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EXECUTIVE OFFICES
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PLAZA 7-9700

AMAX EXPLORATION, INC.
SUBSIDIARY OF AMERICAN METAL CLIMAX, INC.
2510 N. CAMPBELL AVE., TUCSON, ARIZONA 85719

ONE
SE 602
731

March 20, 1970

Mr. Rodney DeVilliers
DeVilliers Nuclear Corporation
457-B Washington St., S.E.
Albuquerque, New Mexico 87108

Re: Edwards Claim Group, Pimal County, Ariz.

Dear Rodney:

The following are the geochem analyses which we made on the bottom of the Edwards' drill core:

Sample No.	PPM Cu	Mo	Pb	Au	Ag
TE 662	70	-1	-10	-0.1	-1
TE 663	120	7	10	-0.1	-1
TE 664	995	4	20	-0.1	-1

The (-) sign reads: less than.
1 PPM = .0001 percent.

90

.0995

Sincerely,

Charles P. Miller

CPM:mg

149
6 pgs

January 15, 1969

Edwards Claims
Twin Buttes Area
Pima District, Arizona

Dear Sir:

The maps and sections which I displayed and described during your December exploration meeting accompany this report. The sections have been reduced in scale.

The structural uncertainties which I commented upon in my letter of August 22 are now fairly well resolved. It seems reasonably certain that a new and separate center of mineralization exists beneath the flat, post-mineral San Xavier fault in the area between the Twin Buttes and Pima-Mission ore bodies. This new zone should have major dimensions.

Since the last meeting the locations of a surprising number of additional drillholes have been determined. These are labelled as "new" drillholes on the accompanying 500-scale map. Most of these were drilled by Anaconda within the past 5 years.

Both the pattern and the number of Anaconda drillholes are informative, even though we do not have their results. I would judge they have not drilled enough holes either to have measured or delimited an ore body. The inference, however, is clear that they have obtained ore-grade intercepts in practically all drillholes in the south half of section 19. There is no other reasonable explanation for that many drillholes with that pattern.

The major ore bodies in the district vary from one to over two miles in length. Assuming that Anaconda 's "inferred" new ore body will have a similar size, there is good reason to expect that substantial portions of it will be found on the Edwards claims to the N. as well as to the NE. of the presently known cluster of holes.

Since it is anticipated that ore occurs only beneath the San Xavier fault, depths to the top of any ore within the claims E. of the Twin Buttes highway should range within 500' to 2000'. The implication in this is, of course, that any ore body found would be susceptible only to underground cave mining.

The data at hand for some of the older drillholes consist only of a few assay-averages. But those geologic logs which I do have indicate that for 500' or so below the San Xavier fault the mineralization occurs in tactite (mineralized Paleozoic limestone) and Tertiary porphyry. Some intercepts of mineralized igneous rock probably are Precambrian granite. It is to be expected that any ore in the Edwards claims will occur in tactite for the first few hundred feet below the fault. At greater depths all mineralization should be in granite and porphyry; and, most importanly, mineralization should continue more-or-less indefinitely in depth.

If the tactite mineralization beneath the San Xavier fault is like that in the Mission-Pima zone, and it should be, the chalcopyrite will have spotty distribution. An ore body of that type actually consists of a large number of small lenses of better-grade ore separated by about equal tonnages of waste. By selective

shovel mining the production grade at Messier in tactite (half the ore is in lower grade argillite) are maintained at .7 to 1.0 Cu. This same mass of rock would have a production grade of about .6 Cu by cave mining, and that is what we would by looking for with the proposed drillholes.

If, as expected, mineralization continues in depth into the porphyry and granite zone, the copper there should be distributed more uniformly than in tactite.

Briefly, there is a moderately good chance to find a large tonnage, low grade, cave-mining ore body on the subject property east of the highway.

Anaconda probably has enough deep underground-mining ore both at Twin Buttes and in this inferred "new" ore body of theirs to last practically indefinitely without need for any additional ore on the Edwards property. There is no reason for acquisition of this property in order to wait for Anaconda to require it.

Three drillholes shown on the 500-scale map are proposed as a worthwhile, minimum, preliminary exploration program to test the Edwards claims. Estimated drillhole depths are as follows:

	Depth to Fault	Total Depth if Unmineralized	Total Depth if Mineralized
1	900	1300	1900
2	1400	1800	2400
3	2000	2400	3000
			7300

The holes should be drilled by rotary through alluvium and Helmet fanglomerate until the fault is crossed. Spot core-runs without casing should be made at 100' intervals beginning about 300' above the expected depths to the fault. Rotary cuttings will have to be observed continuously. Casing should be set as soon as the fault has been penetrated. Thereafter, drilling should be by wire-line coring with emphasis on core recovery. The contract should specify a stiff penalty for each core-run below 60% recovery and, in effect, a good bonus for more than 80% recovery. This point is made here because poor core recovery can result in an uncertainty of .2, up or down, in the average Cu percentage. That degree of uncertainty would wipe out the usefulness of an entire drillhole. The contractor can be informed that rock drilling conditions should be similar to those of the Mission zone and also, I would think, of the Twin Buttes zone.

The entire cost of this preliminary program, including drilling contract, sample handling, logging and supervision, should approximate $120,000.

If any one of these holes gives indication of ore grade and thickness, an "ore body measurement" program then would cost from $2 to 4 million.

The property boundaries and ownership shown on the 500-scale map have not been checked. They were derived only from material handed to me by Edwards.

Anaconda has not drilled for several months in the area east of the Twin Buttes-San Xavier highway, but during that time they

have drilled at least a couple of holes, and probably more, to the west of the highway. This westerly area involves the Continental Mine in the area of drillholes T31, T52, etc. on the 500-scale map. This was a recent commercial fiasco. The property is now owned by Anaconda. The point is, the Continental zone (mineralized but not an ore body) can be accounted for only by selecting one of several structural interpretations, all of which are quite awkard. I have always considered that this mineralized block was in the hangingwall of the San Xavier fault. Possibly a better interpretation now is that some mineralized areas exist beneath the fault, and Anaconda has been investigating leads of that kind with their latest drillholes.

After trying without success to spot Anaconda's "new" drillholes from the air, I hired Vern DeRuyter, a graduate U. of A. geology student with a built-in excuse for climbing fences into Anaconda ground; "just looking for a thesis area." Surprisingly, Anaconda security guards chased DeRuyter around and made quite an effort to learn who he was really working for. So, I stopped the work before he had checked the area west of the Twin Buttes-San Xavier highway.

The thing about all this is that Anaconda's activity west of the highway is probably more than just claim assessment work, and the Edwards claims in that area may have more value than I had formerly thought.

Although it is hardly necessary, I would like to emphasize that the information on section A-A' should not be allowed to get outside of your organization.

Yours very truly,

Kenyon Richard

Kenyon Richard

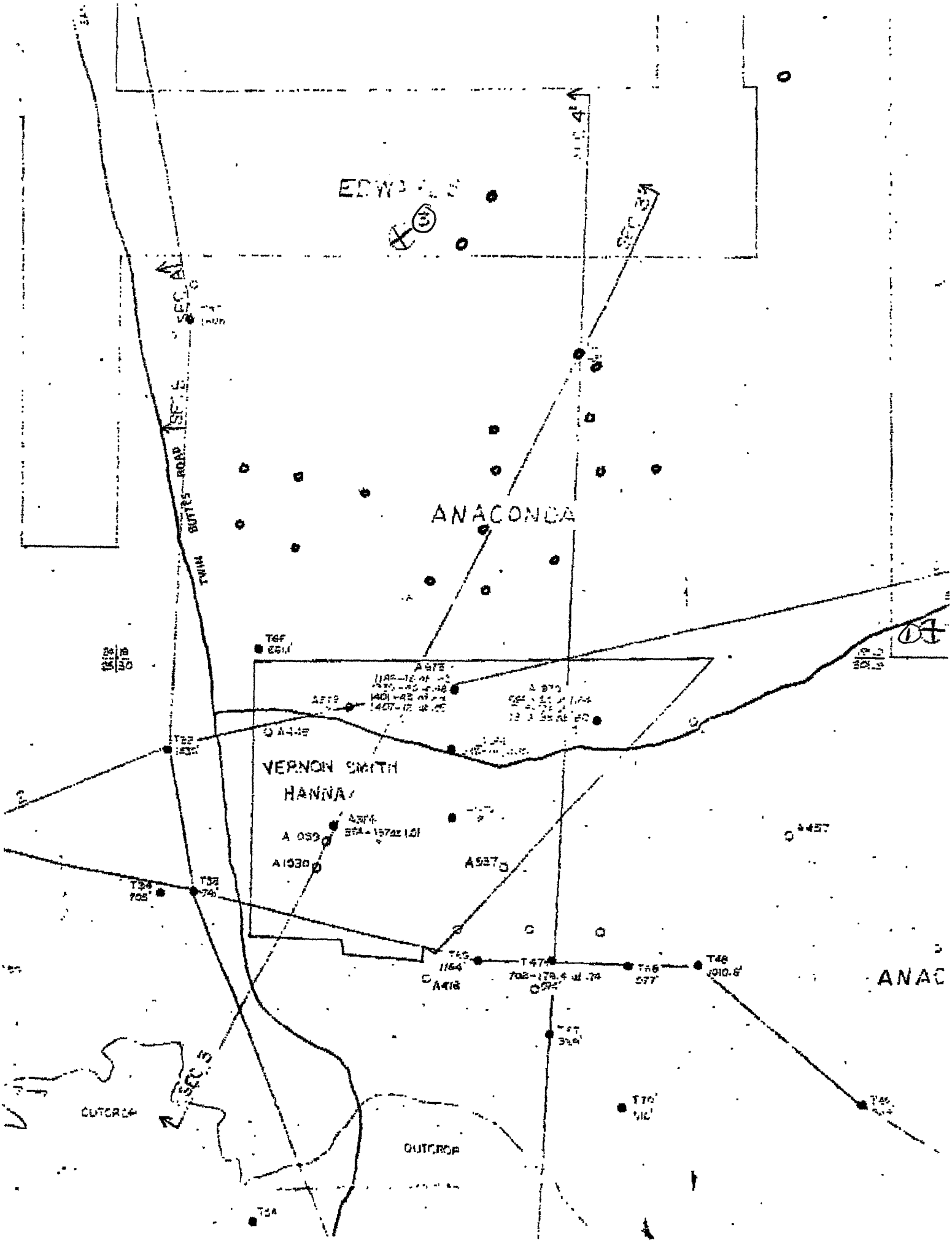
Atts:

One Plan Map 1" = 500'

One Plan Map 1" = 1 mile

One Section 1" = 2000'

One Sheet of 4 Sections 1" = 2000'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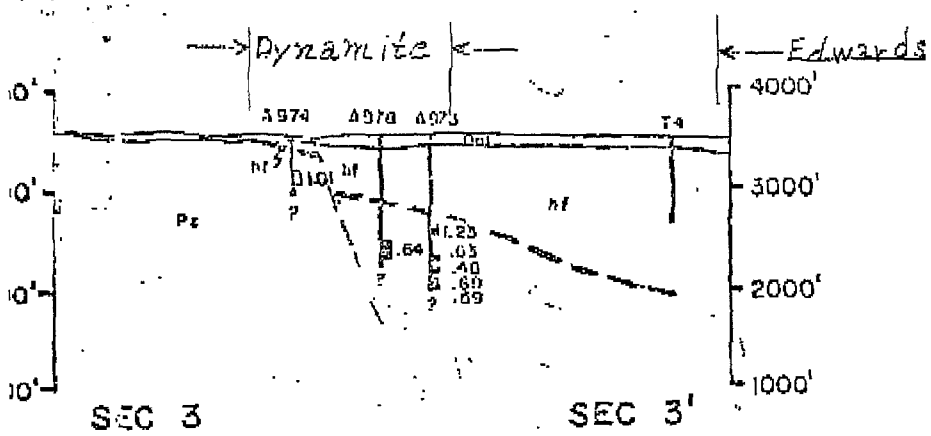
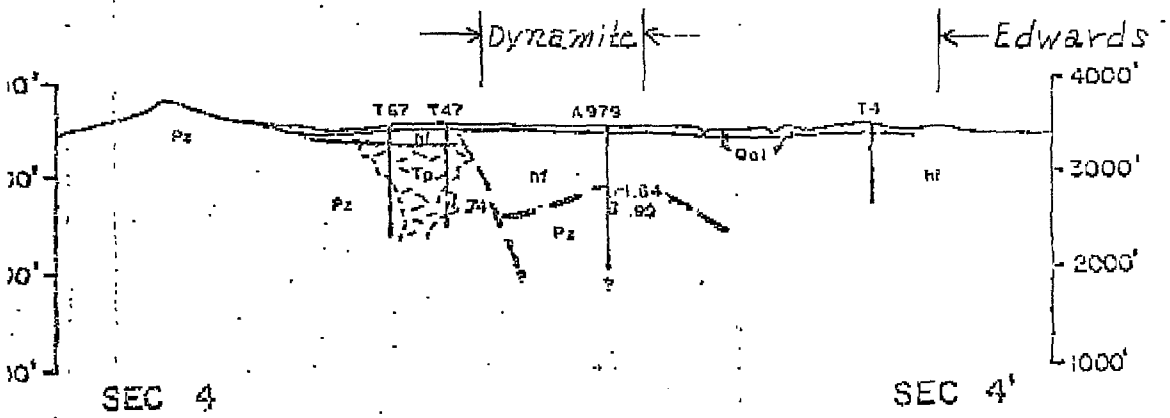
ANACONDA
BUTTE ROAD
VERNON SMITH
HANNA
OUTCROP
OUTCROP
ANAC

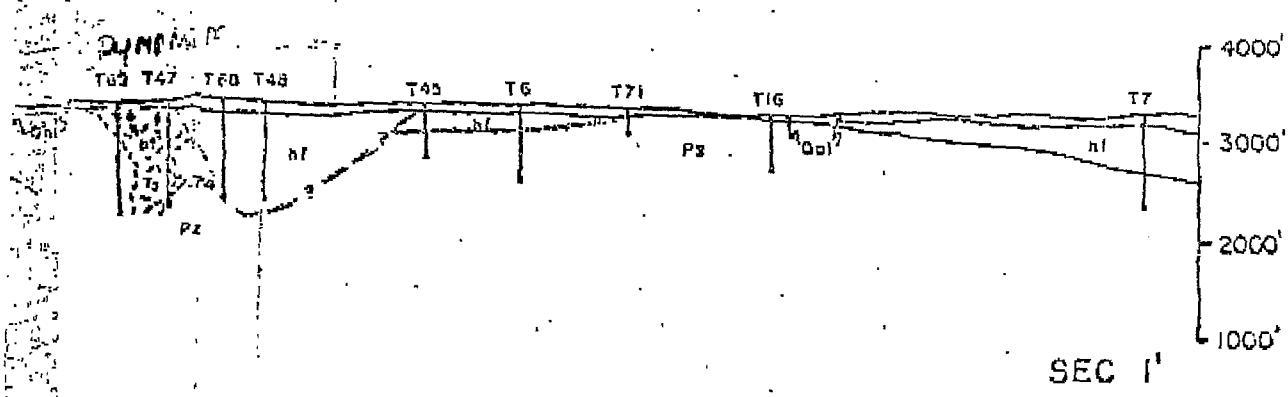




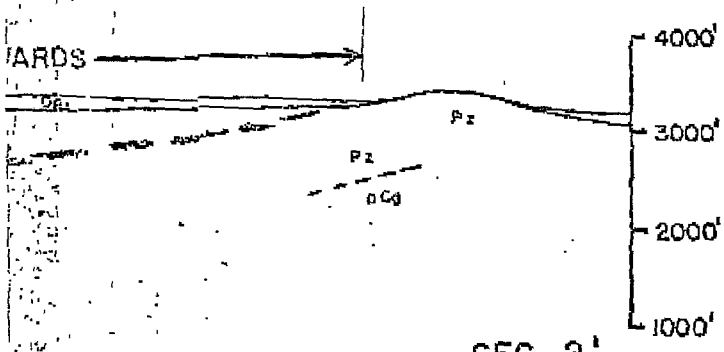
EDWARDS PROSPECT

Twin Buttes – Pima District

Arizona



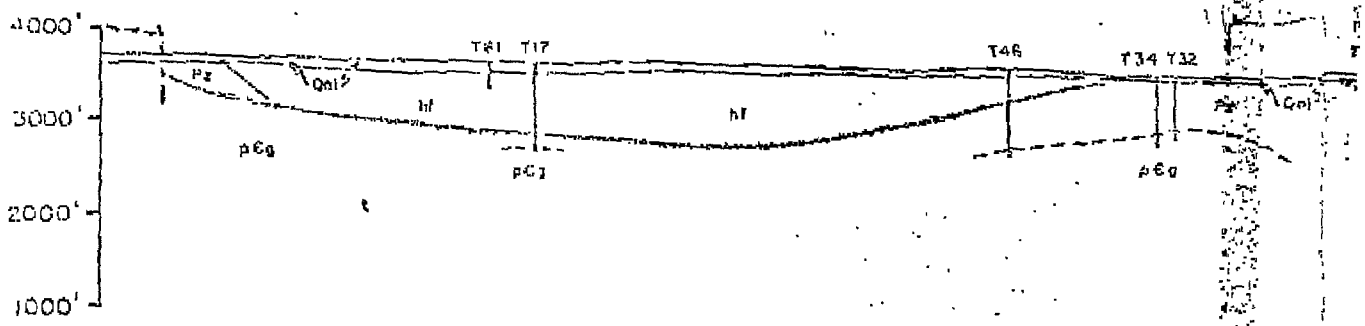
SEC 1'



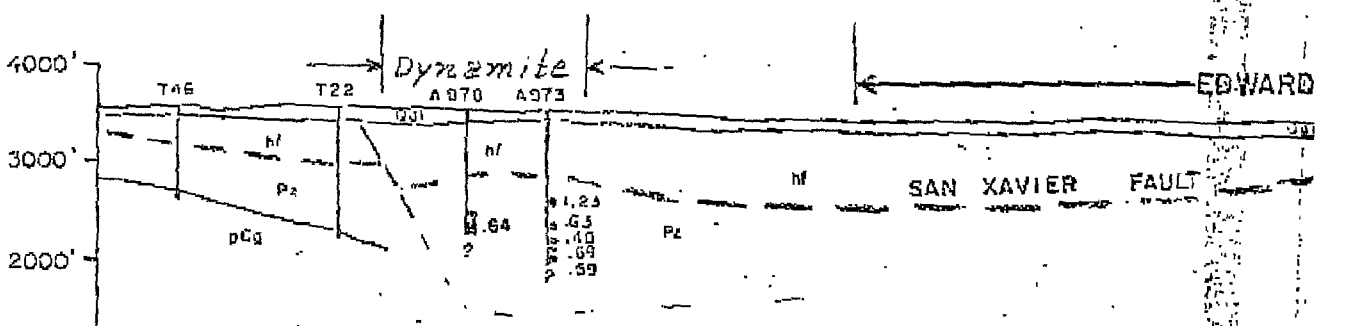
SEC 2'

SCALE: 1" = 2000'

0 2000 4000 feet


4000'
3000'
2000'
1000'
T61
T17
T46
T34
T32
Pz
Qal
hf
pCg
pCg

SEC 1


4000'
3000'
2000'
1000'
Dynamite
EDWARD
T46
T22
A970
A973
Qal
hf
Pz
pCg
SAN XAVIER FAULT
1.25
.64
.63
.40
.69
.59

SEC 2

69

BEAR CREEK MINING COMPANY
SOUTHWEST DISTRICT

REPORT ON EDWARDS ET AL GROUND
TWIN BUTTES AREA
PIMA COUNTY, ARIZONA

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September 25, 1962

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INDUCED POLARIZATION PROFILES

GEOLOGICAL REPORT OF THE EDWARDS ET AL PROPERTY

LOCATION AND HISTORY

On January 15, 1960, Bear Creek Mining Company entered into agreement with Edwards, Hunziker and Sevits for the exploration of 94 unpatented mineral claims in the Pima Mining District, Arizona. The agreement was terminated August 9, 1962.

The claims lie on the northeastern flank of the Sierrita Mountains and approximately 20 miles southwest of Tucson, Arizona. They are located in Sections 17, 18, 19, 20 and 30, T17S, R13E.

Work accomplished by Bear Creek Mining Company on this area consist of geologic mapping, 6.8 miles of geophysical I.P. traverses and 6085.6 feet of drilling in 6 holes.

GEOLOGY

There are no outcrops in the area which is entirely covered by recent alluvium. Drilling indicates that the alluvium is underlain by Helmet fanglomerate, which is of probable Miocene(?) age.

All the drill holes, T-4, T-30 and T-66 failed to reach bedrock even though the respective footages were 839.9 feet, 1808.7 feet and 661.1 feet. They cored Helmet fanglomerate only.

Drill hole T-22 encountered bedrock at approximately 548 feet and penetrated limestone. The limestone contained very sparse sulfides consisting of galena, chalcopyrite and bornite and was altered to hornfels and garnet zones. At approximately 1304 feet quartz monzonite was penetrated which was unaltered and unmineralized.

In holes T-32 and T-34, oxides of copper were encountered at the bedrock surface and extended to the base of oxidation. Below this point, no significant copper mineralization was intersected.

The rock consists of an interbedded sequence of fine grained marble and fine grained siltstone(?) members. The latter are commonly highly altered to clay. Locally small beds of tactite occur but do not show any sulfide mineralization.

Drill holes T-32 and T-34 penetrate quartz monzonite at 690.0 feet and 645.0 feet respectively, but it was not mineralized.

July 16 - July 31, 1960

T-4:

0' - 158.4'	Alluvium and San Xavier (Helmet) Conglomerate. Sand and gravel to 140, becoming caliche to 142.5 where entered the red pebble to boulder conglomerate locally known as San Xavier conglomerate and termed Helmet fanglomerate by Cooper. No "bedrock" by end of period.

August 1 - August 15, 1960

T-4:

158.4' - 306.0'	Rockbit, no core
306.0' - 733.3'	San Xavier (Helmet) Conglomerate, clay to boulder size angular particles of arkose, sandstone, quartzite, limestone and porphyry in matrix of red mudstone which is somewhat calcareous, semi-consolidated.

August 15 - August 31, 1960

T-4:

726.6' - 839.3'	San Xavier (Helmet) fanglomerate

July 16 - July 31, 1961

T-30:

0' - 181.0'	Rockbit

August 1 - August 15, 1961

T-30:

181.0' - 724.0'	Rockbit

T-32:

00.0' - 96.0'	Rockbit
96.0' - 175.3'	Limestone - quartzite breccia composed of angular fragments in a calcareous matrix. Contains much manganese. Also contains chrysocolla and chalcocite, which is mostly in upper part. 1% sulfides.
175.3' - 374.0'	White, fine-medium grain marble containing zones of garnet. Mn dendrites strong. No sulfides observed. Some malachite and chrysocolla present.
374.0' - 433.1'	Marble zone with 30-45° laminations of garnet and chloritic material. Zones of garnet throughout. No observed sulfides.
433.1' - 673.9'	Marble-garnet zone with laminations 70-80°. Contains sphalerite, galena, chalcopyrite, pyrite and malachite. Less 1% sulphides.
673.9' - 686.2'	Black hornfels with biotite near bottom. 1% sulfides.
686.2' - 691.9'	Quartz monzonite with biotite and sphene. 1% sulfides.

August 15 - August 31, 1961

T-30:

724.0' - 991.0'	Rockbit through Helmet fanglomerate

T-32:

691.9' - 741.0'	Medium grain, biotite, sphene, quartz monzonite, which is equilgranular. Trace of sulfides.

T-34:

0' - 21'	Rockbit
21' - 30.3'	Caliche cemented gravel.
30.3' - 70.0'	Rockbit
70.0' - 77.4'	Jasperoid breccia containing veins of chrysocolla.
77.4' - 245.7'	Marble with tactite zones throughout, tactite zones consist of hornfels, garnet and calc-silicates. Trace of sulfides.
245.7' - 374.2'	Coarse grained, white, marble. Escabrose unit(?). Less than 1% sulfides and carbonates of copper.
374.2' - 554.5'	Tactite with interbedded medium grain marble and hornfels. No observed sulfides. Laminations throughout. Trace of sulfides.
554.5' - 705.0'	Biotite, sphene, quartz monzonite of equal granular, medium grain material. Trace of moly and chalcopyrite.

September 1 - September 15, 1961

T-30:

991.0' - 1327.6'	San Xavier fanglomerate

September 16 - September 30, 1961

T-30:

1327.6' - 1659.3'	San Xavier fanglomerate

October 1 - October 15, 1961

T-30:

1659.3' - 1803.7' Helmet fanglomerate

July 1 - July 14, 1962

T-66:

0.0' - 275.8' Helmet fanglomerate

July 15 - July 31, 1962

T-66:

275.8' - 661.1' Helmet fanglomerate

T-1 Collar Elevation _____

Rockhit - Alluvium

Arkosic Breccia with Siltstone
bedding dips 25°
84.6 - 85.9 intense oxidation
89.2 - 92 Fault
91.0 - 91.5 zone to copper
120.0 - 121 fault

4'3 monzonite porphyry

fault at 15'9'
fault at 16 8
faults at 178-186'

fault 210-212
fault 223-223.9

highly brecciated & poor recovery

Bedding dips 30°
Gypsum

50° contact biotite in porphyry
Gypsum

Highly brecciated & Chlorite
op & gypsum
much Biotite

fault 549.5 - 550.4

bedding dips 60°
Gypsum & becoming siliceous

60° contact

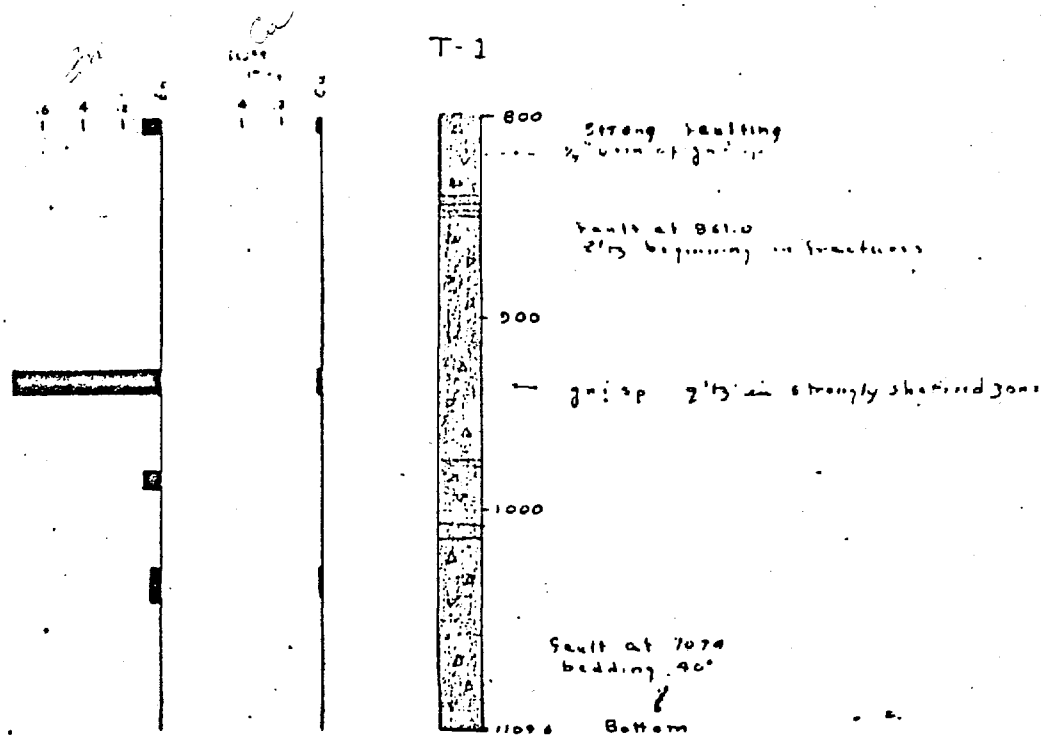
Secondary Feldspar & gsp dropping off

733' fault
782' fault

100
200
300
400
500
600
700
800

Scale 1" = 100'

T-1



Scale

SHEET No.

DATE STARTED 6/22/60

DATE COMPLETED 7/26/60

DIAMOND DRILL ASSAY LOG

HOLE NO. T-1

COORDINATES 6100 N 60 U E

COLLAR ELEVATION

BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu.	Zn.
0.0	10.0	10.0			NX				
10.0	20.4	10.4	9.3	90	"				
20.4	31.7	11.3	9.6	85	"				
31.7	44.0	12.3	11.5	94	"			0.02	Tr
44.0	55.1	11.1	11.0	99	"				
55.1	65.9	10.8	9.2	85	"				
65.9	76.8	10.9	10.9	100	"				
76.8	89.0	12.2	11.2	100	"				
89.0	99.4	10.4	8.7	84	"			Tr	Tr
99.4	109.4	10.0	10.9	109	"				
109.4	118.1	8.7	7.6	87	"				
118.1	129.9	11.8	11.3	96	"				
129.9	140.9	11.0	10.6	97					
140.9	149.8	8.9	7.6	86	"			Tr	0.05
149.8	159.8	10.0	10.0	100	"				
159.8	171.0	10.2	9.4	92	"				
171.0	182.6	11.6	10.7	93	"				
182.6	193.3	10.7	8.7	82	"				
193.3	203.5	10.2	6.7	66	"			0.02	Tr
203.5	212.6	9.1	6.6	88	"				
212.6	223.9	11.3	10.4	93	"				
223.9	233.9	10.0	4.3	43	"				
233.9	254.4	20.5	4.3	21	"				
254.4	277.6	23.2	0		BX	No core changed to Bx at 258.2			
277.6	278.2	0.6	0.3	50	"				
278.2	300.0	21.8	0	no core	"				
300.0	312.5	12.5	2.4	19	"				
312.5	324.8	12.3	6.2	50	"				
324.8	337.4	12.6	3.1	25	"			Tr	0.10
337.4	342.2	4.8	4.6	96	"				
342.2	352.0	9.8	9.7	99	"				
352.0	361.7	9.7	10.0	103	"				
361.7	371.7	10.0	10.0	100	"				
371.7	381.7	10.0	10.0	100	"			Tr	Tr
381.7	391.7	10.0	10.0	100	"				
391.7	401.7	10.0	10.0	100	"				
401.7	411.7	10.0	9.7	97	"				
411.7	421.5	9.8	9.9	101	"				
421.5	431.4	9.9	9.8	99	"			0.02	0.05
431.4	441.4	10.0	10.0	100	"				
441.4	451.4	10.0	10.0	100	"				
451.4	461.4	10.0	10.0	100	"				
461.4	471.4	10.0	9.6	96	"				
471.4	481.3	9.9	9.9	100	"			0.02	Tr
481.3	491.2	9.9	9.8	99	"				
491.2	501.2	10.0	10.0	100	"				
501.2	511.2	10.0	9.5	95	"				

DATE STARTED 6/22/60
DATE COMPLETED 7/26/60

DIAMOND DRILL ASSAY LOG

HOLE NO. T-1

COORDINATES 6100 N 60 U E COLLAR ELEVATION BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	Sample No.	Cu.	Zn.
521.2	531.2	10.0	10.0	100	BX		Tr	Tr
531.2	540.6	9.4	9.4	100	"			
540.6	550.4	9.8	9.5	97	"			
550.4	560.2	9.8	9.8	100	"			
560.2	570.2	10.0	9.2	92	"			
570.2	579.7	9.5	9.0	94	"		Tr	Tr
579.7	589.6	9.9	9.2	93	"			
589.6	599.4	9.8	10.0	102	"			
599.4	609.3	9.9	9.9	100	"			
609.3	619.3	10.0	9.8	98	"			
619.3	629.1	9.8	9.8	100	"		Tr	Tr
629.1	639.1	10.0	9.8	98	"			
639.1	649.1	10.0	9.9	99	"			
649.1	658.8	9.7	9.5	98	"			
658.8	669.0	10.2	9.7	95	"			
669.0	679.0	10.0	9.6	96	"		0.02	Tr
679.0	688.6	9.6	9.6	100	"			
688.6	698.6	10.0	9.8	98	"			
698.6	705.8	7.2	6.9	96	"			
705.8	715.3	9.5	9.2	98	"		0.02	0.05
715.3	725.2	9.9	9.5	96	"			
725.2	735.2	10.0	9.7	97	"			
735.2	747.8	12.6	11.7	85	"			
747.8	757.8	10.0	9.8	98	"			
757.8	765.8	8.0	7.8	98	"		0.02	0.05
765.8	775.8	10.0	9.7	97	"			
775.8	785.4	9.6	9.1	94	"			
785.4	792.4	7.0	6.9	94	"			
792.4	799.4	7.0	6.9	99	"			
799.4	807.4	8.0	7.8	98	"	8745	0.03	0.10
807.4	816.0	8.6	7.9	92	"			
816.0	822.6	6.6	6.4	97	"			
822.6	832.6	10.0	10.0	100	"			
832.6	840.0	7.4	6.6	89	"			
840.0	852.6	12.6	11.4	91	"	8746	Tr	Tr
852.6	863.0	10.4	10.0	97	"			
863.0	868.3	5.3	5.2	98	"			
868.3	878.1	9.8	9.4	97	"			
878.1	885.0	6.9	6.5	94	"			
885.0	895.0	10.0	9.5	95	"	8747	Tr	Tr
895.0	902.0	7.0	7.0	100	"			
902.0	911.6	9.6	9.5	99	"			
911.6	918.6	7.0	6.7	96	"			
918.6	927.4	8.8	8.8	100	"			
927.4	939.2	11.8	11.1	94	"	8748	0.03	0.75
[illegible]	[illegible]	7.1	7.0	99	"			

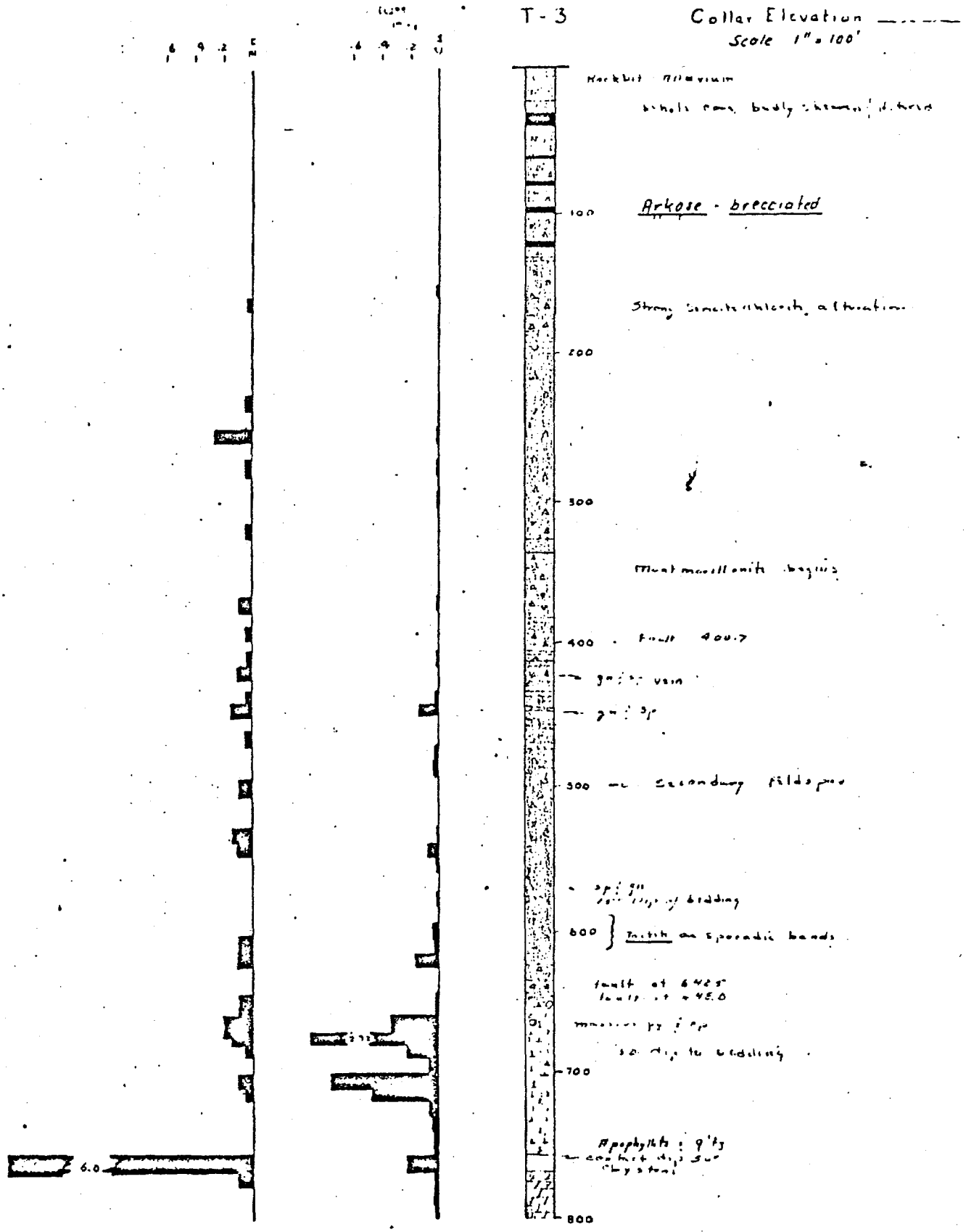
DATE STARTED 6/22/60
DATE COMPLETED 7/26/60

DIAMOND DRILL ASSAY LOG

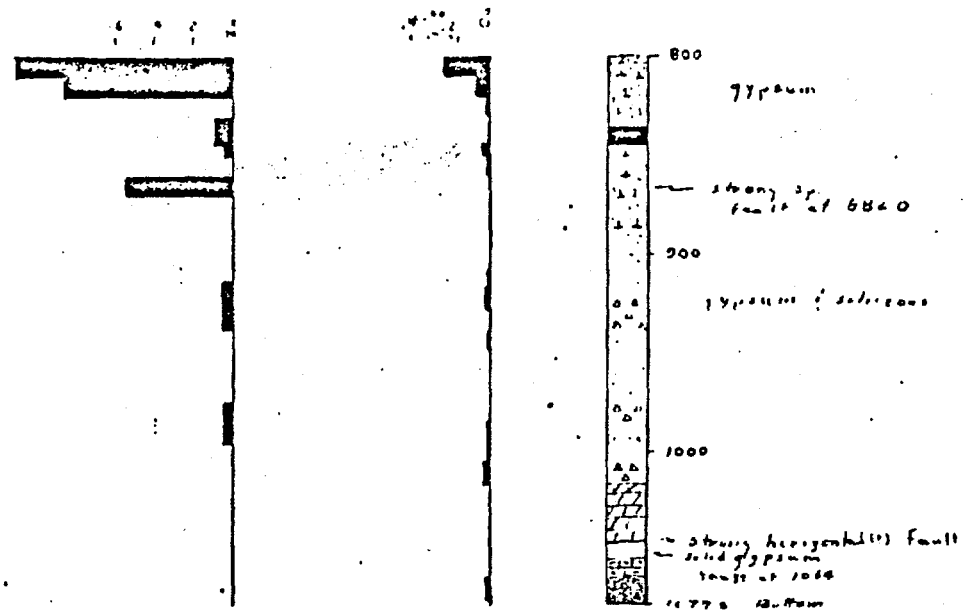
HOLE NO. T-1

COORDINATES 6100 N 60 U. E. COLLAR ELEVATION REDROCK ELEVATION

From	To	Length	Measured Core Recovered	% Recovered	Hole Size	Sample No.	Cu.	Zn.
959.6	969.6	10.0	10.9	109	BX			
969.6	979.4	9.8	9.8	100	"			
979.4	989.2	9.8	9.6	97	"	8749	Tr	0.20
989.2	999.3	10.1	10.0	101	"			
99933	1009.3	10.0	9.9	99	"			
1009.3	1019.1	9.8	10.0	102	"			
1019.1	1029.1	10.0	9.9	99	"			
1029.1	1043.3	14.2	14.2	100	"	8750	0.02	0.05
1043.3	1053.1	9.8	9.7	99	"			
1053.1	1062.9	9.8	9.9	101	"			
1062.9	1072.7	9.8	9.8	100	"			
1072.7	1082.7	10.0	9.6	96	"			
1082.7	1091.7	9.0	8.9	99	"	8876	Tr	Tr
1091.7	1101.5	9.8	9.8	100	"			
1101.5	1109.6	8.1	7.9	97	"			


T - 3
Collar Elevation
Scale 1" = 100'
Arkose - brecciated
Strong sericitic alteration
Secondary feldspar
100
200
300
400
500
600
700
800
6.0

T-3



Scale 1" = 100'

SHEET NO. 1

DATE STARTED 7/6 /60

DIAMOND DRILL ASSAY LOG

DATE COMPLETED 8/17/60

HOLE NO. T-3

COORDINATES 500 K 00 W COLLAR ELEVATION BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu.	Zn.
0	23.0	23.0			EB				
23.0	30.6	7.6	3.3	44	Ex				
30.6	40.0	9.6	2.0	21	"				
40.0	52.6	12.6	4.5	36	"				
52.6	61.0	10.4	1.3	13	"				
61.0	74.2	13.2	2.0	15	"				
74.2	85.1	10.9	2.9	27	"				
85.1	100.0	14.9	3.3	22	"				
100.0	112.4	12.4	4.3	35	"				
112.4	124.3	11.9	5.8	49	"		8651	Tr	Tr
124.3	132.4	8.1	5.9	72	"				
132.4	144.4	12.0	2.4	20	"		8652	Tr	Tr
144.4	151.0	6.6	4.9	75	"				
151.0	160.1	9.1	8.4	93	"		8653	0.02	Tr
160.1	169.3	9.2	9.4	102	"				
169.3	181.1	11.8	12.4	102	"		8654	Tr	0.05
181.1	189.0	7.9	7.9	100	"				
189.0	198.0	9.0	9.0	100	"		8655	Tr	Tr
198.0	209.0	11.0	10.6	78	"				
209.0	220.0	11.0	10.6	97	"		8656	Tr	Tr
220.0	229.0	9.0	8.0	89	"				
229.0	240.6	11.6	9.9	93	"		8657	Tr	0.05
240.6	251.4	10.8	9.5	88	"				
251.4	260.6	9.2	9.2	100	"		8658	0.02	0.25
260.6	272.0	11.4	9.9	87	"				
272.0	282.1	10.1	10.1	100	"		8659	0.02	0.05
282.1	293.5	11.4	10.4	92	"				
293.5	305.1	11.6	9.2	79	"		8660	0.02	Tr
305.1	315.1	10.0	8.4	84	"				
315.1	326.2	11.1	9.6	86	"		8661	Tr	0.05
326.2	335.2	9.0	9.0	100	"				
335.2	341.5	6.3	6.3	100	"		8662	Tr	Tr
341.5	351.9	10.4	10.4	100	"				
351.9	359.6	7.7	7.7	100	"		8663	Tr	Tr
359.6	367.2	7.6	7.6	100	"				
367.2	378.1	10.9	10.9	100	"		8664	0.02	0.10
378.1	388.1	10.0	10.0	100	"				
388.1	399.3	11.2	11.2	100	"		8665	Tr	0.05
399.3	405.5	6.2	4.9	79	"				
405.5	415.3	9.8	10.0	102	"		8666	0.02	0.05
415.3	425.3	10.0	10.0	100	"		67	Tr	0.10
425.3	435.3	10.0	10.0	100	"		68	Tr	Tr
435.3	443.2	7.9	7.9	100	"		69	0.03	0.05
443.2	452.4	9.2	8.4	91	"		8670	0.12	0.15
452.4	462.0	9.6	9.6	100	"		71	Tr	Tr
462.0	472.0	10.0	10.0	100	"		72	Tr	0.05

SHEET NO. 2

DATE STARTED 7/6/60

DIAMOND DRILL ASSAY LOG

DATE COMPLETED 8/17/60

HOLE NO. T-3

COORDINATES 500 N 00 W

COLLAR ELEVATION

BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu.	Mo.	Pb.	Zn.	Ag.	Au.
481.4	494.6	13.2	12.5	95	NX		8674	0.02			Tr		
494.6	506.7	12.1	11.6	96	"		75	Tr			.10		
506.7	516.7	10.0	8.7	87	"		76	Tr			Tr		
516.7	527.5	10.8	10.1	94	"		77	Tr			Tr		
527.5	538.8	11.3	10.8	96	"		78	.02			.15		
538.8	547.6	8.8	8.7	99	"		79	.07			.10		
547.6	559.9	12.3	12.0	98	"		8680	.02			Tr		
559.9	571.0	10.1	10.1	100	"		81	Tr			Tr		
571.0	581.0	10.0	9.2	92	"		82	.02			Tr		
581.0	592.4	11.4	9.2	81	"		83	Tr			Tr		
592.4	603.1	10.7	7.4	69	"		84	.04			Tr		
603.1	614.3	11.2	6.0	54	"		85	.03			.10		
614.3	624.2	9.9	6.8	69	"		86	.16			.10		
624.2	634.4	10.2	7.8	77	"		87	Tr			Tr		
634.4	643.3	8.9	7.3	87	"		88	Tr			Tr		
643.3	652.7	9.4	6.7	71	"		89	.02			.05		
652.7	660.4	7.7	1.3	17	"		8690	.02			.05		
660.4	674.3	13.9	9.0	65	"		91	.32		.2	.20	.6	.005
674.3	682.6	8.3	8.2	99	"		92	2.32		.2	.15	.8	.005
682.6	691.7	9.1	9.0	100	"		93	.23	512 @ 0.61% Cu	Tr	.05	.3	Tr
691.7	701.6	9.9	9.9	100	"		94	.07		Tr	Tr	.3	Tr
701.6	711.6	10.0	10.0	100	"		95	.74		Tr	.10	.2	Tr
711.6	721.6	10.0	10.0	100	"		96	.47		.1	.05	.6	.005
721.6	727.3	5.7	4.3	75	"		97	.07		Tr	Tr	.1	Tr
727.3	737.5	10.2	10.2	100	"		98	.06		Tr	Tr	.1	Tr
737.5	747.4	9.9	9.9	100	"		99	.04		.1	Tr	.3	.005
747.4	756.3	8.9	9.1	102	"		8700	.04		.1	Tr	.4	.005
756.3	769.7	13.4	13.4	100	"		01	.23	21.1 @ 3.85% Zn	3.2	6.00	3.4	.01
769.7	777.4	7.7	7.7	100	"		02	.03		.1	.10	.1	.005
777.4	787.4	10.0	10.0	100	"		03	.03		Tr	Tr	.4	Tr
787.4	800.4	13.0	12.5	96	"		04	.02		Tr	Tr	.3	Tr
800.4	810.1	9.7	9.7	100	"		05	.23	16 @ .97% Zn	Tr	1.10	1.2	.005
810.1	820.0	9.9	9.9	100	"		06	.08		Tr	.85	.8	.005
820.0	830.2	10.2	10.2	100	"		07	.02		Tr	Tr	.3	Tr
830.2	844.0	13.8	4.5	73	"		08	Tr			.10		
844.0	850.6	6.6	2.7	40	"		09	.04			.05		
850.6	860.4	9.8	9.8	100	"		8710	.02			Tr		
860.4	870.4	10.0	9.0	90	"		11	Tr			.55		
870.4	877.4	7.0	7.8	111	"		12	Tr			Tr		
877.4	886.8	9.4	9.4	100	"		13	Tr			Tr		
886.8	901.2	14.4	8.3	57	"		14	Tr			Tr		
901.2	908.1	6.9	5.9	85	"		15	Tr			Tr		
908.1	916.0	7.9	7.0	89	"		16	.02			Tr		
916.0	929.2	13.2	10.7	81	"		17	.03			.05		
929.2	939.2	10.0	9.6	96	"		18	Tr			.05		
939.2	949.2	10.0	6.0	60	"		19	.02			Tr		
							8720						

SHEET NO

DATE STARTED 7/6/60

DIAMOND DRILL ASSAY LOG

DATE COMPLETED 8/17/60

HOLE NO. T-3

COORDINATES 500 N 00 W

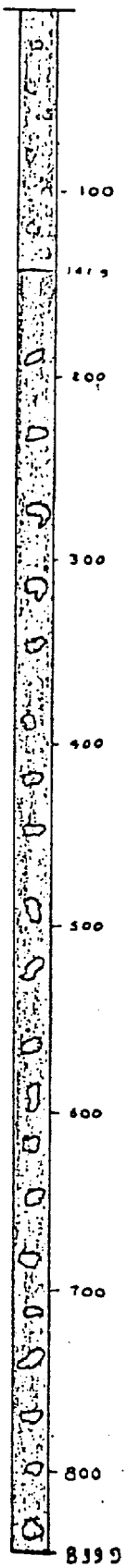
COLLAR ELEVATION

BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu	Zn
962.3	974.8	12.5	12.4	103	Bx		8721	Tr	Tr
974.8	985.2	10.4	10.2	98	"		22	Tr	0.05
985.2	995.1	9.8	9.7	97	"		23	0.02	0.05
995.1	1005.9	10.8	9.5	88	"		8887	0.02	Tr
1005.9	1016.6	10.7	7.6	71	"		8888	0.04	Tr
1016.6	1027.9	11.3	10.8	95	"		8912	Tr	Tr
1027.9	1037.8	10.9	9.9	91	"		13	Tr	Tr
1037.8	1048.1	10.3	6.2	60	"		14	Tr	Tr
1048.1	1058.3	9.8	9.7	98	"		8933	Tr	Tr
1058.3	1067.0	8.7	5.2	59	"		34	Tr	Tr
1067.0	1075.3	8.3	7.8	93	"		35	0.02	Tr

T-4

Collar Elevation _____



Alluvium

Helmet Fanglomerate

Cuprite

Cuprite & Malachite

Fault 400.9

Bedding 30°

No assay

Core broken from 774 - 839.9

Bottom

Scale 1" = 100'

DATE STARTED 7/27/60

DATE COMPLETED 8/19/60

DIAMOND DRILL ASSAY LOG

HOLE NO. T-1

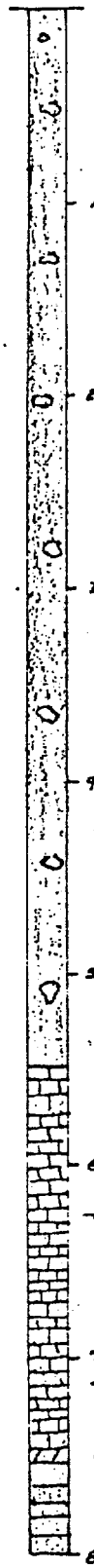
COORDINATES 500 N 11,800 E COLLAR ELEVATION _____ BEDROCK ELEVATION _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S. G.	Sample No.							
				NO ASSAYS										

T-22

Collar Elevation _____

All assays very low



Rockbitted

whitish gray L.S with greenish laminations at 45°
slightly silicified with patches of garnet throughout

pisolites at 587-588

laminations at 30°
657-660 shear zone
laminations at 60°
pisolites at 675-670

672 Green L.S. begins with black hornfels laminations

black Hornfels

with marble + Tactite Gyp begins

black hornfels 60-30° laminations

Scale 1" = 100'

T-22

800 marble, white 45° laminations
Some garnet

silicified L.S. 50° laminations

900 Marble with some tactite deposits

Tactite
coarse sliny Marble - grey to black
Magnetite & gypsum

1000 lt. brown to green hornfels
black siltstone

laminations 70-75°
silicified L.S.

1100 Marble - white to light brown
with some tactite

black hornfels with garnet
laminations at 45°

Marly L.S. with garnet zones

1200 1192 gyp forms laminations at 60°

Red & green siltstone
laminations at 45°

Marble with 45°-60° laminations
and garnet zones & tactite

1300 basement granite
Biotite g'th monzonite

1330.5 bottom

Scale 1" = 100'

DATE STARTED 6/26/61

DATE COMPLETED 8/11/61

DIAMOND DRILL ASSAY LOG

HOLE NO. T-22

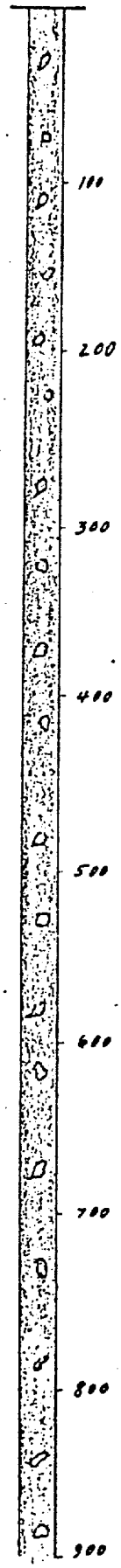
COORDINATES 2,300 S 9,100 E COLLAR ELEVATION _____ BEDROCK ELEVATION _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu	Mo	Pb	Zn	Ag	Au
689.7	703.7	14.0	13.5		NX		1834	Tr	Tr	Tr	.1	.2	Tr
713.9	725.4	11.5	11.5		"		1835	Tr	Tr	Tr	Tr	.3	Tr
736.6	752.0	15.4	14.1		"		1836	Tr	.004	.1	.1	.1	Tr
752.0	762.0	10.0	10.0		"		1837	Tr	Tr	Tr	Tr	.2	.005
762.0	772.0	10.0	10.0		"	3.26	1838	.03	Tr	Tr	.1	.4	.005
772.0	781.5	9.5	9.5		"	2.70	1839	.02	Tr	Tr	Tr	.2	Tr
781.5	791.4	9.9	9.9		"	2.86	1840	Tr	Tr	Tr	Tr	.5	.005
791.4	801.4	10.0	10.0		"	2.65	1841	Tr	Tr	Tr	Tr	Tr	Tr
981.0	991.0	10.0	10.0		"		1897	.16					
1094.5	1104.4	9.9	9.9		"								
1124.1	1134.2	10.1	10.1		"		1971	.05	Tr	Tr	.1	.3	.005
1134.2	1144.3	10.1	9.4		"		1972	.08	Tr	.1	Tr	.5	.005
1144.3	1152.5	8.2	9.1		"		1973	.02	Tr	Tr	Tr	.3	Tr
1152.5	1162.2	9.7	9.5		"		1938	.02	Tr	Tr	Tr	.1	.005
1162.2	1172.2	10.0	10.0		"		1939	.03	Tr	Tr	Tr	.2	.005
1172.2	1182.2	10.0	10.0		"		1974	.03	Tr	Tr	Tr	.3	Tr
1182.2	1192.3	10.1	9.8		"		1975	Tr	.002	Tr	Tr	.2	Tr
1192.3	1202.1	9.8	10.2		"		1976	.02	Tr	Tr	Tr	.3	Tr
1202.1	1212.1	10.0	10.0		"		1940	.02	Tr	Tr	Tr	Tr	Tr
1212.1	1222.1	10.0	10.0		"		1977	.03	Tr	Tr	.1	.2	Tr
1222.1	1232.1	10.0	10.0		"		1978	Tr	Tr	Tr	Tr	.4	.005
1232.1	1240.6	8.5	8.5		"		1979	Tr	Tr	Tr	Tr	.3	Tr
1240.6	1249.1	8.5	5.7		"		1980	Tr	Tr	Tr	Tr	.2	Tr
1249.1	1258.5	9.4	9.9		"		1981	Tr	Tr	Tr	.1	.3	Tr
1258.5	1267.9	9.4	9.4		"	2.65	1982	.02	Tr	Tr	Tr	.2	Tr
1267.9	1277.3	9.4	9.4		"		1983	.05	Tr	.1	.1	.1	.005
1277.3	1287.0	9.7	9.7		"	3.00	1984	.02	Tr	.1	Tr	.2	Tr
1287.0	1296.4	9.4	9.4		"		1985	Tr	Tr	Tr	Tr	Tr	Tr
1296.4	1304.8	8.4	8.4		"	3.30	1986	Tr	.002	Tr	Tr	.1	Tr
1304.8	1312.9	8.1	7.9		"	2.54	2011	Tr	.002	Tr	Tr	.1	.005
1312.9	1323.0	10.1	9.6		"	2.50	2012	Tr	Tr	Tr	Tr	Tr	Tr
1323.0	1330.5	7.5	7.7		"		2013	Tr	Tr	Tr	.1	.1	Tr

T-30

Collar Elevation _____

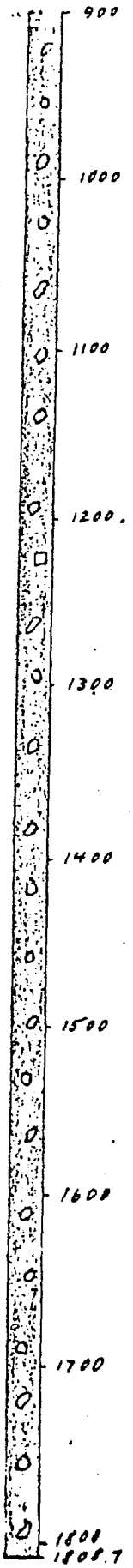
Scale : 1" = 100'



Helmet fanglomerate
(San Xavier fangl.)

T-30

Scale : 1" = 100'



Helmet fanglomerate
(San Xavier " ")

30° dip of bedding

1024.6 - 1025.6 solid gypsum w/ anhydrite

25-35° dip
1/2-1' fine sandy zones

fine sandy beds
40° dip

25-30° dip of sandy beds
no gypsum
arkose-gtsite fragments

reddish matrix

well indurated fragm. of arkose & black shale

bottom

SHEET NO. 1

DATE STARTED 7/28/61

DATE COMPLETED 10/10/61

DIAMOND DRILL ASSAY LOG

HOLE NO. T-30

COORDINATES 800 N 9,100 E

COLLAR ELEVATION _____

BEDROCK ELEVATION _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.
					NO ASSAY		

T-32

Collar Elevation _____

Assays

90'-96' - .48% Cu

96'-103.3' - 1.16% Cu

103.3'-113.6' - 0.54% Cu

113.6'-123.8' - 0.31% Cu

123.8-133.9' - 0.25% Cu

other assays very low

Scale 1" = 100'

SHEET N

DATE STARTED 8/4/61

DIAMOND DRILL ASSAY LOG

DATE COMPLETED 8/17/61

HOLE NO. T-3

COORDINATES 3,500 S 9,400 E COLLAR ELEVATION _____ BEDROCK ELEVATION _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.	Cu	Mo	Pb	Zn	Ag	Au
546.5	551.5	5.0	5.0		Nx		2030	.02	Tr	Tr	Tr	.5	
551.5	562.8	11.3	11.3		"		2049	.02	Tr	Tr	Tr	.6	
562.8	569.0	6.2	6.2		"		2050	.05	Tr	Tr	Tr	.5	
569.0	579.2	10.2	10.2		"		2051	.04	Tr	Tr	Tr	.4	
579.2	589.3	10.1	10.1		"		2052	Tr	Tr	Tr	Tr	.4	
589.3	599.3	10.0	10.0		"		2053	.13	.002	.2	Tr	.2	
599.3	606.3	7.0	7.0		"		2054	.04	.002	Tr	Tr	.3	
606.3	615.2	8.9	8.9		"		2055	.02	Tr	Tr	Tr	.3	
615.2	628.2	13.0	13.0		"	3.18	2056	.04	Tr	Tr	Tr	.6	
628.2	643.4	15.2	15.2		"		2078	.05	Tr	Tr	Tr	.5	
643.4	653.7	10.3	10.3		"	2.60	2079	.05	.002	.1	Tr	.7	
653.7	663.9	10.2	10.2		"	2.89	2080	.06	.002	.1	Tr	.9	
663.9	673.9	10.0	10.0		"		2081	.07	.002	.1	Tr	.9	
673.9	684.2	10.3	10.3		"		2082	.05	Tr	Tr	Tr	.5	
684.2	691.1	6.9	6.9		"	2.51	2083	.04	.003	Tr	Tr	.2	

T-34

Collar Elevation _____

	Cu %	Zn %	Pb %
65-70	0.63	0.2	0.8
70-77.4	1.73	0.2	1.4
77.4-87.7	0.36	3.5	1.3
87.7-98.1	0.07	0.4	1.0

other assays low

San Xavier Conglomerate

Jasperoid Breccia with Crysocolla
shear zone - 45° Strong Mn dendrites
100 fine gr Marble - Mn dendrites

fine gr. Marble with hornfels

white, L.S. hornfels Shear 190.5-192.5°
200 below this is marble, 20-30 lamin
strong Mn Stain
Tan Hornfels
Diorite
225-235.2 strong Shear
235.2-237.6 Unggg garnet zone
Marble L.S., garnet
Shear 245.7-255.9
white, course gr. marble
green colored hornfels
300 Gray marble with phyllitic layers
60° Contact with below

Course gr. marble with Garnet zones
throughout

20° laminations

400 fine gr. black marble
60° drawment Brach Valois
40°-50° Dip
hornfels breccia

Banded marble-hornfels Tactite
20°-30° dip

500
marble breccia
L.S. 20°-30° green lamin. - core broken
60-60° laminations
hornfels! garnet
vertical laminations
garnet 70% - hornfels 20%
green hornfels - 40°-50° laminations
600 70° 30° laminations in hornfels garnet
Pink mineral
smeared laminations in hornfels
& L.S

Diorite monzonite

705.0 Bottom

Scale 1" = 100'

SHEET NO.

DATE STARTED 8/11/61

DIAMOND DRILL ASSAY LOG

DATE COMPLETED 8.29.61

HOLE NO. T-34

COORDINATES 3,500 S 9,200 E

COLLAR ELEVATION

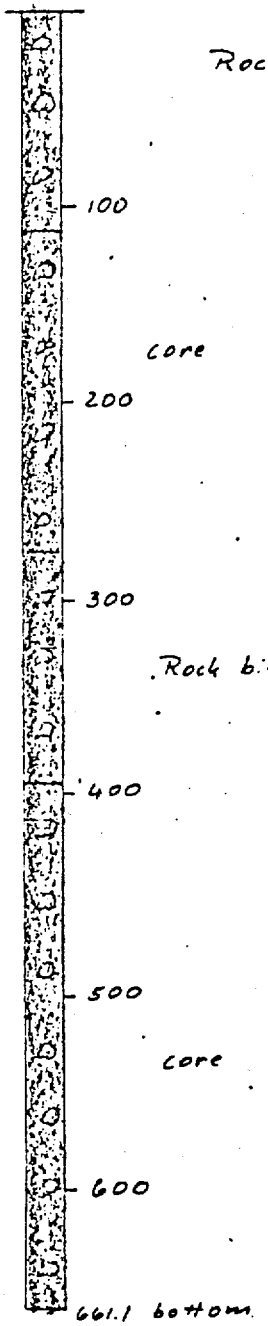
BEDROCK ELEVATION

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No	Cu	Mo	Pb	Zn	Ag	Au
60.0	65.0	5.0			RB		2104	.04		Tr	Tr	.3	
65.0	70.0	5.0			RB		2105	.63		.2	.2	.8	
70.0	77.4	7.4	7.0		NX		2106	1.73	.27% .70%	Tr	.2	1.4	
77.4	87.7	10.3	10.3		"		2107	.36		Tr	3.5	1.3	
87.7	98.1	10.4	10.4				2108	.07		.1	.4	1.0	
98.1	105.0	6.9	6.9		"	2.65	2109	Tr		.1	.2	.5	
105.0	115.2	10.2	10.2		"	2.52	2110	Tr		Tr	Tr	.7	
205.8	215.4	9.6	9.6		"		2122	Tr		Tr	Tr	.8	
215.4	225.6	10.2	10.0		"		2123	.02		Tr	Tr	.3	
225.6	235.2	9.6	9.0		"		2124	Tr		.1	Tr	.7	
235.2	245.7	10.5	10.4		"		2125	Tr		Tr	Tr	.6	
245.7	255.9	10.2	10.2		"		2126	.02		Tr	Tr	.6	
255.9	265.1	9.2	9.2		"		2127	Tr		Tr	Tr	.4	
265.1	275.9	10.8	10.6		"		2139	Tr		Tr	Tr	.7	
275.9	290.1	14.2	14.2			2.67	2140	.04		Tr	Tr	.2	
290.1	297.3	7.2	7.4				2141	.03	.002	.1	.1	.7	
297.3	305.8	8.5	8.5				2142	.04	Tr	Tr	Tr	.3	
305.8	314.8	9.0	9.8		"	2.52	2143	.02	Tr	Tr	Tr	.2	
314.8	324.8	10.0	10.0				2144	.02	Tr	.1	Tr	.6	
324.8	334.8	10.0	10.0		"		2145	Tr	.002	Tr	Tr	.2	
334.8	344.9	10.1	9.4		"		2146	Tr	Tr	Tr	Tr	.2	
344.9	354.2	9.3	9.8		"		2147	.03	Tr	.1	.1	.4	
354.2	364.2	10.0	9.9		"		2148	Tr	Tr	.1	.1	.2	
364.2	374.2	10.0	10.0		"		2149	.02	Tr	Tr	Tr	.1	
374.2	387.5	13.3	13.5		"		2150	.02	Tr	Tr	.1	.5	
387.5	395.9	8.4	8.4		"	2.63	2151	.03	Tr	Tr	.1	.1	
395.9	403.5	7.6	7.6		"	2.76	2152	Tr	Tr	Tr	Tr	.5	
403.5	412.0	3.5	8.5		"		2153	Tr	.002	Tr	Tr	.6	
412.0	422.0	10.0	9.9		"	2.63	2154	.02	.002	.1	.1	.5	
440.7	450.5	9.8			"		2156	Tr	.004	Tr	.3	.5	
530.7	543.7	13.0	12.6		"		2206	Tr			.1		
563.8	573.9	10.1	10.1				2207	Tr			Tr		
574.2	584.3	10.1	10.0		"		2208	.02			Tr		
612.5	623.8	11.3	10.3		"		2209	Tr			.1		

Collar Elevation _____

Scale: 1" = 100'

T-66



Rock bit

Helmet fanglomerate

core

Rock bit

core

DATE STARTED _____

DATE COMPLETED _____

DIAMOND DRILL ASSAY LOG

HOLE NO. T-66

COORDINATES _____ _____ COLLAR ELEVATION _____ BEDROCK ELEVATION _____

Footage		Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.								
From	To														
	No Assay														

DATE STARTED 11-10-62

DATE COMPLETED 11-16-62

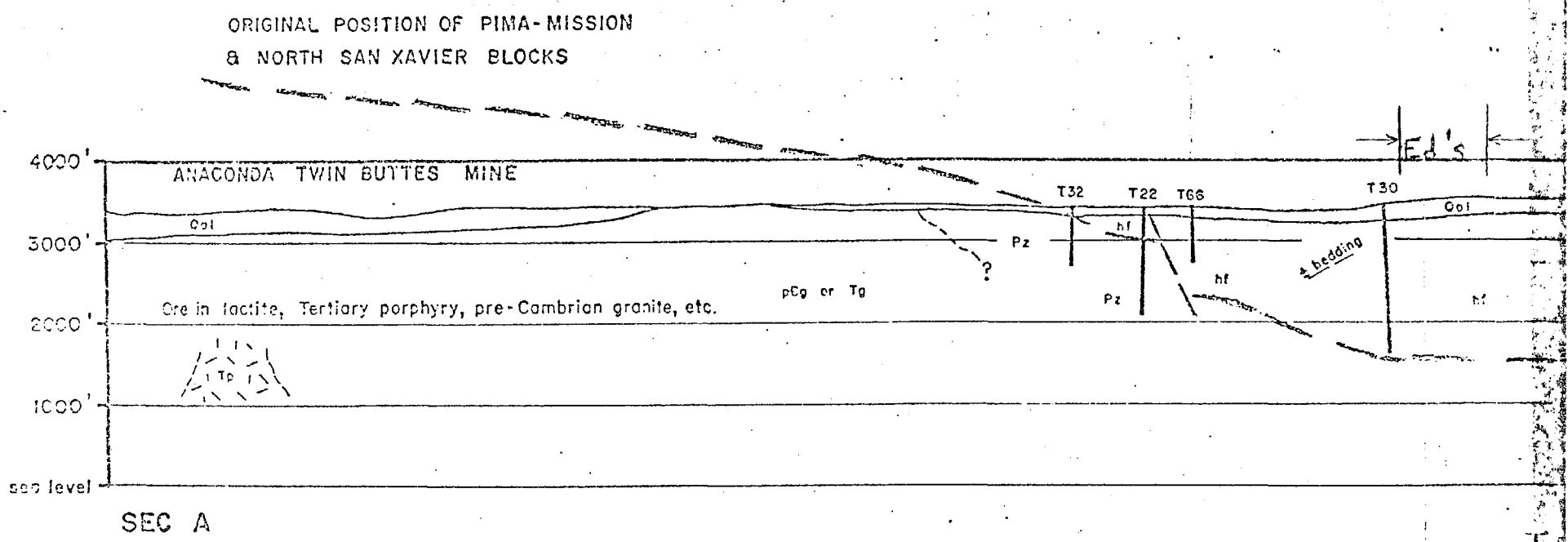
DIAMOND DRILL ASSAY LOG

HOLE NO. T-71

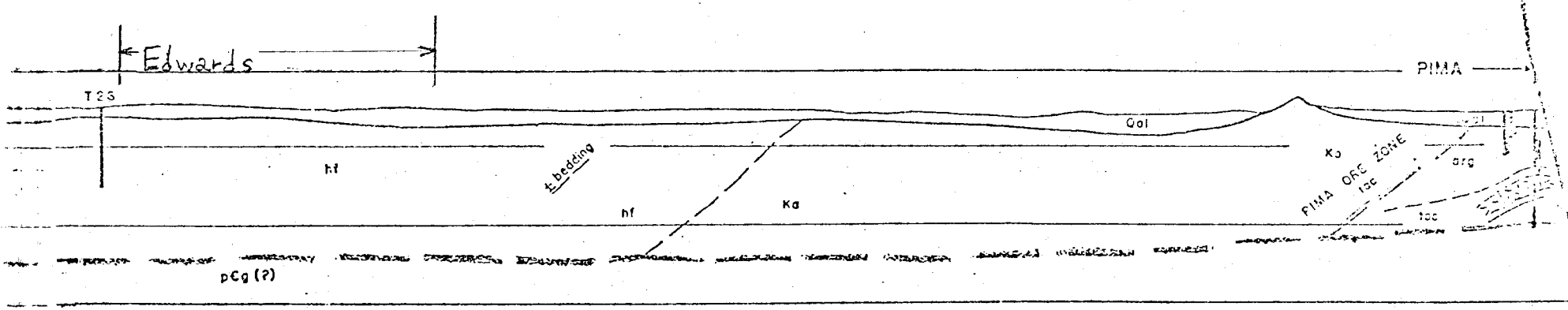
COORDINATES 16,200 E 5,700 S

COLLAR ELEVATION _____ BEDROCK ELEVATION _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	S.G.	Sample No.
			No Assays				


ORIGINAL POSITION OF PIMA-MISSION
& NORTH SAN XAVIER BLOCKS
4000'
3000'
2000'
1000'
sea level
ANACONDA TWIN BUTTES MINE
Qal
Ore in factite, Tertiary porphyry, pre-Cambrian granite, etc.
Tp
pCg or Tg
Pz
?
T32
T22
T66
hf
Pz
hf
bedding
T30
Qal
hf
Ed's

SEC A



LEGEND

Qal	Quaternary Alluvium
hf	Helmet Fanglomerate
	San Xavier and other post-mineral faults

↑ POST-MINERAL ROCKS

↓ PRE-MINERAL ROCKS

Tp	Tertiary Porphyry	
Ka	Cretaceous Sediments (clastic)	
mb	Marble	Paleozoic Sediments
tac	Tactite (silicated limestone)	Paleozoic Sediments
Pz	Limestone	Paleozoic Sediments
pCg	Precambrian Granite (includes a granitoid rock which may be Late Cretaceous or Early Tertiary)	

Scale: 1" = 2000'

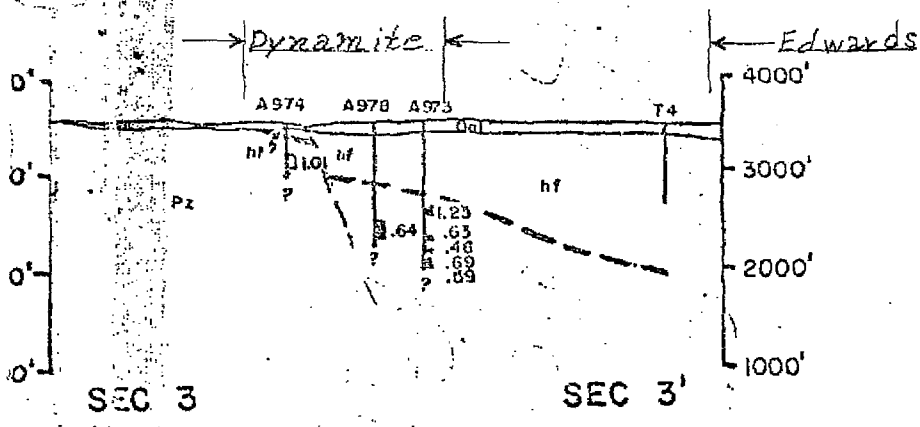
0 2000 4000 feet

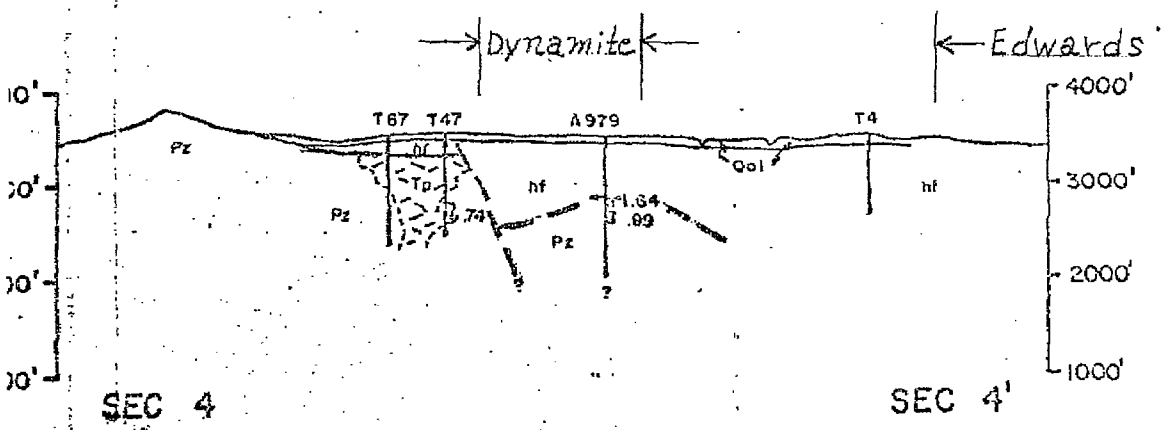
[redacted]EDWARDS PROSPECT

Twin Buttes – Pima District

Arizona

to accompany Report by Kenyon Richard



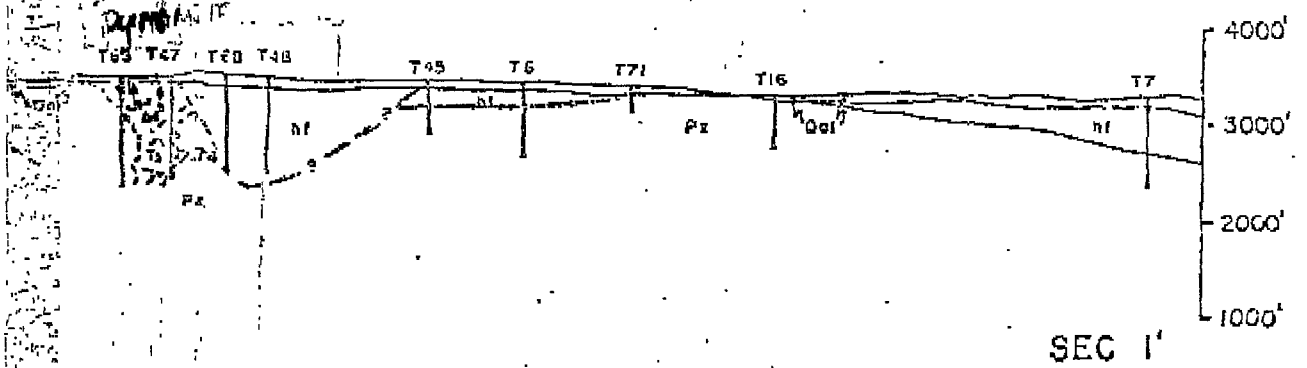


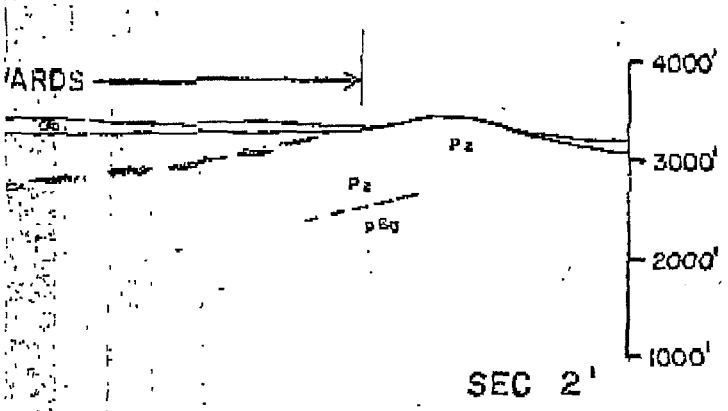
EDWARDS PROSPECT

Twin Buttes - Pima District

Arizona

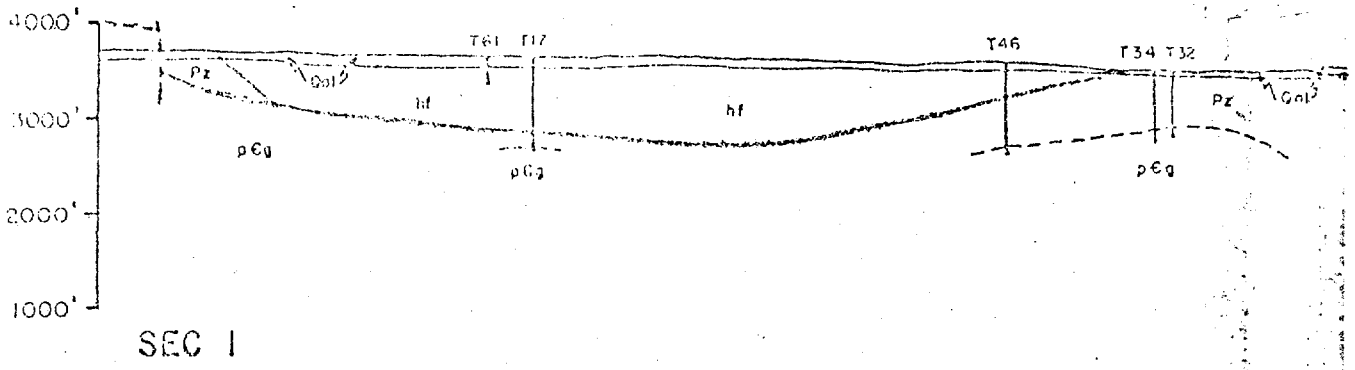
to accompany Report by Kenyon Richard January 1969



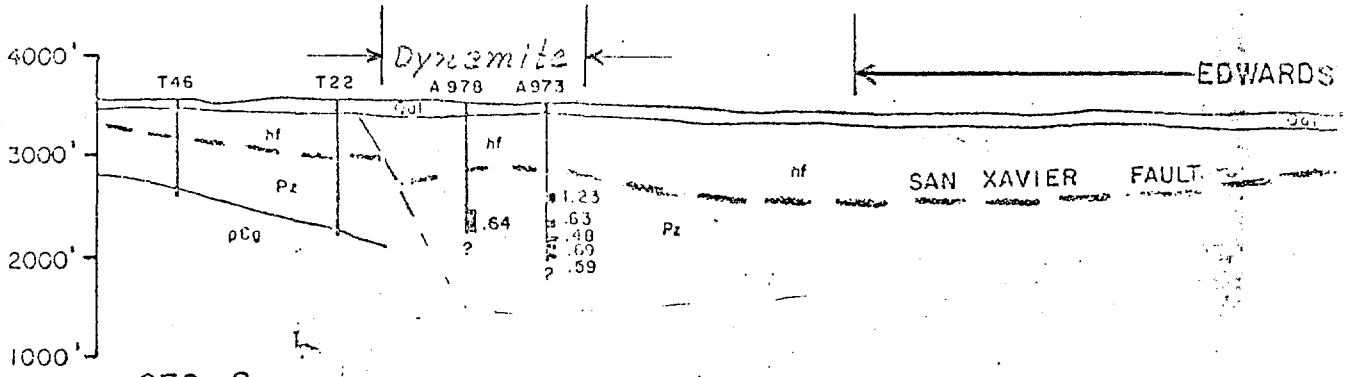


SCALE: 1" = 2000'

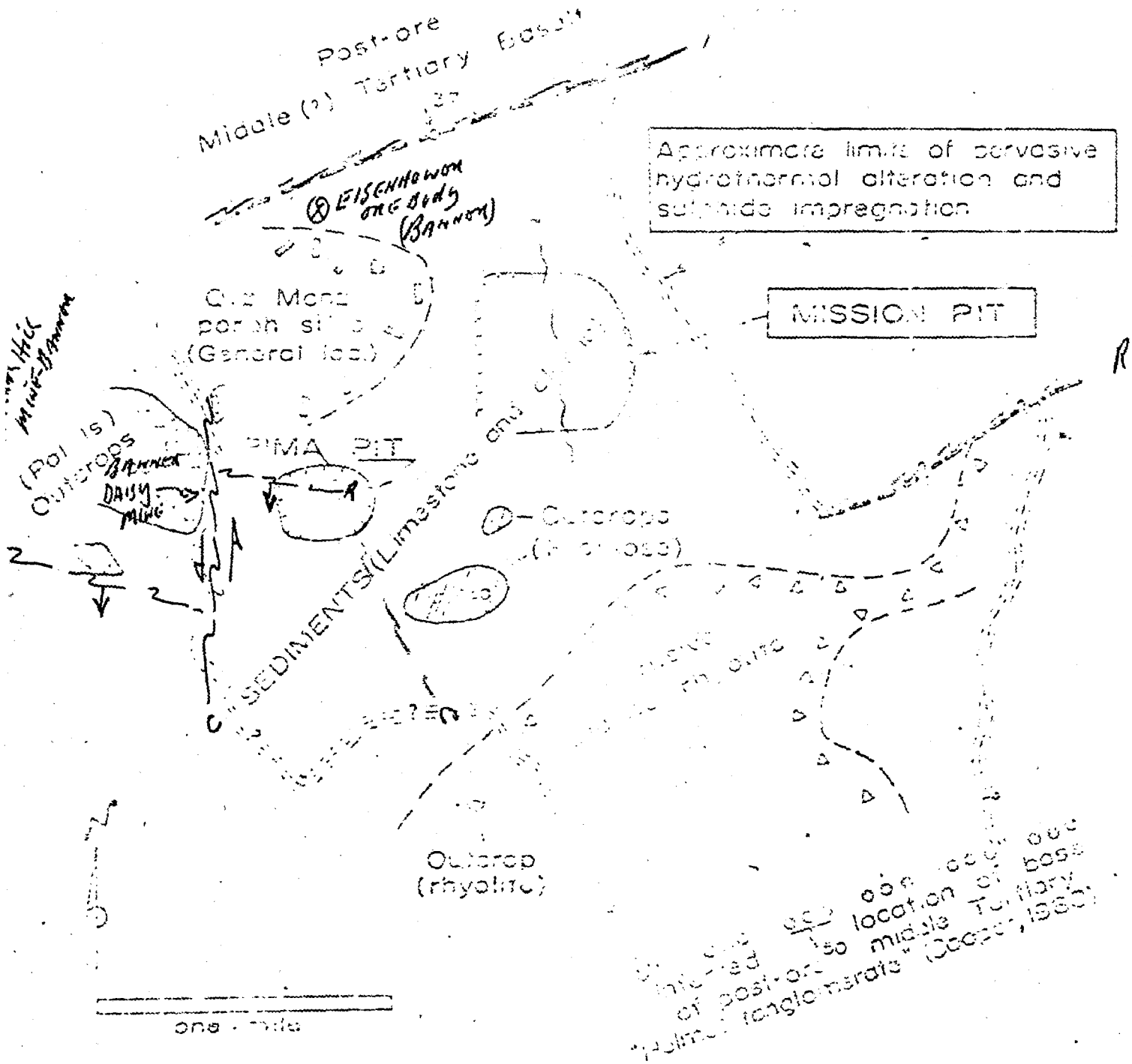
0 2000 4000 feet


4000'
3000'
2000'
1000'
T61
T17
T46
T34
T32
Pz
Qal
hf
pЄg
pЄg
pЄg
Pz
Qal

SEC 1


4000'
3000'
2000'
1000'
Dynamite
EDWARDS
T46
T22
A 978
A973
Qal
hf
Pz
pЄg
.64
?
1.23
.63
.48
.69
.59
?
Pz
hf
SAN XAVIER FAULT

SEC 2



GENERALIZED MAP SHOWING DISTRIBUTION OF SEDIMENTS, IGNEOUS ROCKS AND ALTERATION BENEATH THE ALLUVIAL PLAIN AS KNOWN FROM DRILL DATA

F. . . . J.E. Kinnison

TWIN BUTTES AREA
BASEMENT TYPE
MINERALIZATION
(I) TWIN BUTTES PIT
AT DEPTH - BROWN
REPLACEMENT ORE IN
LIMEST AND CLASTICS (ARKOSES)

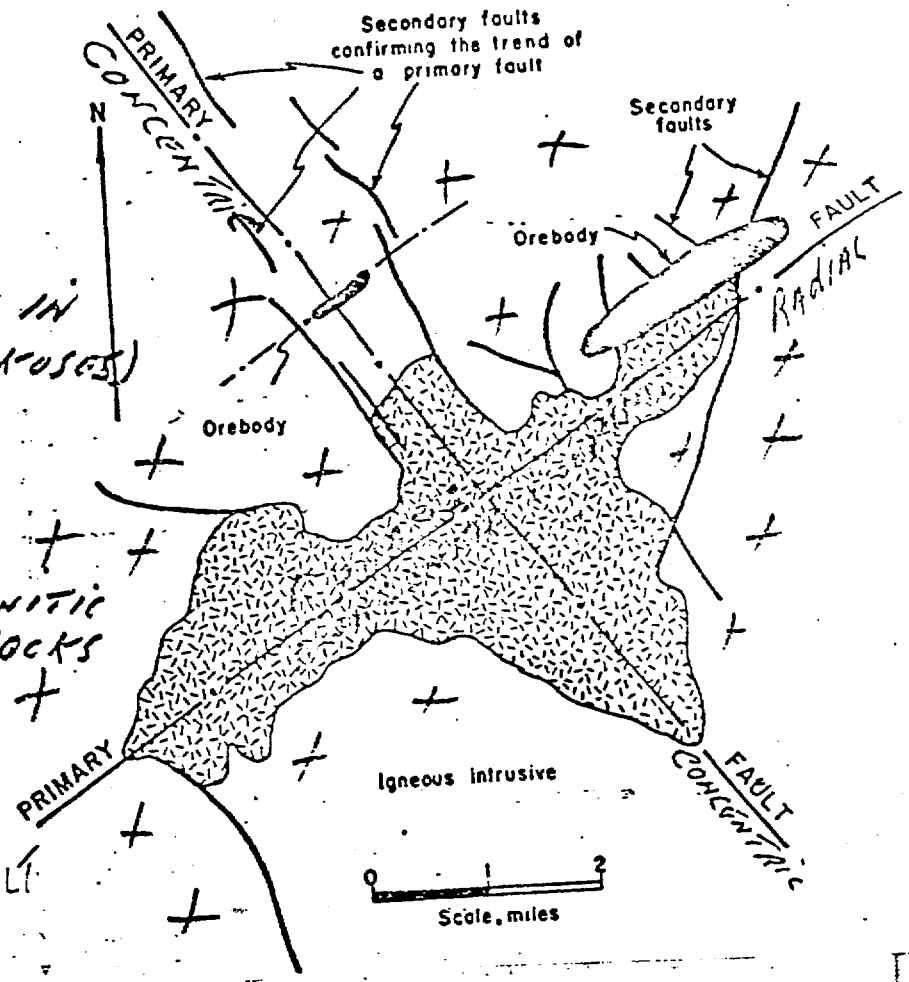


Fig. 3 – Inference of primary faults through elongation of intrusives.

(II) MOVAL MINES GRANITIC
ORE = 100% BASEMENT ROCKS
1. SIERRITA MINE
2. ESPERANZA MINE

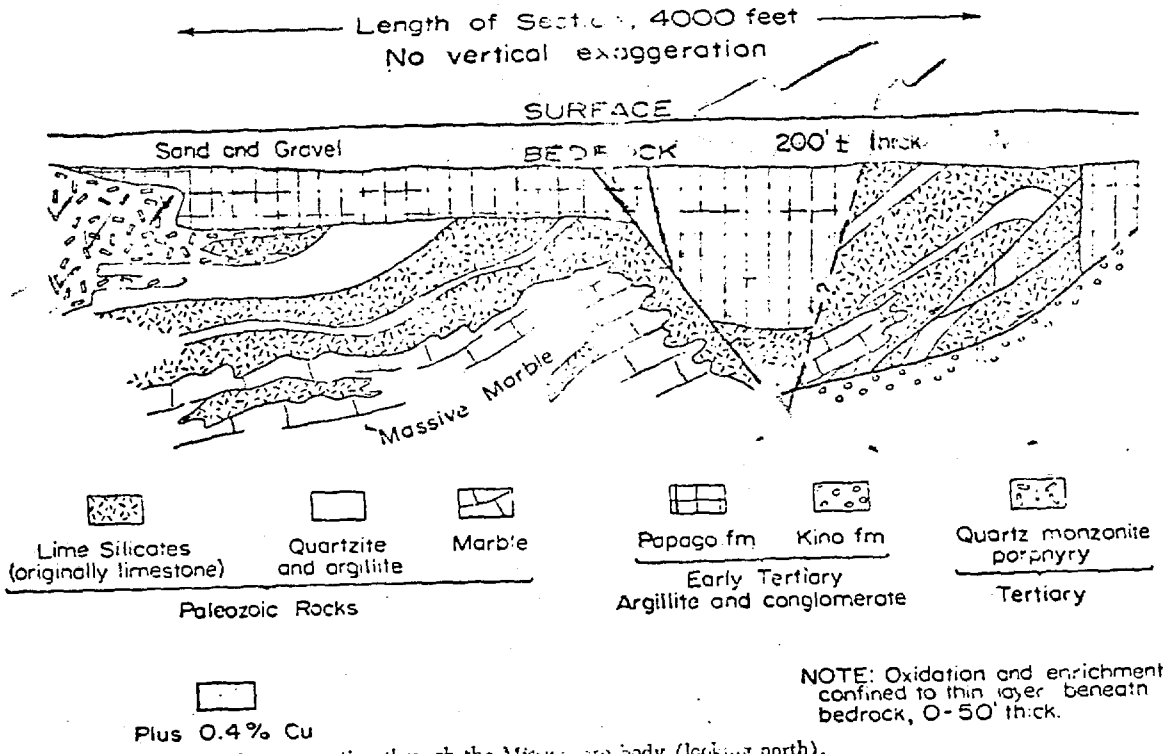


FIGURE 5.—Diagrammatic cross section through the Mission ore body (looking north).

small discrete grains, in thin irregular veinlets, in narrow replacement fissures, and as large pods of massive sulfides that locally assay 5 to 15 percent Cu.

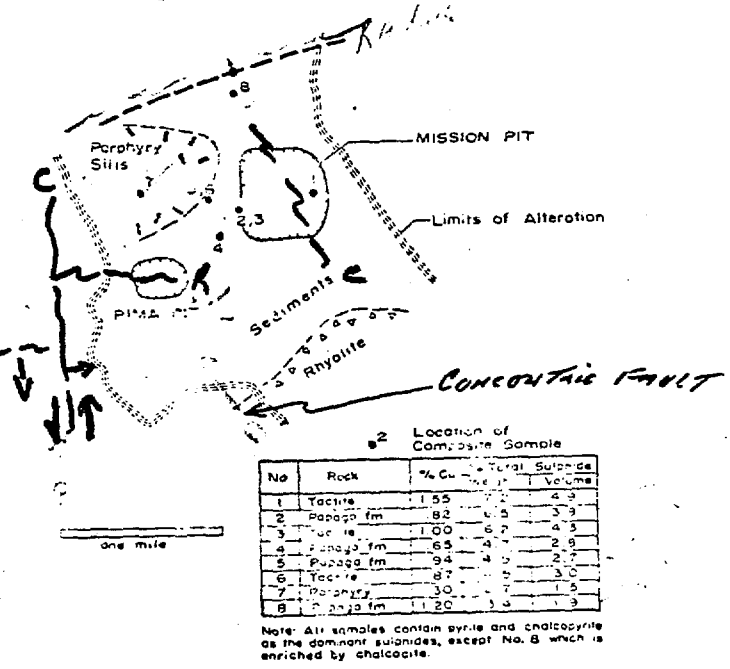
The hornfels type commonly is composed of a variable hard-to-soft, white fine-grained aggregate, which in thin section proves to be equigranular diopside with variable amounts of calcite (as much as 20 percent). A variation is a hard greenish variety, which in thin section is seen to be composed of stubby prismatic crystals of diopside. The refractive indices of the white granular variety are slightly higher than those of pure diopside, and the prismatic crystals range about midway between the indices of hedenbergite and those of diopside. Thus, iron metasomatism is obviously a major factor in the formation of both the hornfels and the andradite-tactite previously described.

In the western part of the ore body a characteristic feature of the hornfels is the presence of small veinlets of blue-green actinolite, commonly 1/16 to 1 inch wide, but not everywhere, having a medially disposed stringer of pyrite and chalcopyrite. The actinolite commonly is altered slightly to chlorite. Sulfides are distributed in the hornfels in the same manner as in tactite.

As a group, the limy rocks—tactite and hornfels—constitute the main source of copper and have a higher average grade than ore in argillite, which is the second principal copper host rock.

Sulfide Impregnation

Hypogene sulfide mineralization is, from an economic viewpoint, the most important change or altera-



No	Rock	% Cu	Total Sulfide Volume
1	Tactite	1.55	4.9
2	Papago fm	.82	3.3
3	Tactite	1.00	4.5
4	Papago fm	.65	2.9
5	Papago fm	.94	2.7
6	Tactite	.87	3.0
7	Porphyry	.30	1.5
8	Papago fm	1.20	3.3

Note: All samples contain pyrite and chalcopyrite as the dominant sulfides, except No. 8 which is enriched by chalcocite.

FIGURE 6.—Total sulfide content, Mission mine.

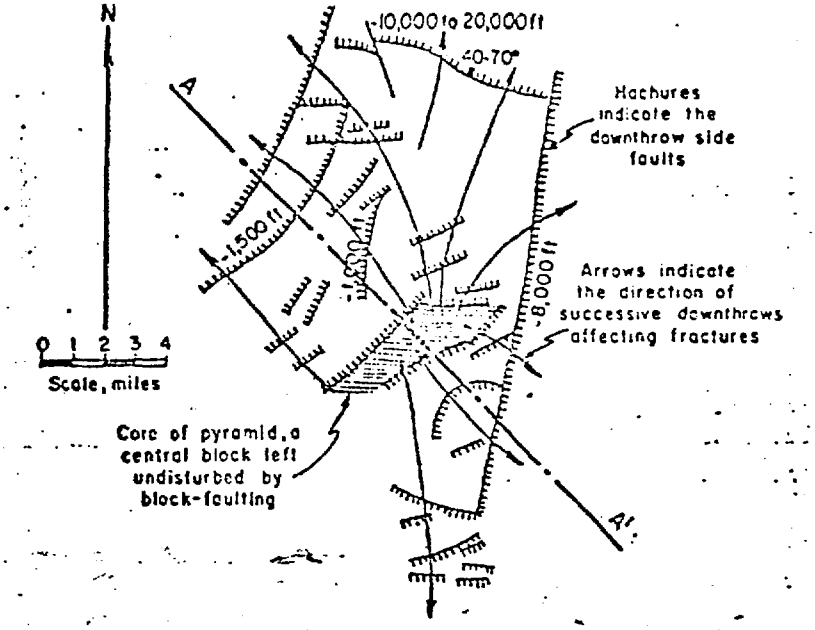
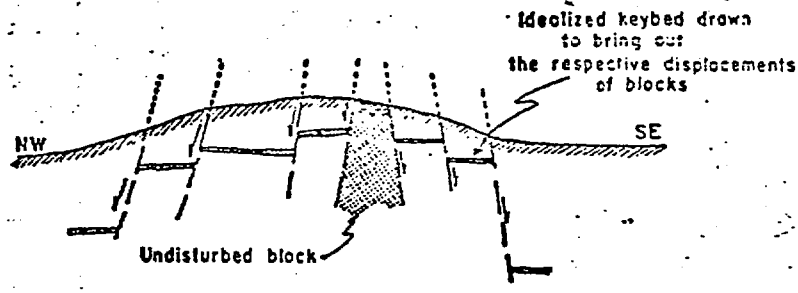
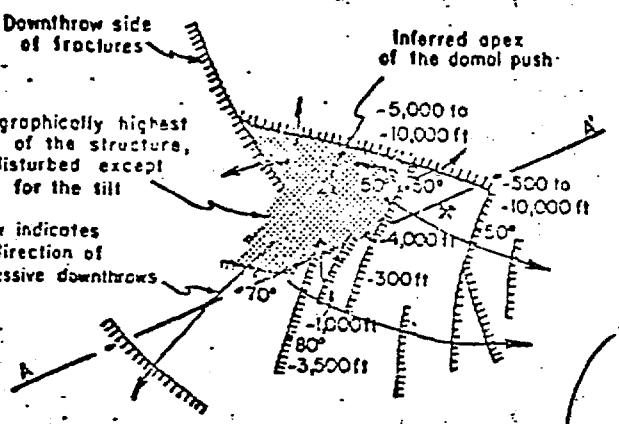


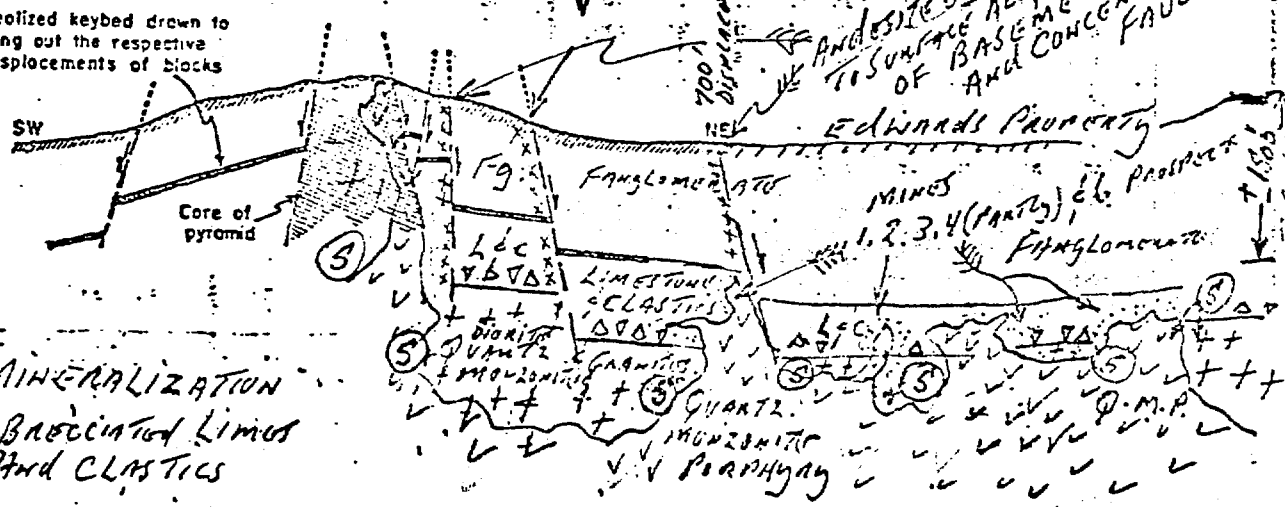
Fig. 6 — Typical pyramid pattern, result of block-faulting.





MINES
1. SAN XAVIER } A.S.&R
2. MISSION
3. PIMA — CYANAMID, UNION OIL, UTAH CONSTN
4. TWIN BUTTES → ANACONDA, AMAX
5. DUVAL
(i) ESPERANZA
(ii) SIERRITA
6. DYNAMITE PROSPECT

Fig. 7 — Typical domal pyramid, or block-faulted dome.



LOGS, EDWARDS CLAIMS
Summarized from Anaconda detailed logs

Hole No.

D106 1331' Banner hole NW/NW 17 No log
281-283.5 0.51 % Cu fng(?)

D273 1192' on map, log 757.5' All fng, SW/SW16 1961
Ann Sullinger #31 claim

421 925' NE/NW 28
0-681 all
-808 ls, some qte, slt, sandy slt
-833 EOH 1/11/65 Broken zone in qte
-925 lt gry qte, feldspathic (hole re-entered)

424 750' 1/23/65 all fng SE/NE 20

442 479' 3/11/65 SE/SE 20
-470 fng
-474 ?
-479 gar seds .02% Cu (visible $CuFeS_2$)

443 1500' 3/3/65 SW/NE 20
-245 all
-1500 EOH 4/16/65 fng

444 1526' EOH 4/20/65 all fng ~~(not on map)~~

446 331' EOH 5/3/65 all fng SW/SE 13

450 817' EOH 7/22/65 all fng SE/SE 13

467 695' SE/NW 21
-340 br fng(?)
-695 EOH 6/27/66 drk & lgt gry ls, lgt yel brn ls, silty ss, sandy ls to limey ss, buf gry ls, slt, etc.
(no mention of skarn)

483 869' Fan group NE/SW 19
-215 fng
-329 ls bx
-378 gar & alt ls, calc sil argl, Cu Ox, Cu_2S, bx
-484 ls fng, minor to mod CuOx, some Cu_2S (?)
-869 Gar seds, mnz
776-780 dike, prob QMP w/aph grdms
-946 EOH fng

Mnz:	325-378	av .8-1.0% Cu	
	481-515	" " "	
	569-603	"	.75
	661-681	"	.5
	841-869	"	.5

RECEIVED
FEB 18 1976
GEOLOGICAL DEPT.

491 727' SE/NW 21
-435 sand & gravel
-727 EOH 4/6/67 silty sandy ls, slt, etc (no mention of skarn)

Logs, Edwards Claims (cont'd)

534 957' all fng 12/19/64 SE/NE 17

535 1010' CDH 8/24/64 NW/NW 18
-485 fng (?)
-1010 EOH cong (fng ?) 12/14/64

582 755' all fng 3/31/66 NE/SE 18

971 1504' all fng NW/SE 19

975 1246' just N of Dynamite SW/SE ~~(or SE/SE)~~ 19
-309 fng
-688 gar & sil ls & slt, loc qtz & chdny stringers, Cu_2S & $CuFes_2$
-812 QMP shattered & alt FeS_2 grt than $CuFeS_2$ & MoS_2
-1246 EOH fng

Mnz: (av approx)		
309-378	.8%Cu	
378-344	.18	
444-485	.75	(485-581 poor core recov)
548-560	.35	
568-574	.75	
574-614	.18	
643-695	.7	

976 1500' SE/SE 19
-138 all
-492.5 frag bx cng of sil gar ls, some CuOx cement, some chdny & qtz masses & seams
-1500 fng

977 723.5' SW/SE 19
-230 all & fng
-322 ls cng
-387 ls bx to cng
-696 qtz gar ls, limey slt, slt
-709 QM (?) mod to stg alt, weak $CuFeS_2$, trace MoS_2
-710 (?) fng feldspathic qte, trace $CuFeS_2$
-723.5 fng

mnz: (approx av)		
393-403	.25% Cu	
567-642	.5	
713-723.5	.25	

980 1434' Fan Group all fng occ 6" of .3 - .6% Cu NW/SE 19

981 2111' 700' SE of 980 SE/SE 19
-2050 fng
-2053 broken QMP, weak $CuFeS_2$
-2073 gar seds
-2111 QM loc porph, trace FeS_2 & $CuFeS_2$ on stringers
mnz: 2053-2055 8.5% Cu gar, near mass $CuFeS_2$
2055-2061 .3

984 860' SW/SE 19
-181 all & fng pyroclastics, sil & alt ls, some CuOx
-255 ls cng, some gar
-508 gar sil ls, sil limey slt, qte, alt slt
-702 QM part porph, strongly alt, broken, loc chl
-860 fng

997 1363' near Twin Buttes Rd., just NW of SW cor Dynamite
-313 fng
-1242 meta alt seds
-1265 QMP strong K spar flooding, lack of S except 1244-1247
-1363 EOH QM looks more like "granodiorite" bio in descrete bks, not strongly alt

mnz:	approx av	386-390	2.13% Cu
		400-420	.5
		499-520	.4
		530-540	.5

1030 547' just SE of SW cor Dynamite
-119 caliche cng
-199 QM P(?) str alt
-205 slt, serp
-396 QM P(?) str alt, broken
-444 alt slt & ls
-485 QM P(?) alt
-547 seds, some serp, many slips (EOH)

mnz:	199-205	.35% Cu
	407-416	.8

1032 1275' W of W side Dynamite
-779 cng & fng
-802 alt ls
-822.5 alt QMP (?)
-1247 ls & dol, some argl, all alt
-1258 QM P(?)
-1260 argl
-1275 EOH QM P(?) looks like Cooper's granodiorite
mnz: 822.5-868 av approx 1% Cu

1039 752' 200' E of 1030, 300' E of SW cor Dynamite
-125 QM P(?) str alt (-120 fng)
-142 silty ls, str alt
-373 QM P(?) str alt
-390 gar silty ls
-395 QMP str alt
-3[illegible] gar silty ls
-4[illegible]5 QMP str alt
-448 silty ls
-484 fault zone
-618 serp ls
-737 QMP str alt, bx
-752 EOH serp ls 9/9/66

mnz:	approx av	118-142	.6% Cu
		373-399	.5
		419-448	.4

1091 800' Fan #5 ~~SW/SE~~ SE/SW 19
-522 cng &fng
-722 alt blue gry ls w/some qtz
-800 EOH fng

mnz:	523-572	.13% Cu	640-703	2.10% Cu
	572-602	.26	(602-703	1.49)
	602-640	.48	703-722	.10

Logs, Edwards Claims (cont'd)

1107 760' all fng Helmet Pk. NE/NW 18

1136 402' all fng(?) CDH Helmet PK. Monday #4 10/26/68 NW/NW 18

1174 1064' Helmet Pk. Ann Sullinger #15 SW/NW 18
-372 cuttings "washed"
340-372 arkose (br at 340)
-717 EOH fng
-891 and porph, Turkey Track
-917 fng
-1064 EOH 1/12/74 gr & shc mafic. Notes: Mafic intruded by lt col equi grn granite, gen chl & kaol, some close to QM less alt

1183 2514' Tues #6 N of Edwards NE/NE 18
-79 all(?)
-215 Turkey Track and
~~-1499 fng~~
-1706 EOH fng
-1835 fng
2514 EOH bio rhy tuff

1200 513' NE/NW 21
-386 fng
-461 ls & mixed ls-qte bx
-513 EOH 4/28/68 gr, somewhat alt milky felds & pink K spar w/patchy and/or flakes chl & bio, some FeOx & Fe_3O_4 some bx & rehealing

1202 1594' Elizabeth mine SE/NW 24
-1227 fng
-1266 frags ls, qte,gar ark qte in silty sandy matrix
-1442 mixed ark qte, slt
1415-1424 qtzose limey stringers to near massive FeS_2 w/scat PbS & ZnS mixed w/ FeOx
-1451 clastic tuff frags, reworked
-1502 fng(?) qte bx
-1548 fng, mixture ls & qte bx
-1594 EOH 7/23/68 fng (1502 EOH 6/24/68)
mnz: 1230-1239 .14- .56% Cu
1365- 1366.5 .25% Cu .68% Zn .31% Pb
1415-1424 little Cu .21% Zn .21% Pb

1204 915' SW/SW 19
-691 fng
-843 ls
sharp contact
-915 fng EOH 8/14/68
mnz: 251- 261 .20% Cu 721-829 .13% Cu 829-843 1.13% Cu

1235 975' All fng 4/1/70 NE/NE 30 near sec cor (out of numerical order)
950-975 some ls frags show gar & FeOx

1207 1259' all fng 9/9/68 SW/SW 19 1060-1065 .37% Cu

Logs, Edwards Claims (cont'd)

1208 1572' CWT group Midland #6 SE/SE 24
-1262 fng
-1331 serp alt ls
-1512 crs xl pinkish ls
-1572 EOH 10/11/68 strg alt grd, somewhat bx & rehealed, bio to chl, abundant pink K spar, trace S

1209 1363' CWT group Midland #6 SE/SE 24
-936 fng
-1190 pinkish crs xl ls
-1296 serp alt silty ls
-1363 EOH 11/6/68 alt grd , trace Fe_3O_4, trace to nil S

1210 1760' CWT group Midland #26 NE/SE 24
-805 fng
-848 bio porph pyritic and
-1617 fng
-1696 ark & ark qte
-1708 fault zone
-1760 EOH 12/20/68 strg alt gr or grd, bx destroyed text

1218 1015' Emmons #17 NW/NW 21
-831 fng
-858 blu gry ls
-952 slt, 952 strg bx crushing
-985 qte
-1015 ls

1219 915' Fan #3 SW/SW 19
-523 fng
-708 blu gry ls, bx to frgmtl bx (?), fng(?)
-816 EOH 3/11/72 gar & minor calc sil argl; loc mod to strg $CuFeS_2$, FeS_2, sctrd ZnS, PbS, MoS_2
-915 EOH 8/5/72 as above
mnz: 708-713 5.36% Cu 713-862 .16% Cu
724-734 .4 862-915 .97
774-779 .73 also other spots mnz

1235 (see page 4)

1242 1125' Venus #5 NE/NE 30
-889 fng
-1064 ls fng, increase ls skarn w/depth, some qte & clastics
979-994 skarn frgs Cu_2S, Cu_2O, Cu
-1125 EOH 2/21/72 red gng
mnz: 981-1004 .69% Cu

1259 650' all fng 358-650 wk to loc fair CuOx E side sec 20 near ¼ cor

1308 631' SE/SW 21
4-197 gry ls, some change
-500 md to dk gry fossil ls, lower 116' cherty
-594 dk to lt gry fossil ls , some sandy
-631 EOH ss to qte

LOGS, EDWARDS CLAIMS
Summarized from Anaconda detailed logs

Hole No. T 17S, R 12 E

D 106 1331' Banner hole NW/NW 17 No log
281-283.5 0.51 % Cu fng(?)

D273 1192' on map, log 757.5' All fng, SW/SW16 1961
Ann Sullinger #31 claim

421 925' NE/NW 28
0-681 all
-808 ls, some qts, slt, sandy slt
-833 EOH 1/11/65 Broken zone in qts
-925 lt gry qts, feldspathic (hole re-entered)

424 750' 1/23/65 all fng SE/NE 20

442 479' 3/11/65 SE/SE 20
-470 fng
-474 ?
-479 gar seds .02% Cu (visible $CuFeS_2$)

443 1500' 3/3/65 SW/NE 20
-245 all
-1500 EOH 4/16/65 fng

444 1526' EOH 4/20/65 all fng ~~(not on map)~~

446 331' EOH 5/5/65 all fng SW/SE 13

450 817' EOH 7/22/65 all fng SE/SE 13

467 695' SE/NW 21
-340 br fng(?)
-695 EOH 6/27/66 drk & lgt gry ls, lgt yel brn ls, silty ss, sandy ls to limey ss, buf gry ls, slt, etc.
(no mention of skarn)

483 869' Fan group NE/SW 19
-213 fng
-329 ls br
-378 gar & alt ls, calc sil argl, Cu Ox, Cu_2S, br
-484 ls fng, minor to mod CuOx, some Cu_2S (?)
-869 Gar seds, mnr
776-780 dike, prob QMP w/aph grdns
-946 EOH fng
Mns: 325-378 av .8-1.0% Cu
481-515 " " "
569-603 " .75
661-681 " .5
841-869 " .5

491 727' SE/NW 21
-435 sand & gravel
-727 EOH 4/6/67 silty sandy lms slt, etc. (no mention of skarn.)
silty sandy ls slt etc. (no mention of skarn)

RECEIVED
FEB 13 1976
GEOLOGICAL DEPT.

From V.E. Keal.

①

Logs, Edwards Claims (cont'd)

Jim
This is the best I could find

534 957' all fng 12/19/64 SE/NE 17

535 1010' CDH 8/24/64 NW/NW 18
-485 fng (?)
-1010 EOH, cong (fng ?) 12/14/64

582 755' all fng 3/31/66 NE/SE 18

971 1504' all fng NW/SE 19

975 1246' just N of Dynamite SW/SE ~~(or SE/SE)~~ 19
-309 fng
-688 gar & sil ls & slt, loc qtz & chdny stringers, Cu_2S & $CuFeS_2$
-812 QMP shattered & alt FeS_2 grt than $CuFeS_2$ & MoS_2
-1246 EOH fng

Mns: (av approx)	309-378	.8%Cu	
	378-344	.18	
	444-485	.75	(485-581 poor core recov)
	548-560	.35	
	568-574	.75	
	574-614	.18	
	643-695	.7	

976 1500' SE/SE 19
-138 sil
-492.5 frag bx cng of sil gar ls, some CuOx cement, some chdny & qtz masses & seams
-1500 fng

977 723.5' SW/SE 19
-250 sil & fng
-322 ls cng
-387 ls bx to cng
-696 qtz gar ls, limey slt, slt
-709 QM (?) mod to stg alt, weak $CuFeS_2$, trace MoS_2
-710 (?) fng feldspathic qtz, trace $CuFeS_2$
-723.5 fng

mns: (approx av)	393-403	.25% Cu
	567-642	.5
	713-723.5	.25

980 1434' Fan Group all fng occ 6" of .3 - .6% Cu NW/SE 19

981 2111' 700' SE of 980 SE/SE 19
-2050 fng
-2053 broken QMP, weak $CuFeS_2$
-2073 gar seds
-2111 QM loc porph, trace FeS_2 & $CuFeS_2$ on stringers

mns:	2053-2055	8.5% Cu gar, near mass $CuFeS_2$
	2055-2061	.3

984 860' SW/SE 19
-181 sil & fng pyroclastics, sil & alt ls, some CuOx
-255 ls cng, some gar
-508 gar sil ls, sil limey slt. qtz. alt slt

-702 QM part porph, strongly alt, broken, loc chl
-860 fng
Mag: 253-311 .3% Cu 356-453 .6% Cu 508-702 QM less than .2% Cu.
MHZ:

p.(2)

Logs, Edwards Claims (cont'd)

997 1363' near Twin Buttes Rd., just NW of SW cor Dynamite
-313 fng
-1242 meta alt sads
-1265 QMP strong K spar flooding, lack of S except 1244-1247
-1363 EOH QM looks more like "granodiorite" bio in descrete bks, not strongly alt
mns: approx av 386-390 2.13% Cu
400-420 .5
499-520 .4
530-540 .5

1030 347' just SE of SW cor Dynamite
-119 caliche cng
-199 QM P(?) str alt
-205 slt, serp
-396 QM P(?) str alt, broken
-444 alt slt & ls
-485 QM P(?) alt
-347 sads, some serp, many slips (EOH)
mns: 199-205 .35% Cu
407-416 .8

1032 1275' W of W side Dynamite
-779 cng & fng
-802 alt ls
-822.5 alt QMP (?)
-1247 ls & dol, some argl, all alt
-1258 QM P(?)
-1260 argl
-1275 EOH QM P(?) looks like Cooper's granodiorite
mns: 822.5-868 av approx 1% Cu

1039 752' 200' E of 1030, 300' N of SW cor Dynamite
-125 QM P(?) str alt (-120 fng)
-142 silty ls, str alt
-373 QM P(?) str alt
-390 gar silty ls
-395 QMP str alt
-399 gar silty ls
-405 QMP str alt
-448 silty ls
-484 fault zone
-618 serp ls
-737 QMP str alt, bx
-752 EOH serp ls 9/9/66
mns: approx av 118-142 .6% Cu
373-399 .5
419-448 .4

1091 800' Fan #5 SE/SW 19
-522 cng &fng
-722 alt blue gry ls w/some qtz
-800 EOH fng
mns: 523-572 .13% Cu 640-703 2.10% Cu
572-602 .26 (602-703 1.49)
602-640 .48 703-722 0.10

Logs, Edwards Claims (cont'd)

1107 760' all fng Helmet Peak NE/NW 18
1107 760' [illegible]
1136 402' all fng? EDM Helmet Peak · Mendez #4 10/26/48 NW/NW 18
1174 1064' Helmet Pk. Ann Sullinger #13 SW/NW 18
-372 cuttings "washed"
340-372 arkose (br at 340)
-717 EOH fng
-891 and porph, Turkey Track
-917 fng
-1064 EOH 1/12/74 gr & shc mafic. Notes: Mafic intruded by lt col equi grn granite, gen chl & kaol, some close to QM less alt

1183 2514' Tuss #6 N of Edwards NE/NE 18
-79 all(?)
-215 Turkey Track and
~~-1499 fng~~
-1706 EOH fng
-1835 fng
2814 EOH bio rhy tuff

1200 513' NE/NW 21
-386 fng
-461 ls & mixed ls-qte bx
-513 EOH 4/28/68 gr, somewhat alt milky felds & pink K spar w/patchy and/or flakes chl & bio, some FeOx & Fe_3O_4 some bx & rehealing

1202 1594' Elizabeth mine SE/NW 24
-1227 fng
-1266 frags ls, qte, gar ark qte in silty sandy matrix
-1442 mixed ark qte, slt
1415-1424 qtzose limy stringers to near massive FeS_2 w/scat PbS & ZnS mixed w/ FeOx
-1451 clastic tuff frags, reworked
-1502 fng(?) qte bx
-1548 fng, mixture ls & qte bx
-1594 EOH 7/23/68 fng (1502 EOH 6/24/68)
mm: 1230-1239 .14- .56% Cu
1365- 1366.5 .25% Cu .68% Zn .31% Pb
1415-1424 little Cu .21% Zn .21% Pb

1204 915' SW/SW 19
-691 fng
-843 ls
sharp contact
-915 fng EOH 8/14/68
mm: 251- 261 .20% Cu 721-829 .13% Cu 829-843 1.13% Cu

1235 975' All fng 4/1/70 NE/NE 30 near sec cor (out of numerical order)
950-975 some ls frags show gar & FeOx

1207 1259' all fbg 9/9/68 SW/SW 19 1060-1065 .37% Cu

(4)

Logs, Edwards Claims (cont'd)

1208 1572' CWT group Midland #6 SE/SE 24
-1262 fng
-1331 serp alt ls
-1512 crs xl pinkish ls
-1572 EOH 10/11/68 strg alt grd, somewhat bx & rehealed, bio to chl, abundant pink K spar, trace S

1209 1363' CWT group Midland #6 SE/SE 24
-936 fng
-1190 pinkish crs xl ls
-1296 serp alt silty ls
-1363 EOH 11/6/68 alt grd , trace Fe_3O_4, trace to nil S

1210 1760' CWT group Midland #26 NE/SE 24
-805 fng
-848 bio porph pyritic and
-1617 fng
-1696 ark & ark qts
-1708 fault zone
-1760 EOH 12/20/68 strg alt gr or grd, bx destroyed text

1218 1015' Emmons #17 NW/NW 21
-851 fng
-858 blu gry ls
-952 alt, 952 strg bx crushing
-985 qts
-1015 ls

1219 915' Fan #5 SW/SW 19
-523 fng
-708 blu gry ls, bx to frgmtl bx (?), fng(?)
-816 EOH 3/11/72 gar & minor calc sil argl; loc mod to strg $CuFeS_2$, FeS_2, sctrd ZnS, PbS, MoS_2
-915 EOH 8/5/72 as above
mns: 708-713 5.36% Cu 713-862 .16% Cu
724-734 .4 862-915 .97
774-779 .73 also other spots mns

1255 (see page 4)

1242 1125' Venus #5 NE/NE 30
-889 fng
-1064 ls fng, increase ls skarn w/depth, some qts & clastics
979-994 skarn frgs Cu_2S, Cu_2O, Cu
-1125 EOH 2/21/72 red gng
mns: 981-1004 .69% Cu

1259 650' sil fng 358-650 wk to loc fair CuOx E side sec 20 near ¼ cor

1308 631' SE/SW 21
4-197 gry ls, some change
-500 md to dk gry fossil ls, lower 116' charty
-594 dk to lt gry fossil ls , some sandy
-631 EOH as to qts

J. H. C.

APR 11 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

MR. WES
READ AND RETURN
PREPARE ANSWERS HANDLE
FILE INITIALS

April 10, 1969

TO: J.H. Courtright

FROM: J.E. Kinnison

Edwards Fuller Claims
Pima Mining District
(Twin Buttes)
Pima County, Arizona

This past fall I studied geological and drill hole data in the subject area, presented by Mr. Jay E. Fuller, a contractor with offices at 1301 E. Ft. Lowell Rd. The claims are held in partnership with George Edwards, a small mine operator. Tape recorded notes abstracting data, and free hand sketches are appended.

The property, entirely alluvial covered, was presented to us by Fuller with two exploration objectives in mind. The first hangs on geologic theory developed by Dick Weaver, formerly with Bear Creek. The second proposal bases on the alleged existance of 88 mill tons grading 0.8% Cu in claims adjacent, to the south of the Edwards-Fuller group.

Weaver's hypothesis centers around his interpretation of the origin of the San Xavier Conglomerate (Helmet fanglomerate), which I believe to be incorrect.

The value reported to exist on the ground to the south, owned by Vernon Smith and under option to Hanna, is unsubstantiated. If it can be shown to be a realistic appraisal, then the extension of the same on the Edwards ground is worthy of testing by drilling. Our present data suggest, however, that the reported tonnage is non-existent. Mr. Fuller advises me that he now has additional data on the Smith Claims -- which data I have not yet examined.

John E. Kinnison

John E. Kinnison

JEK:lzb
Encl.

cc: WESaegart, w/encl.

LIST OF ATTACHMENTS

Correspondence and map by Jay E. Fuller

Tape Recorder notes

Assays of some drill holes

Sketches show drill hole location and summary results

JOHN P. KELLOGG
CONSULTING MINING AND GEOLOGICAL ENGINEER
P.O. BOX 939, ASPEN, COLORADO 81611

September 17, 1968

Mr. R. K. Kirkpatrick, Supervisor
AMERICAN SMELTING & REFINING COMPANY
1805 South Bellaire Street, Suite 301
Denver, Colorado 80222

Dear Roger:

A quickie note - attached is a map of a potential porphyry copper property, about four sections, in the center of the major porphyry areas in the world - south of Tucson in Twin Buttes Area. Your Mission Pit and "New" pit is to the north.

The man to contact on this is:

Mr. Jay E. Fuller
JAY E. FULLER CONSTRUCTION CO.
1301 East Fort Lowell Road
Tucson, Arizona 85719
Phone: 602 - 325-1505

No exploration, no drilling done on this. Mr. Fuller will discuss participation - and what the owners are asking. To my mind, with the potential here, their terms are extremely modest.

Now, because you will be here in one minute, I will close.

Regards,

John

John P. Kellogg

cc: J. E. Fuller

AMERICAN SMELTING AND REFINING COMPANY
ROCKY MOUNTAIN EXPLORATION DIVISION
1805 SOUTH BELLAIRE STREET, SUITE 301
DENVER, COLORADO 80222
303-757-5107

JEK

J.H.C.
SEP 23 1968

J. E. K.
OCT 01 1968

September 19, 1968

W.E.S.
SEP 24 1968

Mr. J. H. Courtright
American Smelting & Refining Company
P. O. Box 5795
Tucson, Arizona 85703

Pima District

Dear Harold:

The enclosed letter and map were handed to me by John Kellogg of Aspen just before we went into the field. I told him that I would pass the information on to you.

It hardly seems likely that there has been no exploration and drilling on the Edwards group, as alleged.

Very truly yours,

R. K. Kirkpatrick

R. K. Kirkpatrick

RKK/kjw
Enclosures (2)

Located 55-56 by George Edwards
Assessment drilling — [illegible] mon. dist.
Dick Weaver — MA [illegible] - Ruby Star Ranch Area

JOHN THIS IS THE GROUP
Edwards Groups
JAY E. FULLER
TUCSON, ARIZONA
Anaconda
AS&R
Pima Mng.
Duval Corp.
Smith - claims
Encloses Surface mineral exposure zones
SAN XAVIER INDIAN RESERVATION
Black Mountain
AS&R-new PIT
Palo Alto deposit
AS&R Mission PIT
San Xavier mine
Pima PIT
Helmet Peak deposit (General)
Edwards Groups
Dogtown Area deposits
MANY DRILL HOLES ALL AROUND
Exposed mineral zones
Anaconda-Continental deposit
Anaconda still drilling here
many drill holes This area Anaconda still drilling
Smith
This area has 9300' of drilling with 25 million Tons blocked out of 1.0% Copper. Data available 6-CLAIMS
Anaconda Twin Buttes PIT
Sierrita Pit (new)
Duval
Esperanza Pit
T. 16 S.
T. 18 S.
SAHUARITA 9.3 MI.
TUCSON 27 MI.

J.E.K.

TAPE RECORDER NOTES

EDWARDS PROPERTY NORTH OF TWIN BUTTES 10/2/68

Mr. Edwards and Mr. Fuller have furnished me with a number of reports of various origin and also accompanied by maps. I am reviewing them now in their office to determine which if any should be copied for further study.

(1). In one of the folders the report by John Journey for the Pima Mining Company on the Wilson, Chilson, Todd Group. This ground has been drilled by Bear Creek and we have the results and also a copy of results of Pima's work and John Journey's report. His report receives from me very little consideration because it is not of professional quality.

(2). In the same folder, also I find a gravity survey, interpretation thereof by T.L. Longacre and G.R. Rogers Bear Creek. This would duplicate our own work.

(3). There is a copy of a masters thesis 1965 by Richard Weaver filed at the library of the University of Arizona (Structure of the Ruby Star Area Pima mining district, Arizona). This of course, is what the principle hopes are based on by Mr. Fuller and Mr. Edwards. This is a zerox copy and the copy of the maps; it is based on Weavers association with the district and all of Bear Creeks' work. As I was told yesterday, Dick Weaver has also been enthusastic about ore potential in verbal conversation with Mr. Fuller and Mr. Edwards although he does not go into this matter in the thesis, at Bear Creeks' request.

(4). Another folder contains a report by Anaconda to Mr. L.N. Smith of Verity and Smith, 902 Phoenix Title Building, Tucson. The Smith ground lies south of the Edwards ground but north of the Twin Buttes Hills. This report is a copy to Mr. Smith of what was sent to Mr. Edwards under provisions of an agreement, February 12, 1965. Anaconda has concluded that there is no sulfide mineralization to at least 1500 feet below the ground surface over most of the claims, based on I.P. surveys plus drilling. Logs of the holes are not present other than one which reached a depth of 479 feet. This was A-442, it was sampled in bedrock at 474'-479- and assayed .02% total copper, and this hole is in section twenty just west of the east line and a bit more than 600 feet north of the south line of section twenty, this is in the Sweeta (No. 8) claim. Nothing of great value contained in this report.

(5). The report on the ground held by Edwards Hunsicker and Sevitts is in a separate folder written for Bear Creek by an unknown writer. Contains a few pages of summary and details of logs and geophysical surveys. A pocket in this folder contains gravity surveys and interpreted subsurface conditions in the vicinity of the Edwards ground, September 25, 1962.

(6). Folder containing a copy of a thesis by Harold Waller Jr. University of Arizona 1960, Geology of the Paymaster and Olivette areas, Pima Mining district. Waller disagrees with John Coopers work and states page 37, " the above evidence suggests that the mineralization in the Paymaster and Olivette mining areas was derived from a source in the vicinity, and not displaced some six and one half miles north northwest to its present location, as is proposed for the Pima and Mission ore bodies."

(7). The final folder contains a report on the Petro and on the east Petro properties which are northerly from twin buttes hills. These are by Richard Weaver of Bear Creek and written for Bear Creek Mining Company. Contents are brief description of conclusions and graphic logs, I.P. traverses, and a few cross-sections, and the summary of data.

DISCUSSION

I have just completed reviewing hastily Dick Weavers thesis and I am at a loss for words to adequately describe my impressions of it. His basic attempt is to tackle the problem of the San Xavier conglomerate, the helmet conglomerate of John Cooper, how it got where it is and why it was so thick etc. His ultimate conclusion is that it occupies essentially the basin in which it was deposited and that the southern portion of this depressed basin has been tilted on the south causing the steep dips which we now see, and that this steepening of the beds, caused by sinking on the south side of the trough, was initiated during intrusion of the laramide batholith of the central Sierrita mountains. A complete background beginning with structural events of the laramide is presented and carried through early and middle territary. This is a commendable attempt but it lacks in several specific ways. He has attempted to show that the basement fault which he terms the "sole" fault as though an analogy were being made as to the sole of a shoe, is only one part of a complex series of gliding planes which was formed during and slightly following intrusion of the granite masses and that it really did not move the conglomerate very far from its source. The background for this is extremely questionable. It is based in part on pure theory as to what a domical uplift would cause, and he further illustrates this by comparison to actions of glacial movement and to salt domes. These are applicable, of course, but only in their proper perspective. The guidance of his thesis director, Dr. Evans Mayo of the University of Arizona, is especially noticeable here. These are a pet means of comparison as used by Prof. Mayo. Specific objections are found throughout the thesis, where one interpretation instead of another is used in order to make the whole package fit together well. Also, there is a lack of basic description of certain facts which may be observed in the field, and in other places rather unusual interpretations have been placed on what would otherwise be rather simple and ? straightforward interpretations. This is climaxed, I believe, by running the basement fault, where it is near the Continental property and dipping rather flatly, directly and connected with what is known in our files and maps as the Ruby Fault which has a rather steep dip. No grounds are set out for this other than a comparison to what might be observed in a glacial gliding mass.

Having now read Mr. Wallers thesis, 1960, I conclude that it is a 38 page hodgepodge of misinformation.

SUPPLEMENTAL

The Anaconda Company report, a letter to Mr. Smith, September 7, 1966, mentions that they drilled five drill holes. These are not shown on the maps attached the locations of the Anaconda drill holes are not shown. Only one of these was assayed, and the assay from 474-479 being five feet at .02% total copper. Having now reviewed the individual logs just north of Twin Buttes near the Smith ground and the Edwards south boundary by Bear Creek, I find that only two or three of the holes carried any copper, the rest are exceedingly low in assay,

of the Smith grounds as pencilled in

therefore, the estimated tonnage as shown on the map which was sent to us appears not to be confirmed by the data presented to me by Mr. Fuller.

The prospective possibilities of the Edwards group as he and Mr. Fuller have related to me yesterday consist of two parts, one being a continuation of the proposed twenty odd million tons at 1% copper which as I have just noted is not substantiated by data at hand. The other rests entirely on Dick Weavers interpretation of the so called "trough" in which the San Xavier conglomerate was layed down. He believes in essence that this trough was formed by tectonic activity from a igneous intrusion in the mainsierrita mountains and that deposition of the conglomerate was initiated at that time and continued in term, ~~hartly~~ intermittently. As the trough sank on the south side, the beds were tilted. They continued to be deposited after ore deposition had run its course. Edwards and Fuller point out that Weaver believes that gliding action had taken place during this process and that the gliding masses slid from the Foy ridge area out into the basin of deposition and that they therefore would lie at depth below the Edwards ground. No drill holes have as yet cut through the San Xavier conglomerate in this area, so the bedrock remains unknown. Whether or not this mechanism for the formation of the San Xavier conglomeration is accepted, and I do not accept it because Weaver does not substantiate it sufficiently, or I should say does not hardly substantiate it at all, the gliding masses would come from the Foy ridge area and in that region, although there are small Cu pockets a few feet across, and some shears that carry a little copper mineralization, and zinc and I believe a little tungsten, there is really nothing of mineral worth to have shed off into the basin. In other words the source area is not known to have contained appreciable mineralization. Therefore, Weavers hypothesis offers no real lead for us to act upon in Exploration. As already expressed my impression is he cannot back up his hypothesis and although I admit to deficiencies in certain respects, concerning our own beliefs in the Company that the San Xavier Fault (the basement fault) moves six and one half miles north and that the Anaconda deposit is the root of our Mission mine and thus, completely contrary to Weavers hypothesis, I still regard this as the only plausible explanation of the facts as they are presently known. The mechanism by which this is accomplished is not known. In the course of sliding the hangingwall plate northward, probably downhill if this is a gravity slide, presumably any portion of the altered zones out of Anaconda could be left as fault slices and contained within the area between the bottom fault (the basement fault) and the overlying beds as a fault silver. In fact, we have cored at Mission many areas of limestone which seem to be lenticular and presumably are fault slivers thus carried along. These lentils of limestone may be seen also in outcrop south of paymaster. Furthermore, this area (Edward's) of thick San Xavier beds, or the area in which they extend to significant depth, is so far untested, and it does lie in a well mineralized district. There is nothing short of a direct drill penetration to absolutely rule out any possibility that there is or is not mineralization in the footwall; but neither is there a lead to start us to that conclusion.

Smith

John Kinnison

NOTES

October 3, 1968

Following a phone call with Mr. Fuller regarding the Edwards property, I quired Mr. Fuller over the telephone on certain points which were needed to fill in the remaining gaps of the analysis of the Edwards group. With respect to the Smith ground, to the south of the Edwards group, of which there is an aledged 25 million tons at 1%, or by dropping the cutoff 88 million at 0.8 percent copper: The Smith ground consist of six claims and the ore is said to be contained within three claims. 9300 feet of drilling is supposed to have been done within these three claims to block out this tonnage. The minimum depth he recalls is 280 feet to the top of ore but the maximum depth or other dimensions are not recalled. In the span of ground north of the Smith area but still south of the Edwards group, which is held by Anaconda, a distance of about a quarter of a mile, Anaconda is said to have drilled a number of holes. "Reliable sources", according to Fuller, state that the holes recently have run around 700 feet in depth and that they do carry mineral. What portion of this is Helmet conglomerate is not known. With respect to the holes drilled by Anaconda on the Edwards group, five holes I believe, Anaconda simply did not return much data to them as per their agreement. However, the location of these holes is plotted on a map and their total depth is shown. This is something I overlooked and will pick up for record at Fullers office tomorrow. One of them was approximately 1500 feet deep. Fuller did not know really if they were ore-bearing or not and said that I would get a better answer from Edwards. It was to be noted that now an air of mystery has been added to this whole fairy story. Since the Smith ground containing some 88 million tons of ore is held under option to other people, the data is not available. Fuller is not sure who made the ore calculation but he thinks Dick Weaver did. In any event, if such an occurrence was realistically calculated from drill hole data, it is certainly worthy of note, and if it can be projected toward the Edwards ground, then those claims definitely have prospective potential. The trick here is to decide whether this ore reserve has any real basis in fact.

NOTES

October 7, 1968

At Fullers office to review certain points. Data in regards to the Edwards group: Anaconda data is meager consisting of a survey of certain claims and of two geophysical surveys labeled 1200 foot search and a 2,000 foot search. The principle anomaly appears to lie in section 20 with an extension east in section 21 and an extension north into most of the south half of section 17. Initial drill holes were in section 20, apparently testing the I.P. anomaly. A two page report by George Ryan April 20, 1966 concludes "it can generally be concluded that there is no sulfide mineralization to at least 1500 feet below the ground surface in this area". The first hole, A-442, total depth at 479 feet, was the only one assayed, the last five feet running 0.2% total copper. For orientation the old road to Sahuarita cuts diagonally northeast through section 20 about the middle. Section 20 lies northerly a short distance from the small hill of probably Horquilla limestone which is separated from the main mass of the twin Buttes lime.

NOTES con't

Mr. Fuller states that the Smith ground reserves were drilled by Anaconda 1962 to 1964, The reserves that he quotes have been calculated by data obtained by Weaver and calculated by Weaver for Smith. Fuller states Smith ground currently under option to Hanna Mining Company.

End of Recordation, Re: Fuller, Edwards group.

Edwards'
~~Eduardo~~ Claims
Pima Mining District
(Twin Buttes)

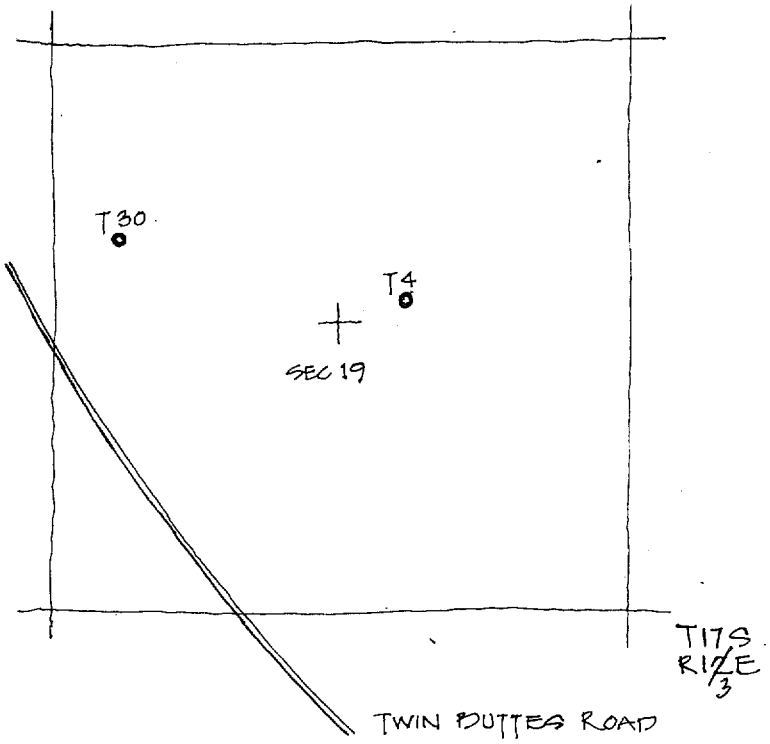
T 45	365-369 .79% Cu
T 42	Surface to 462 no ore
T 16	302 TD no ore
T 6	No assays
T 71	0-160 RoB Tsx or gravel 276 TD ls, prtly silic. no sulf
T 70	TD 510 Qal RB to 170'
T 68	977 TD Tsx all way, Bd 30°, exotic Cu to 400'
T 69	1164 TD 0-200 Qal -450 Qmz -480 Tac w/Cu sulf.
T 67	0-180 Qal 1126 TD Qmz 180' to 490'
T 48	1011 TD All Tsx reddish
T 47	0-220 Qal -605 Qmz -1074 TD Ls (hornfels) with porph 650-700'
T 6	753 TD 0-260 Qal -TD Ls no Cu
T 16	545 TD No Cu, Ls
T 42	544 TD Cpy & Bn diss but assays vy low. No ore grade
T 70	213-346 Core 329-334, 5', 5.18% Cu
T 71	No assays
T 69	249-1164 Cored and assayed 455-65 1.22% Cu 76 .88 84 .73 496 .24 No other ore intercepts
T 68	no ore 231-408 cored & assayed
T 48	No assays
T 47	200-880 TD of assays

T 47 (cont'd)

635-644	1.31% Cu
702-712	.59
-723	1.00
-733	.34
-742	.04
-748	1.35
-756	.51
-766	.58
-776	1.60
-786	1.58
-796	.76
-806	.86
-813	.40
-823	.49
-834	.20
856-866	.92
-876	1.86
-881	1.61

T 67 181'-1083' TD No ore; cored & Assayed.

THESE 2 HOLES CENTRAL EDWARDS PROPERTY



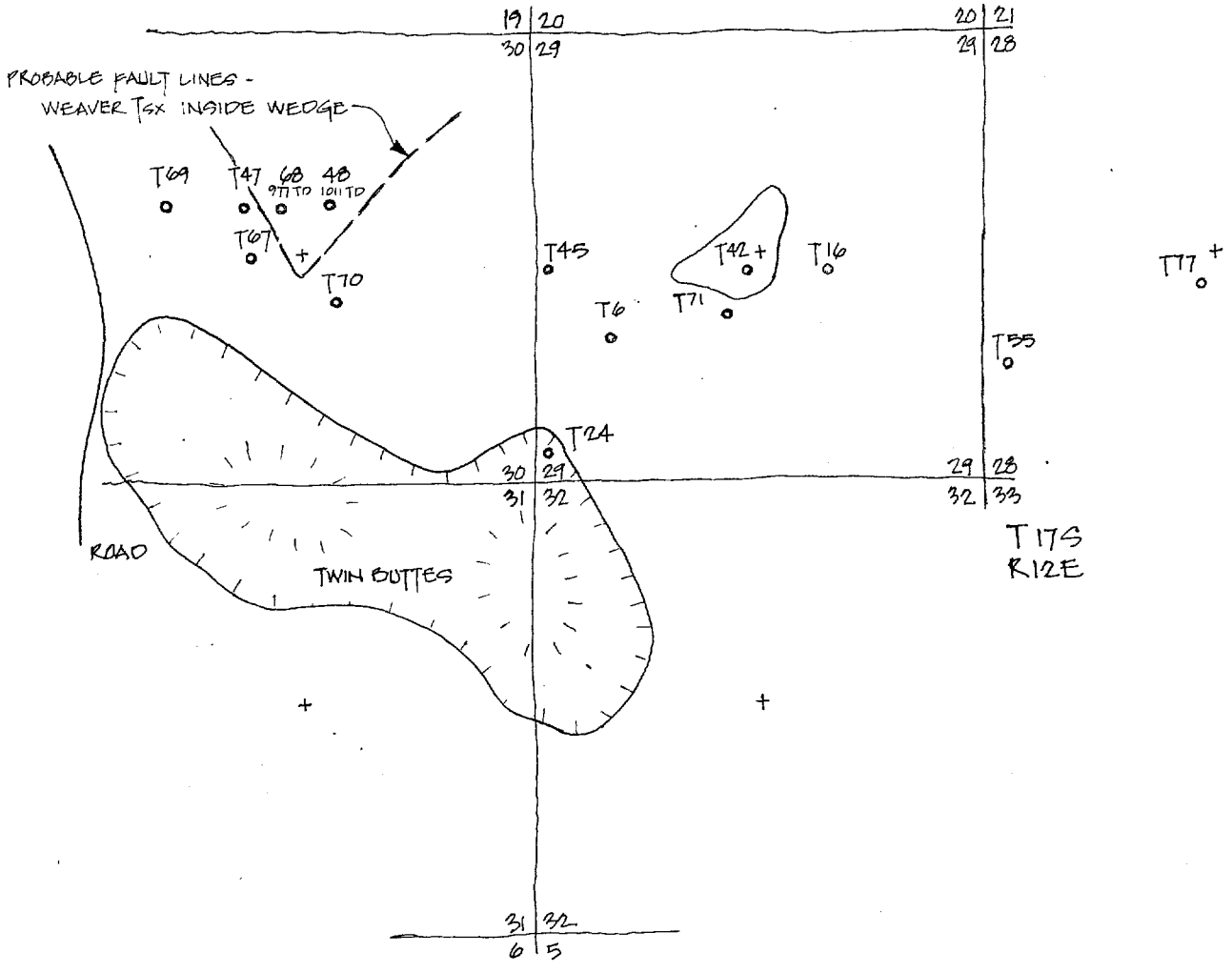
T4

0-142 Qal
142-840 Tsx
@ 300-325 CURITE & MALACHITE
@ 500 Bd 30°

T30

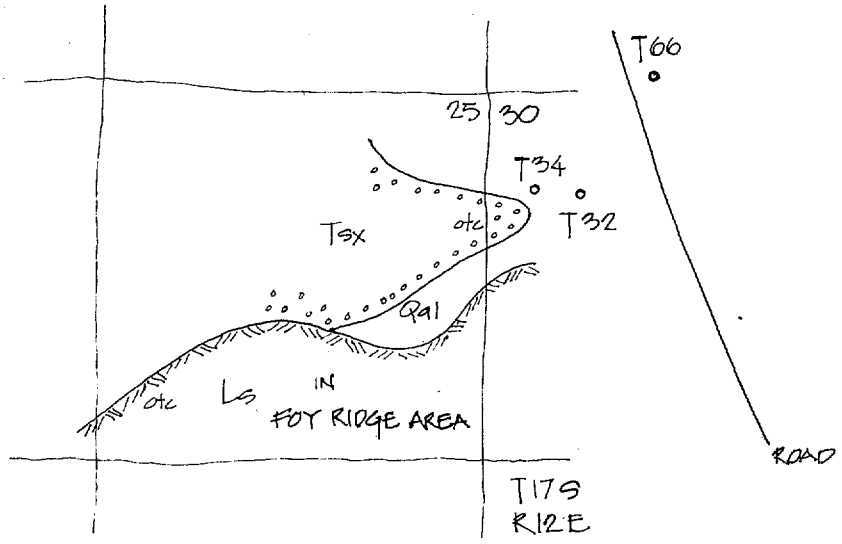
0-1809 Tsx
@ 1000 Bd 30°
@ 1024 1 FT. GYPSUM
@ 1300 Bd 25°-30°
BOTTOM CONTAINS ARKOSE & BLACKSHALE FRAGMENTS.

EDWARD'S CLAIM
TWIN BUTTES
BEAR CREEK HOLES



EAST PETRO AND
PETRO CLAIMS

BEAR CREEK HOLES



COPIED OCT. 7 AT FULLER'S OFFICE
ON FT. LOWELL ROAD

T66

0-661 Tsx

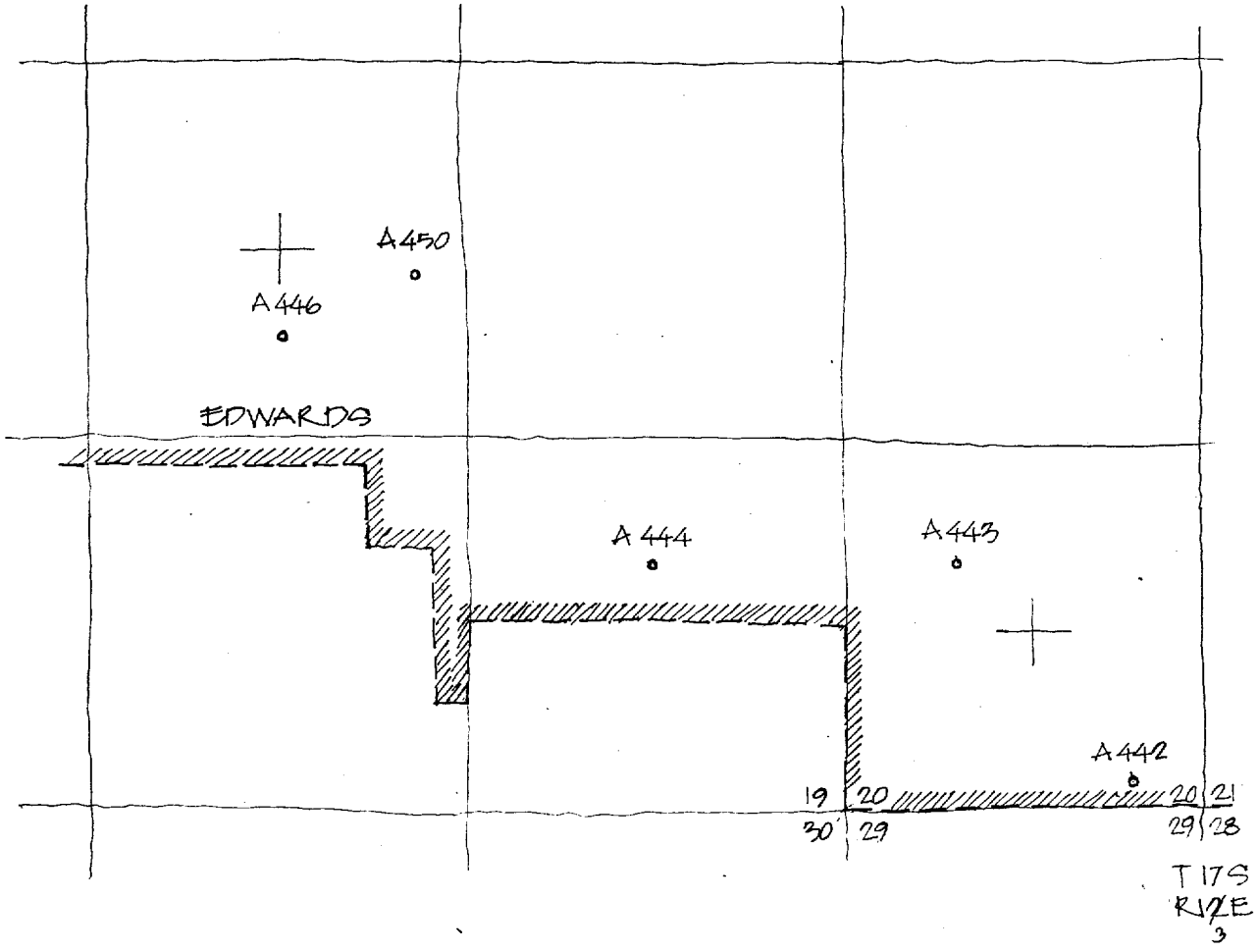
T34

0-75 Tsx
75-640 Is, Mb, Hf, some GARNET
640-705 QM - GRANITE (?) JEK

T32

0-75 Tsx, Qal
75-160 Qtzt, Bx, Tsx ? JEK
160-680 QM with BIOTITE, Gr(?) JEK
POSSIBLE FAULT AT CONTACT

EDWARD'S CLAIM
TWIN BUTTES
BEAR CREEK HOLES



A 442	479	TD	474-479 - .02% Cu
A 443	1500	TD	NO ASSAYS ON OTHER HOLES
A 444	1526	TD	
A 446	331	TD	NO GEOLOGY
A 450	817	TD	

EDWARD'S CLAIM
TWIN BUTTES
ANACONDA HOLES