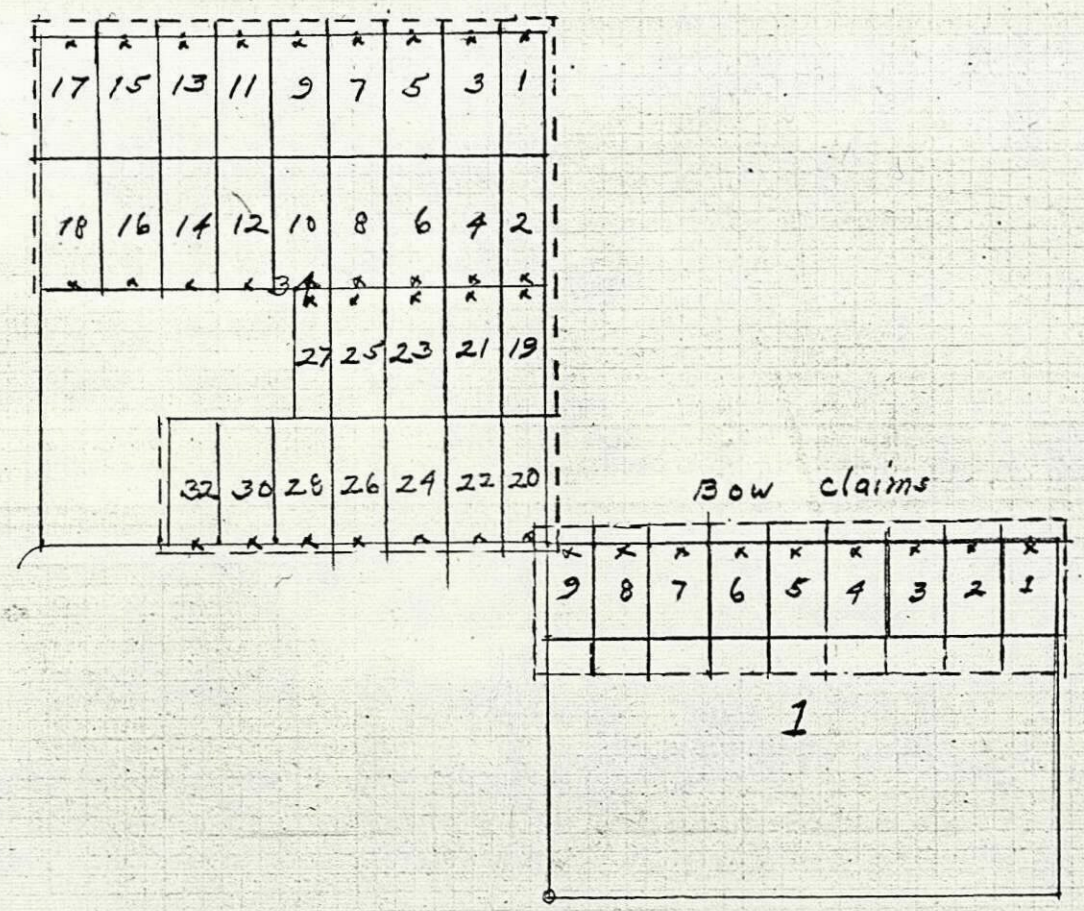
S. I. Bowditch

S. I. Bowditch

SIB:bam
cc: WGFarley

R3E

Far Claims

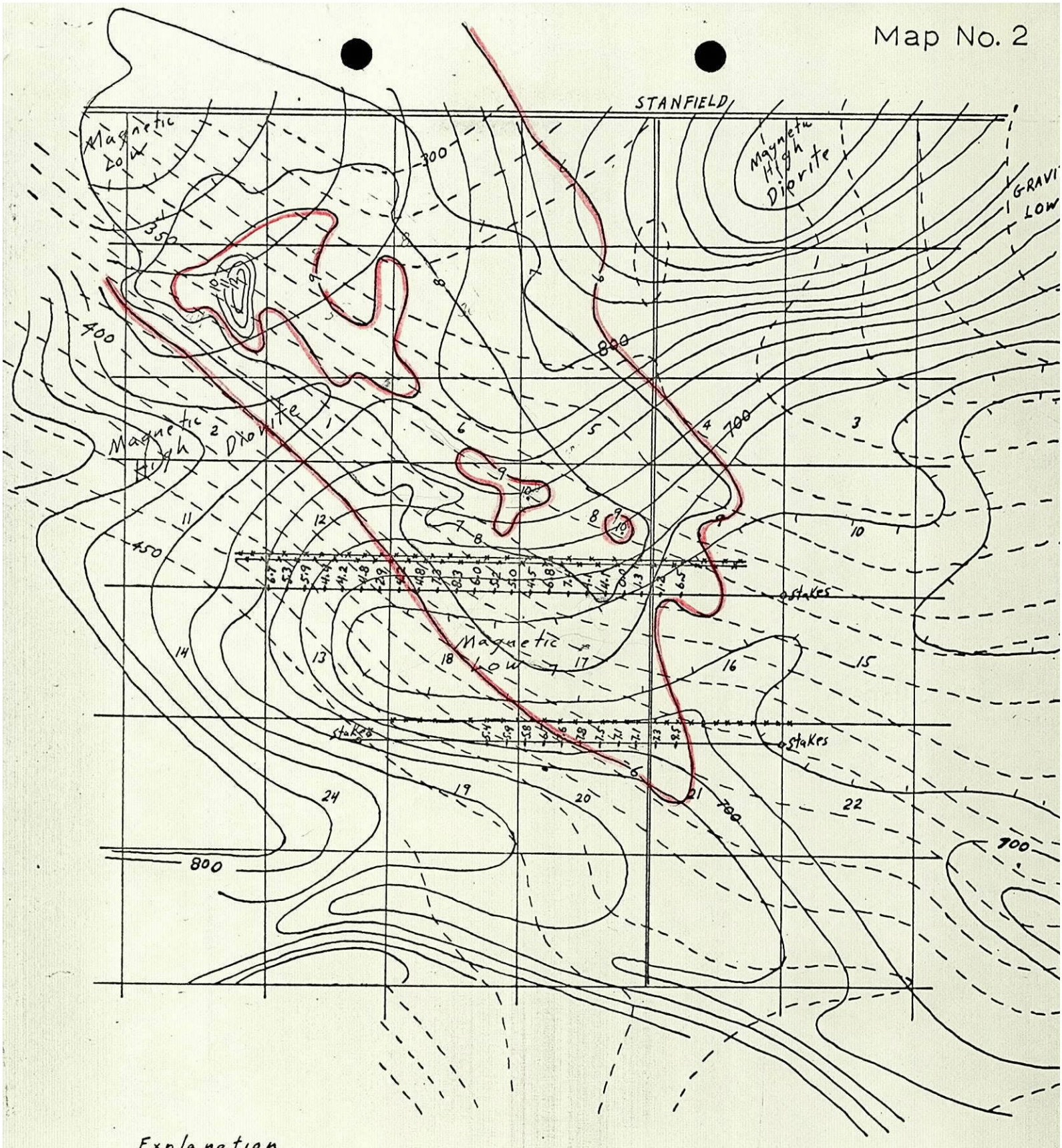


T6S

T7S

1" = 2000'

Map No. 2



Explanation

700 ← Airomagnetics Contour Interval = 20 gammas

350 ← Relative Gravity Contour Interval = 10 milligals

4.1 5.2 6.8 7.1 ← Huntec I.P. (m.v./v.)

GEOPHYSICS

SANTA CRUZ PROJECT

Pinal County, Arizona

Scale 1 inch = 1 mile

Oct., 1965

W. G. F.

J. H. C.

MAR 10 1967

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 3, 1967

To: J. H. Courtright

From: S. I. Bowditch

Rose

Arizona - Pinal County
Santa ~~Cruz~~ Project

At your request, I have looked up the ownership in 16 sections south and southwest of Stanfield, and these are given below. Except as noted, the ownership is in fee simple, i.e., it includes both surface and mineral.

Township 6 South, Range 3 East

Section 35

54) N 1/2 and SE 1/4 - Red Eye Farms, Inc., Box 566, Stanfield, Arizona
55) SW 1/4 - Albert C. Cruz, 1005 N. Olive Dr., Casa Grande, Arizona

Section 36

State

Township 6 South, Range 4 East

Section 31

56) W 1/2 - N. S. and Verna Cooper - 1021 N. Gilbert (P. O. Box 607), Casa Grande, Arizona - also owns all of Sec. 5, T7S, R4E.
57) E 1/2 - C. J. & L. Farms, Inc., 206 E. McMurray Blvd., Casa Grande, Arizona, also owns NE 1/4 and S 1/2 Section 32.

Section 32

NE 1/4 and S 1/2 - See 57 above
NW 1/4 - State

Township 7 South, Range 3 East

Section 1

58) Lot 1 - 29.38 acres - surface only - E. Richard and Audrey Erickson, 569 Main St., East Orange, N. J. 07018. Federal Mineral.

59) Lot 2 - 29.31 acres - surface only - James E. Ainslee and Mary Lowe, 7111 N. Quartz Mountain Road, Phoenix, Arizona 85018. Federal Mineral.

60) Lots 3 & 4 and S 1/2 - Arizona Title Guarantee and Trust Company, Trustee - Arizona Acres Sub-division owns surface only of Lots 3 & 4, mineral rights Federal. Rest in fee simple.

Section 12 - Freeway goes through middle of S 1/2.

61) N 1/2 and NW 1/4 SW 1/4 and W 1/2 NE 1/4 SW 1/4 and N 1/2 SW 1/4 SW 1/4. Arizona Land Title and Trust Company Trust 6523-T.

62) E 1/2 NE 1/4 SW 1/4 and W 1/2 NW 1/4 SE 1/4 - Ruth Lister, 126 Garden Avenue, Grove City, Pa. 16127.

63) E 1/2 NW 1/4 SE 1/4 and NE 1/4 SE 1/4 - Carl and Edna Guth, 10215 N. 38th Street, Phoenix, Arizona 85028.

64) S 1/2 SW 1/4 SW 1/4 and SE 1/4 SW 1/4 and S 1/2 SE 1/4 - Jack B. and Louise Stewert and John C.,Jr., and Constance Oliver, Camelback Inn, Scottsdale, Arizona. Also own Sec. 13, this township, and Sec. 18, T7S, R4E.

Section 13

See No. 64 - W 1/2 Federal Mineral, E 1/2 fee simple.

Township 7 South, Range 4 East

Section 4

65) All - Vera E. Reither, Annamarie E. Berg and Ruth E. Bosko, c/o Ruth E. Bosko, 1322 Earll Drive, Phoenix, Arizona. Note: Only SW 1/4 and W 1/2 SE 1/4 is fee simple. Rest - Federal mineral. Also own N 1/2 N 1/2 & SE 1/4 NE 1/4, Sec. 9.

Township 7 South, Range 4 East (contd.)

Section 5

All - See No. 56.

Section 6

66) Lots 1-4 and N 1/2 S 1/2 - James B. and Myrtle Dickson are still record owners, but purchasers in sales agreement for $25,000 are W. T. and Beulah Golston, 1201 N. Olive Drive, Casa Grande, Arizona.

67) S 1/2 S 1/2 - Record owner is John A. Dudis, but purchasers under second of two sales agreements for $32,000, are Richard and Eleanor Kimble, Box 1346, Scottsdale, Arizona.

Section 7 - Freeway goes through S 1/2

68) N 1/2 N 1/2 - Marguerite Pease, Box 5203, Phoenix, Arizona. She also owns N 1/2 N 1/2 and SW 1/4 NE 1/4, Sec. 8.

69) S 1/2 N 1/2 and S 1/2 - Eula L. Reardon 1/2, Elizabeth L. Ferguson 1/8, William L. Reardon 1/8, Kenneth Beatty Reardon 1/8, and Earl L. Reardon 1/8, c/o Earl L. Reardon, 3730 Cedar Bend Drive, La Cresenta, California.

Section 8 - Freeway goes through S 1/2

N 1/2 N 1/2 and SW 1/4 NE 1/4 - See No. 68

70) S 1/2 NW 1/4 and SW 1/4 - Phoenix Title and Trust Company (now Transamerica Title Insurance Company) Trust 3960-P - Tribal Lands Sub-division.

71) SE 1/4 NE 1/4 and SE 1/4 - Edward J. and Elizabeth Poley, Box 1212, Prescott, Arizona. Also own W 1/2 SW 1/4 and SW 1/4 NW 1/4, Sec. 9.

Section 9

W 1/2 SW 1/4 and SW 1/4 NW 1/4 - See No. 71

N 1/2 N 1/2 and SE 1/4 NE 1/4 - See No. 65

Township 7 South, Range 4 East

Section 9 (contd.)

72) SE 1/4 NW 1/4 and SW 1/4 NE 1/4 and E 1/2 SW 1/4 and SE 1/4 - Jesse L. and Cleora Goforth, 711 Laurel Drive, Casa Grande, Arizona.

Section 16

73) N 1/2 NW 1/4 and NW 1/4 SW 1/4 - Jack A. Connelly, Box 1821, Stanfield.
Rest State.

Section 17

74) All - Surface only - W. & J. Farms, Inc., Box 566, Stanfield (same address as Red Eye Farms, Inc.)
Federal mineral.

Section 18

All - See No. 64.

S. I. Bowditch

S. I. Bowditch

SIB:bam

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 8, 1967

To: J. H. Courtright

From: S. I. Bowditch

Santa Cruz Project

At your request I have extended my investigation of ownership to the northwest of the area reported upon Mar. 3. The results are as follows:

Township 6 South, Range 3 East

Section 25

75) All, except NE 1/4 NW 1/4 NW 1/4 - Otice and Marva Self, Box 422, Stanfield, Ariz.

76) NE 1/4 NW 1/4 NW 1/4 - State Highway Dept.

Section 26

77) All, except SE 1/4 SE 1/4 SE 1/4 and E 1/2 NE 1/4 SE 1/4 SE 1/4 Red River Land Company, Box 566, Stanfield, Ariz.

75) SE 1/4 SE 1/4 SE 1/4 and E 1/2 NE 1/4 SE 1/4 SE 1/4 - Otice and Marva Self.

Section 27

All - State

Section 34

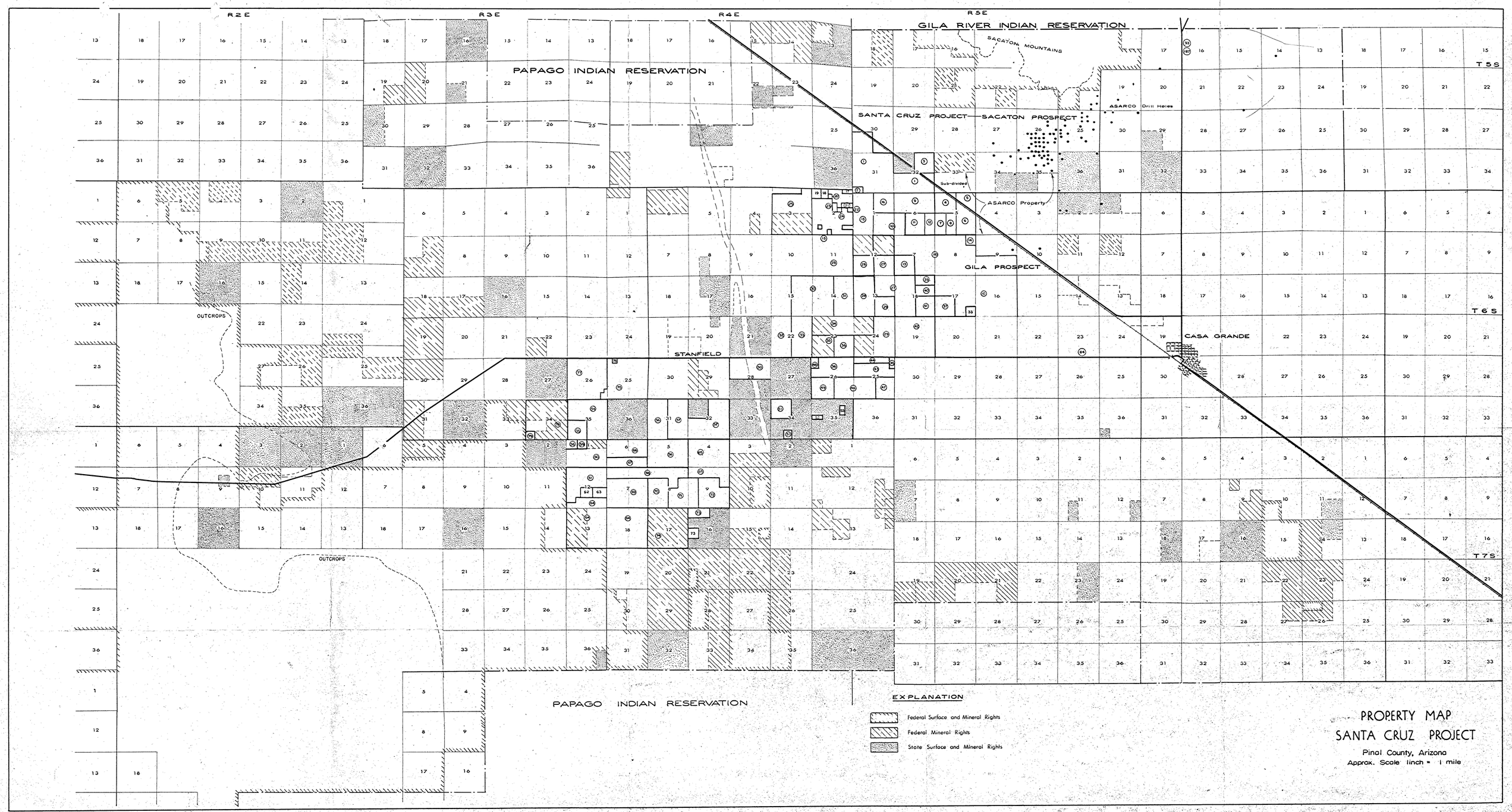
78) N 1/2 and SE 1/4 and N 1/2 SW 1/4 and SE 1/4 SW 1/4 - Willard T. Golston - 1201 N. Olive Dr., Casa Grande, Ariz. Own fee simple only in N 1/2 SW 1/4, rest Federal Mineral.

79) SW 1/4 SW 1/4 - Forrest T. and Rose Rainey, Box 685, Casa Grande, Arizona.

S. I. Bowditch

S. I. Bowditch

SIB:bam



PROPERTY MAP
SANTA CRUZ PROJECT
Pinal County, Arizona
Approx. Scale 1inch = 1 mile

File
Ga 16 A.3.196

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

November 16, 1967

TO: Mr. J. H. Courtright

FROM: J. R. Wojcik

Santa Rosa Project
Casa Grande, Arizona

During the exploration of the Sacaton "ore" deposit, reconnaissance disclosed anomalous molybdenum values in ground water samples obtained from an area about 15 miles southwest of the Sacaton project. An induced polarization survey outlined an area of +9 Mv/v response as shown on the attached map.

Drilling begun in March 1967 failed to find a sulphide source for the I.P. response nor any source for the molybdenum.

The anomaly proved to be parallel to and on the down thrown side of a major basin and range type fault. Thickness of gravels and conglomerate varies from about 400' in hole SR-8 to almost 1800' in hole SR-4. Pre-mineral bedrock is granite, monzonite porphyry, or andesite porphyry. The rocks are weakly altered in the vicinity of holes SR-1 and SR-6 but the alteration noted in SR-6 may be associated with ground water circulation in the fault zone. Hole SR-6 also contained some copper values up to about 700 ppm but again the copper may have been deposited from ground water circulating along the fault. An area of mineralization may lie in the deeper portion of the basin but sufficient evidence is not available at this time to locate it.

Eight holes were drilled totaling 9407' at a direct cost of $4.42/ft. Sampling, supervision, and assaying added another $0.91/ft. for an overall cost of $5.33/ft. The entire sequence, except for 43', was drilled with a large non-coring type rotary as at Sacaton and Santa Cruz. Forty-three feet of coring was accomplished with the rotary drill at an average cost of about $31/ft.

The information derived from the drill holes suggests that the anomalous I.P. response was from water-saturated clays shallow enough to be detected by the ASARCO equipment. The source of the molybdenum in the ground water was not located and could represent a future exploration target.

JRWojcik
J. R. Wojcik

JRW:lmi
encls.: Asarco Geologic-Assay Logs
Nos. SR-1 through SR-8
Map--Sacaton-Santa Cruz Area, Pinal Co., Ariz.

Final Depth 1091.0
Collar Elevation
Coordinates
Inclination

SR-1

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-1
Sheet No. 1 of 1
Date Completed 4-1-67
Logged By JRW

epth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu Total	Non-S	Average	Mineralization Oxides	Pyrite	Cpy	Cc	Other	Alteration		Rock Type	Remarks
132.0	132.0	4 3/4"RB													Qal	
990.0	858.0	RB													QTg	Conglomerate
031.5	41.5	RB											Wk	Arg	Tmp	Altered, leached, capping
036.25	4.75	2 1/8"		<50				FeOx					Wk	Arg	Tmp	Dark gray monzonite porphyry, tr hem on fracs, No Cu stain
060.0	23.75	RB											Wk	Arg	Tmp	
			(1060-1087)		.025	(250 ppm)										
082.4	22.4	RB											Wk	Arg	pCgr	
091.0	8.6	2 1/8"		<50									Wk	Arg	pCgr	Coarse grained granite, crushed, sheared and gougy

Final Depth 706 Ft.
Collar Elevation
Coordinates
Inclination

SR-2

ASARCO
GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-2
Sheet No. 1 Of 1
Date Completed 4-5-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
45																
5.0	245.0	4-3/4" RB													Qal	
76																
0.0	425.0	RB													QTg	conglomerate
93 3.0	23.0	RB													pCgr	
6.0	13.0	2-1/8"											None		pCgr	
06.0																

Final Depth 1480.0
Collar Elevation
Coordinates
Inclination

SR-3

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-3
Sheet No. 1 of 1
Date Completed 4-11-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
265.0	265.0	4-3/4"	RB												Qal	
1435.0	1170.0	RB													QTg	Fine grained, clayey, pebble conglomerat
1450.0	15.0	RB													Ld	Medium grained diorite
1453.0	3.0	2-1/8		67											Ld	Diorite similar to Laramide intrusive in Sacaton Mtns.
1480.0	27.0	RB													Ld	

Final Depth 1807.0
Collar Elevation
Coordinates
Inclination

SR-4

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-4
Sheet No. 1 of 1
Date Completed 4-18-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
296.0	296.0	4-3/4"RB													Qal	
610.0	1314.0	RB													QTg	Conglomerate
780.0	170.0	RB													QTg-Flt?	Yellow-Orange to Red stained quartz and red clay
800.0	20.0	RB											-NONE-		pCgr	
807.0	3.0	2-1/8"		67											pCgr	

Final Depth 687.0
Collar Elevation
Coordinates
Inclination

SR-5

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-5
Sheet No. 1 of 1
Date Completed 4-20-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay-% Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
211.0	211.0	4-3/4"RB													Qal	
673.0	462.0	RB													QTg	Fine grained, clayey, pebble conglomerate
685.0	12.0	RB													pCqtzt	
687.0	2.0	2-1/8"		100											pCqtzt	Vy. fine grained, light gray quartzite or argillite. Possibly pC Dripping Springs

Final Depth 1352.0
Collar Elevation
Coordinates
Inclination

SR-6

ASARCO
GEOLOGIC — ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-6
Sheet No. 1 of 1
Date Completed 4-26-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay - % Cu Total	Non-S	Average	Mineralization Oxides	Pyrite	Cpy	Cc	Other	Alteration		Rock Type	Remarks
110.0	110.0	4-3/4" RB													Qal	
900.0	790.0	RB													QTg	Fine grained, clayey, pebble conglomerate
120					sludge											
220.0	220.0	RB			.025	250 ppm									An Por	
2x0																
330.0	160.0	RB													Flt. ?	Red clay, no coarse fraction, rapid drilling
340																
340.0	60.0	RB			.045	450 ppm										
349															Flt.?	ditto
349.0	9.0	RB													An Por	
352																
352.0	3.0	2-1/8"		67									Wk Arg		An Por	Dark coarse grained andesite porphyry

inal Depth 1673.0
ollar Elevation SR-7
oordinates
clination

ASARCO

GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-7
Sheet No. 1 of 1
Date Completed 5-2-67
Logged By JRW

th	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu			Mineralization					Alteration		Rock Type	Remarks
					Total	Non-S	Average	Oxides	Pyrite	Cpy	Cc	Other				
55																
55.0	255.0	4-3/4"RB													Qal	
740																
40.0	785.0	RB													QTg	Fine, clayey pebble conglomerate
140																
40.0	400.0	RB													Flt ?	Red clay, rapid drilling, no coarse fraction in sample.
591																
91.0	151.0	RB													QTg	Mostly andesite and granite pebbles
620																
20.0	29.0	RB													QTg	Some red clay with rapid drilling
669																
69.0	49.0	RB											None		pCgr	Coarse grained biotite granite
673																
73.0	4.0	2-1/8"		100									None		pCgr	ditto

Final Depth 615.0
Collar Elevation
Coordinates
Inclination

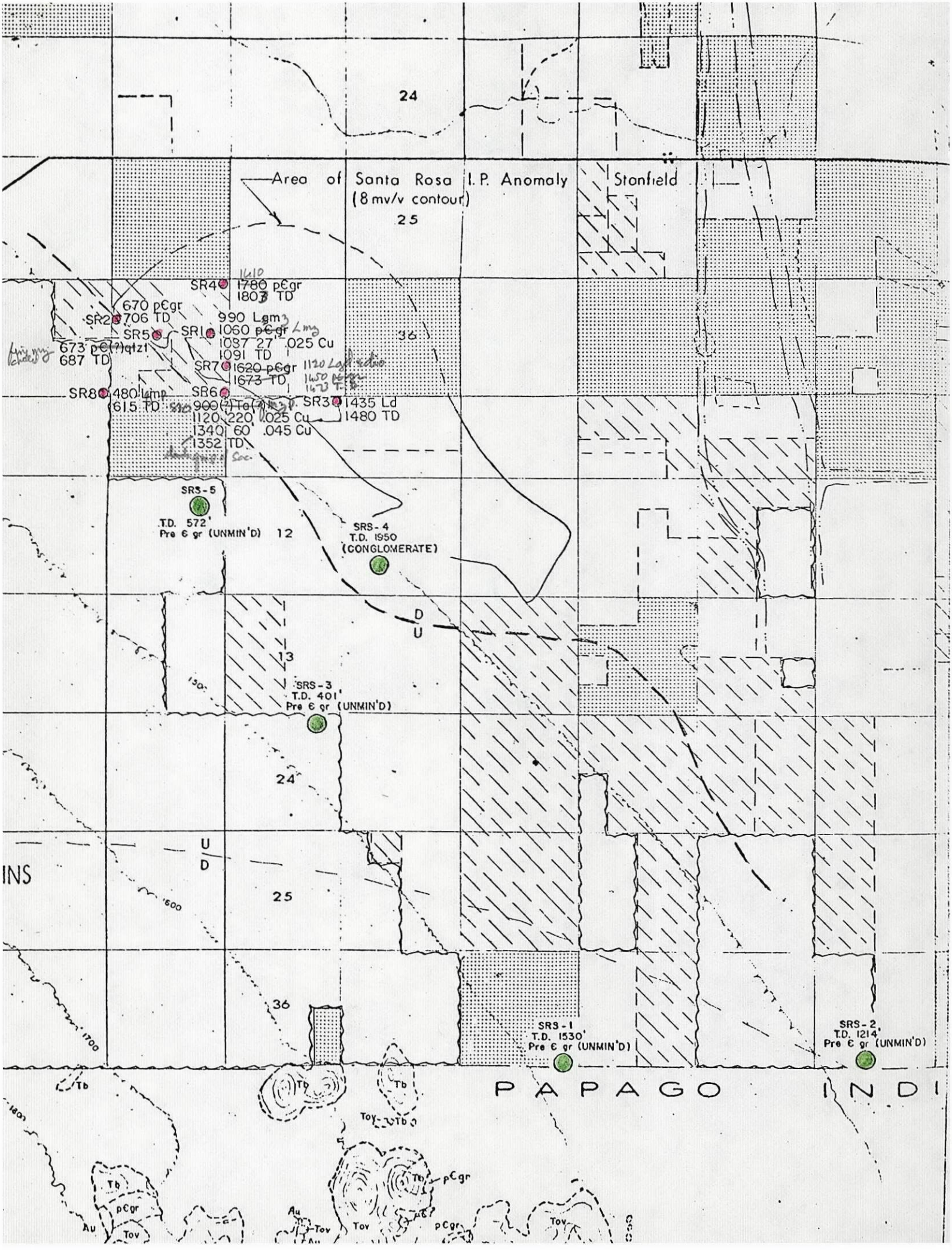
SR-8

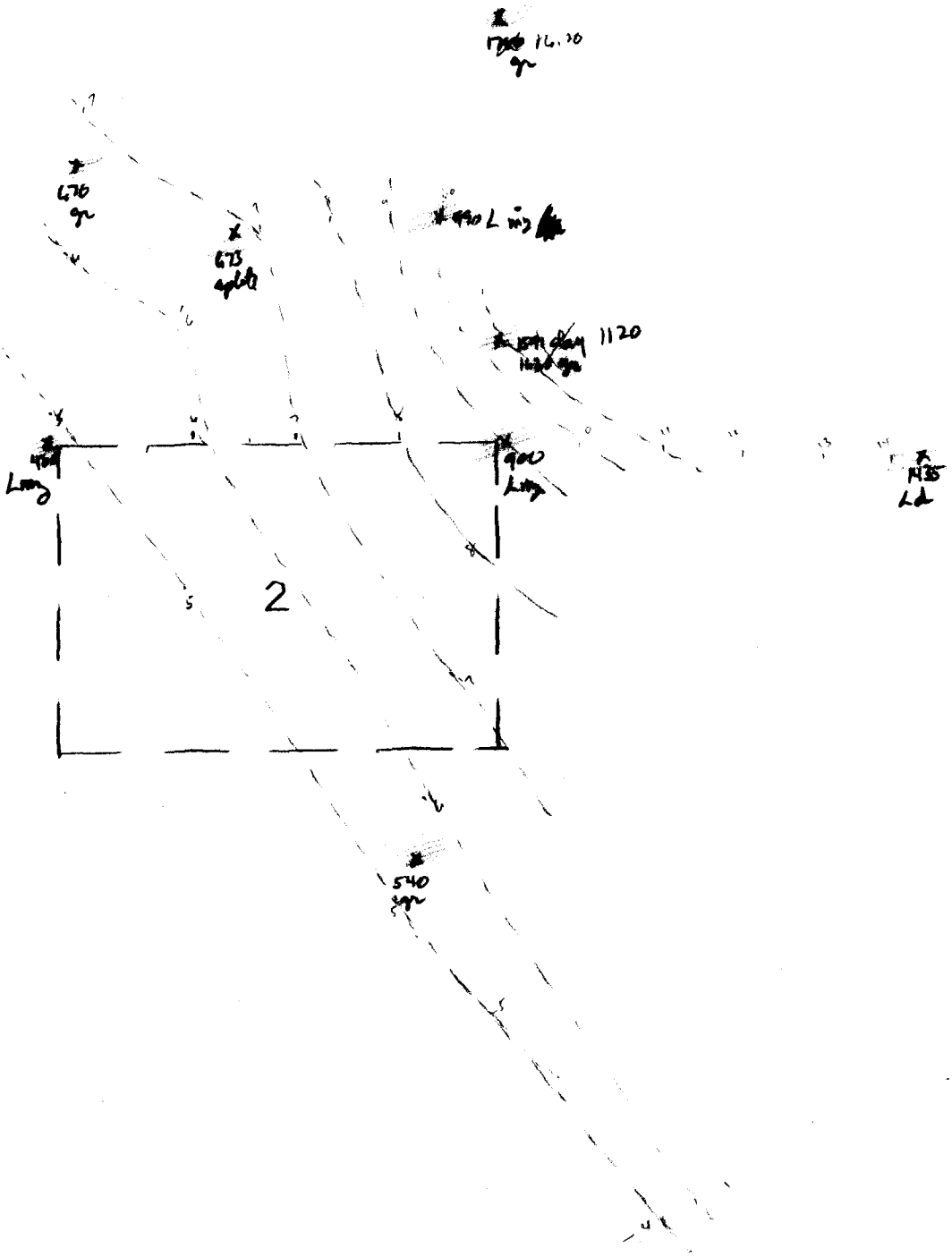
ASARCO
GEOLOGIC – ASSAY LOG

Property SANTA ROSA

HOLE NO. SR-8
Sheet No. 1 of 1
Date Completed 5-5-67
Logged By JRW

Depth	Interval	Core Size	Sp Grav	Core Rec %	Core Assay – % Cu Total	Non-S	Average	Mineralization Oxides	Pyrite	Cpy	Cc	Other	Alteration		Rock Type	Remarks
125																
5.0	125.0	4-3/4" RB													Qal	Alluvium
435																
5.0	310.0	RB													QTg	Coarse boulder conglomerate, gneiss & schist boulders
480																
0.0	45.0	RB													QTg	Coarse boulder conglomerate, monzonite boulders
615																
5.0	135.0	RB											None		Lmz	Light buff to pink, fine grained quartz monzonite porphyry


24
Area of Santa Rosa I.P. Anomaly
(8 mv/v contour)
Stanfield
25
SR4 1780 pЄgr
1803 TD
670 pЄgr
SR2 706 TD
990 Lgm
SR5
SR1 1060 pЄgr
1087 27' .025 Cu
673 pЄ(?)qtzt
687 TD
1091 TD
SR7 1620 pЄgr
1673 TD
36
SR8 480 Lmp
615 TD
SR6 900(?) Ta(?)
1120 220' .025 Cu
1340 60' .045 Cu
1352 TD
SR3 1435 Ld
1480 TD
SRS-5
T.D. 572'
Pre Є gr (UNMIN'D)
12
SRS-4
T.D. 1950
(CONGLOMERATE)
D
U
13
SRS-3
T.D. 401'
Pre Є gr (UNMIN'D)
24
U
D
25
36
SRS-1
T.D. 1530'
Pre Є gr (UNMIN'D)
SRS-2
T.D. 1214'
Pre Є gr (UNMIN'D)
PAPAGO
Tb
Toy
pЄgr
Au
Tov



1950 cgl.

1060 gr

220 gr

Santa Rosa Core & Rotary reinterpretation JPS 6/14/76

SR-1 Rotary 0-1091 T.D. spot cores 1031½-1036 ; 1022½-1091. skeleton 1032. 1000

0-132 Qal

132-990 Cgl

990-1060 Tmg porphyry med. grained, light colored, mildly alt w/clay-epidote patches and magnetite grains; with big patches of clay-epidote, med dark gray coloration alt-rsgl. Has oxidized leached capping to 1031. Minor FeOx coat on fract.

TS = 1022 (old)

1060-1091 T.D. ~~pegmatite~~ Tmg, mildly crushed, med-grained, light colored mg, pervasively altered w/ mod. clay, some chlorite, some sericite, minor magnetite with overflooding of red iron.

TS-1090 (new)

SR-2 Rotary 0-706 T.D. spot core 693-706 T.D. skeleton 694

0-245 Qal

245-670 Cgl.

7/9/76

TS-694

670-706 pegmatite. essentially fresh with hematite in biot sites.

SR-3 Rotary 0-1480 T.D. spot core 1450-1453 skeleton 1450

1479-1480 } checkbody logs. yes, cored 11:50 pm - 1:25 AM

relog hand geo.

0-265 Qal

265-1435 Cgl.

TS=1435

1435-1480 T.D. Granite dikite of Sacaton. medium grained greenish. Chlorite, somewhat interstitial with magnetite in biot sites. minor FeOx on fracs.

SR-4 Rotary 0-1803 TD. spot core 1800-1803 Skeleton 1802

0-296 Qal

296-1610 Cgl.

1610-1780 cgl w/ fault zone, red-orange-yellow stained gls & red clay. ← prob. white-tan porp. & aplite fragments. maybe bedrock.

TS 1802

1780-1803 T.D. pegmatite, coarse grained, white-tan w/ clay-sericite & mostly mag-hematite in biot sites. Not enhanced.

SR log continued

SR-5 rotary 0-687 T.D. Spot core 685-687. skeleton 685

0-211 Qal

211-673 cgl.

673-687 T.D. pE ~~gnt~~ (dsg?) ~~qz~~ monzonite Questionable. very fine grained light cream gray with minor small clay chlorite spots & magnetite grains. May be a chilled phase of the ~~mz or an aplite dike~~.

TS-685

SR-6 rotary 0-1352 T.D. Spot core 1349-1352. skeleton 1350

Reinterpreted

0-110 Qal

110-810 cgl.

810-860 mz., fine grained light pinkish, leached capping with FeOx & wh clay.

860-903 mz, as above, less alt & FeOx, increased muscovite

fault?

903-1000 diorite, fine clay chlorite interstitial with ferromags.

1000-1140 alternating dikes? of mz and diorite, weakly altered

TS-1251 1140-1290 gmp mz, weak clay & leached capping FeOx.

1290-1340 alternating mz and diorite, very wk alt.

TS-1350 1340-1352 dark, aphanic, qtz eye gmp monzonite of Socatao-Santa Cruz.

SR-7. rotary 0-1673 T.D. spot core 1669-1673. (OK) 1591-1593 skeleton 1591 skeleton 1669

Reinterpreted

0-255 Qal

255-1120 cgl

1120-1440 pink mz, leached capping in upper 200 feet; minor diorite

1440-1560 diorite, very wk alt.

TS-1591 1560-1650 pink aphanitic granodiorite mz, wk alt.

TS-1669 1650-1673 T.D. pE granite, very wkly alt.

SR-6 cuttings ~~[illegible]~~

0-810 Gl. pegs & diorite.

810-860 leached capping, reddish hematite on qtz & wh clay, alt feldspar. prob. pegs. or fine grained my lst.

860-903 similar w/ ½" muscovite flakes, less FeOx on qtz, fresher feldspar; as fine grained granite red clay ball on bit at 903. microdiorite chips from 890. fault?

903-1000 fine grained diorite, clay-chlorite interstitial ferromag similar to SR-3, little FeOx.

1000-1010 light pinkish my, aplitic, wkly alt. minor FeOx

1010-1020 dior > my.

1020-1050 my > dior

1050-1070 dior > my

1070-1110 my > dio

1110-1120 dior > my

1120-1140 my > dior minor wk leached capping appearing in my.

1140-1290 light pinkish fine grained my, wk clay alt, wk leached capping FeOx

1290-1320 dior > my.

1320-1340 my > dior

1340-1352. dark, silic, qtz eye monzonite of Socaton-Santa Cruz

SR-7 cuttings reinterpretation

1100-1120 Cgl.

1120-1280 post B.R. wk bleached capping w/ Fe staining in qtz & feldspar w/ diorite with clay, chl.

1280-1440 light mag: bleached, leached capping with white clay - sericite (pervasive); becoming less alt & more Fe stained after 1340.

1440-1560 ~~[illegible]~~ (darker mag?) ~~[illegible]~~

1560-1650 fine grained, aphanitic pinkish mag.

1591-1593 core. fine grained, aphanitic ~~[illegible]~~, pinkish buff-hornblende mag with minor clay-chlorite. not in fenomag.

1650-1673 T.D. pE granite. minor clay with hem-mag in biot site. very weakly altered. no enhancement

SR-8 rotary 0-615 T.D. spot core 469-472.

0-125 Qal

reentigulled 125-430 cgl.

TS>470 430-615 T.D. light buff to pink, fine grained hornblende monzonite porphyry. with minor clay-chlorite, and mag-hem in biotite site.

Thin Sections: (Known) in basement

SR-1 1032

Old SR-3 1453

SR6 — 1251

SR-8 470

Old + New

SR-1 - 1032 Tmg pgr

SR-1 - 1090 Tmg pgr

SR-2 - 694 pEog

SR-3 - 1435 Tdio

SR-4 - 1802 pEog

SR-5 - 605 Tmg drilled

SR-6 - 1251 Tgmp

SR-6 - 1350 Tgmp, dark.

SR-7 - 1591 Tgd

SR-7 - 1669 pEog

SR-8 - 470 Tgmp, hrblnd.

Hole	T.D.	Rotary	Core	Unit Contacts
SR-1	1091	0- 1031½	✓ 1031½-1036.2	0- [illegible] Qal
				132-990 QTcgl
		1036.2-1082.4	✓ 1082.4-1091.0	990-1031½ Tmp, alt lith. w/ hornblende alt.
				1031½-1036.2 Tmp, dark gray, very porp. to hem. on top. no qz.
				1036.2-1060 Tmp, wk argillic
				1060-1091 pt-gy, wk argillic (Rhodochrosite, tuff ⇒ w/ hornblende alt.)

may be lith dacite, either, epidotized fragments in weaker argillic alt fine-med grained porphyry.

SR-2	706	0- 693½	✓ 693½-706	0- 245 Qal
				245-670 QTcgl
				670-706 pt-gy, unalt. (w/ hematite alteration. No mag, No pyr. on alt color)

SR-3	1480	0-1450	✓ 1450-1453	0- 265 Qal
		1453-1480		265-1170 QTcgl
				1453-1480 med grained diorite, similar to Socorro unalt. ((Fine-dal) mag-altered in part)

SR-4	1807	0- 1800	1800-1807	0- 296 Qal
			✓ (1800-1803)	296-1610 QTcgl
				1610-1700 QTcgl-flt? yellow-orange to red-stained gty & red clay
				1700-1807 pt-gy, unaltered.

SR-5	687	0-685	✓ 685-687	0- 211 Qal
				211-673 QTcgl.
				673-687 pt-gy tuff, very fine grained, light gray, glassy, argillic. Possibly pt. bleaching zoning.

may be chilled phase w/ opaline.

SR-6	1352	0- 1349	1349-1352.	0- 110 Qal
				110-900 QTcgl
				900-1120 Andesite porphyry
				1120-1340. Tuff? red clay, no coarse fracture, rapid drilling
				1340-1352. dacite porphyry, dark coarse grained, wk argillic alt.

✓ (1350-1352) dark monzonite (Santa Cruz? or Socorro).

Hole	T.D.	rotary	core	Chart contact.
SR-7	1673	0-1669	1669-1673	0-255 Qal 255-1040 QTcgl 1040-1440 Flt? red clay, rounded chalking, no coarse fractures in matrix. 1440-1591 QTcgl, mostly sandstone & granite pebbles. 1591-1620 QTcgl. some red clay with rounded chalking 1620-1673. pCgr, coarse grained biotite gr, no alt.
		Dense arkosic biot-hornblende mg frag. May be BR.	(1591-1593 1669-1672½) pCgr No mag wh orthoclase No pink. as in SR-2	
SR-8	615	0-615	—	0-125 Qal 125-435 QTcgl. gneiss & schist 435-480 QTcgl. coarse boulders with mg boulder 480-615 ~~Lmy~~, light buff to pink fine grained gray marginal, no alt.
			(469-471½) as described for Lmy.	