CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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LEGEND

Note: Except for the few scattered outcrops, geology is shown at bedrock sub-outcrop; 200' maximum alluvial cover.

ROCKS

Upper Tertiary	Toc	Older conglomerate (well indurated)
	Tb	Black Mountain basalt
Middle Tertiary	Tsu	Upper member
	Tbp	Basalt porphyry (flow) } San Xavier fm.
	Tsl	Lower member
POST-ORE		SAN XAVIER SURFACE
PRE-ORE		
Early Tertiary	Tip	Intrusive porphyries - mons. or quartz mons. types
	Tbr	Biotite rhyolite (flow & intrusive
Cretaceous	Ka	Amole group (arkose & siltstone
	Tsg	Sierrita granite

MINERALIZATION

NORTH OF "NORTH FAULT"

SULFIDES:
- Chalcocite ore (>0.4% Cu)
- Drill hole w/ primary ore (>0.4% Cu) outside chalc. blanket
- Approximate max. limits of possible pit ore body, combing primary & chalc. ore.

LEACHED CAPPING:
- Approx. limits of limonite after chalcocite
- Approx. limits of maroon hematite "fog" which floods capping of pyrite-limonite. (plus traces of chalc.-lim.)
- Approx. limits of limonite after pyrite and hydrothermal alteration

- Projection of alteration zone beneath cover rocks

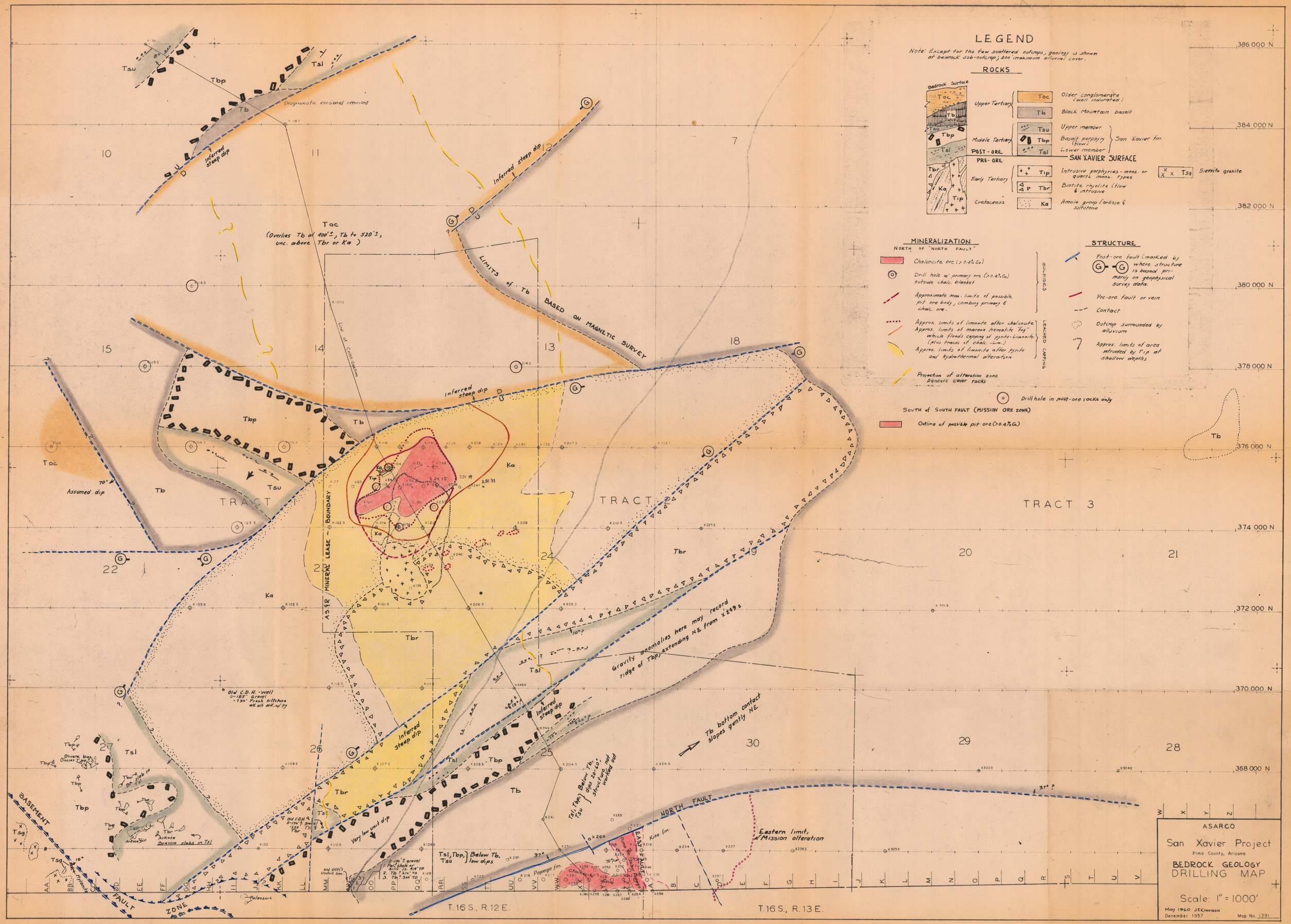
STRUCTURE

- Post-ore fault (marked by where structure is based primarily on geophysical survey data.
- Pre-ore fault or vein
- Contact
- Outcrop surrounded by alluvium
- Approx. limits of area intruded by Tip at shallow depths

- Drill hole in post-ore rocks only

SOUTH of SOUTH FAULT (MISSION ORE ZONE)

- Outline of possible pit ore (>0.4% Cu)



ASARCO

San Xavier Project

Pima County, Arizona

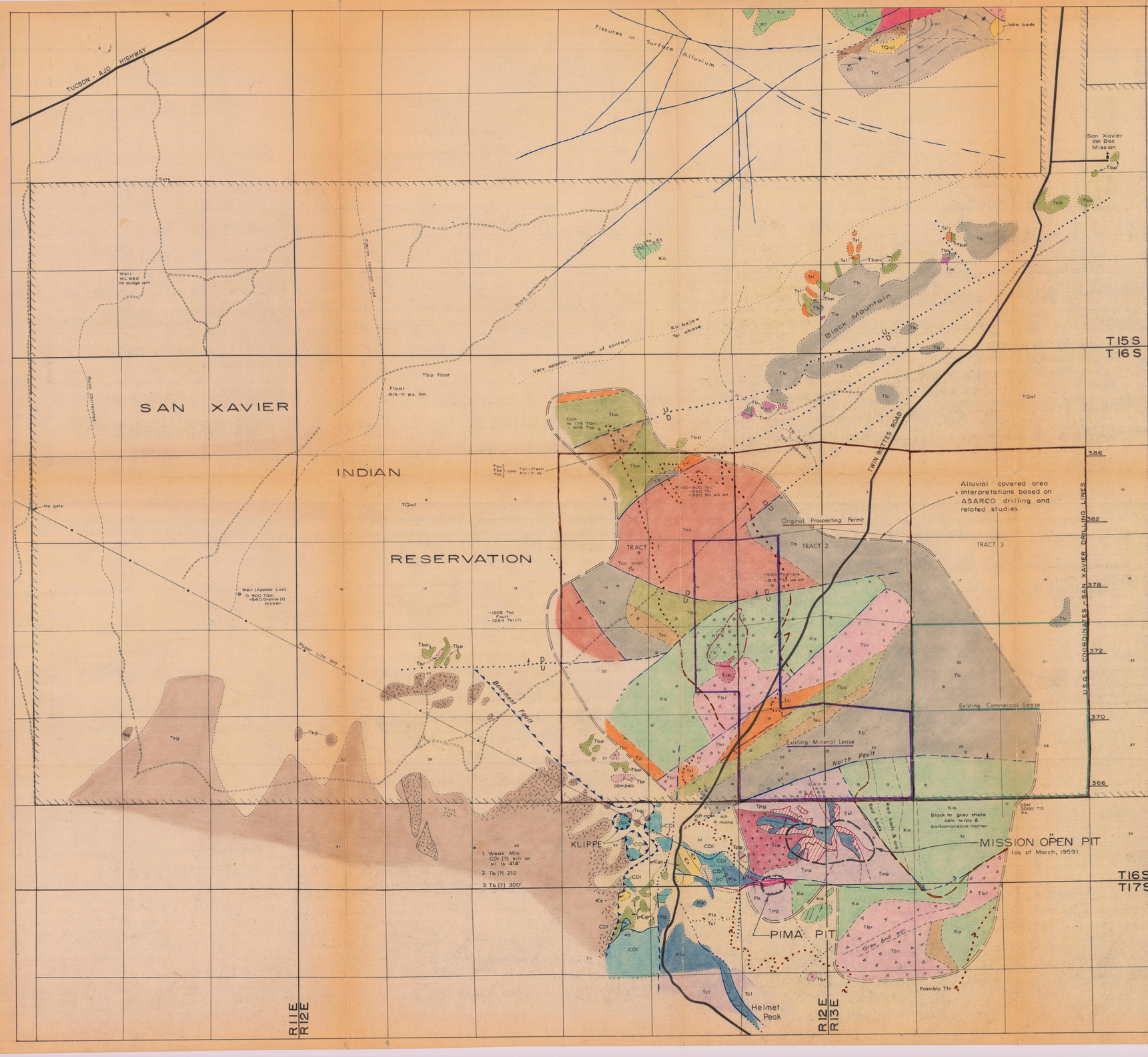
BEDROCK GEOLOGY DRILLING MAP

Scale: 1" = 1000'

May 1960 JEKinnison

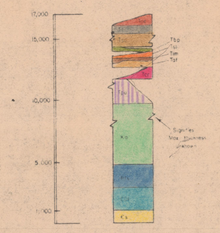
December 1957

Map No. 1391



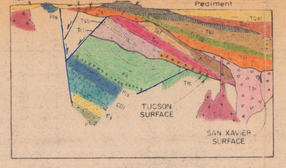
COLUMNAR SECTION

TO SCALE
1 inch = 1 mile



DIAGRAMATIC STRUCTURE STRATIGRAPHIC COLUMN

NOT TO SCALE



As reference for structural disturbance, note that these strata were approx. horizontal when deposited:
Cs, CDI, Pls, Ka
Tcl, Tcr, Tpf
Tbp (?)
Tb

OTHER SYMBOLS

- Maintained road
- Desert auto trail
- Drill hole (incl all ASARCO holes shown, within ore zone proper)
- Outline of ASARCO drilling area; geology within, under alluvium, colored as though it were outcrop
- Mine

LAYERED ROCKS SEDIMENTARY AND EFFUSIVE

TERTIARY - QUATERNARY

- TQal — Valley gravels, surficial alluvium and talus
- Major Erosion
- Tgc — Older conglomerate (includes Tr)
- erosion
- Tbr — Black Mountain basalt
- erosion

LOWER MIDDLE (?) - UPPER (?) TERTIARY

- Tsu — Upper conglomerate beds
- Tbp — San Xavier formation: Basalt porphyry flows (locally dikes)
- Tsl — Lower conglomerate beds

POST-ORE / PRE-ORE — Major erosion — SAN XAVIER SURFACE

LOWER TERTIARY

- Tia — Ivy May andesite (sills)
- Tal — Aravaipa formation
- Tcr — Cat Mountain rhyolite
- ? — Tsg — Tucson Mountain chaos
- Tsb, Tsl, Tpf, Tcr — Pima Group:
  - Tsb — Silver Bell formation
  - Tcl — Claflin Ranch fm. (mapped to include Hexagon redbeds)
  - Tcf — Kino formation
  - Tpg, Papago fm (below Kino ?) } Mission Ore Zone is Claflin ?
  - Tpu — Unaffiliated

Major erosion — TUCSON SURFACE

CRETACEOUS

- Ka — Amole group

PALEOZOIC

- Pls — Permian limestone: includes Earp fm., Andrada fm., Scherrer fm., Concha ls
- CDI — Carboniferous and Devonian limestone: includes Martin ls., Escabrosa ls., Horquilla ls
- Cs — Cambrian Sediments: includes Abrigo qtzt., Rochlee fm., Abrigo fm.

INTRUSIVE IGNEOUS ROCKS

- Tia — Andesite, intrusive as dikes and small bodies. Several ages included together, some of which may be pre-ore

POST-ORE / PRE-ORE

LOWER TERTIARY

- Tpg — Sierrita granite
- Tpp — Sierrita granite Coarse-grained type
- May be post-Cat Mtn rhyolite
- Tqp — Porphyry intrusive qtz-monz, monz
- Tbr — diabase rhyolite
- Ts — Sahuaritite rhyolite
- Tsf — Shaft's hornblende andesite
- Post-Cat Mtn rhyolite

PRE-CAMBRIAN

- pCgr — Mineral Hill granite

STRUCTURE

- Fault
- Contact
- Low angle fault. Thrust or gravity block
- Strike and dip of sediments
- Strike and dip of igneous flow layering
- Axis of Anticline
- Axis of Syncline
- Generalized bedding structure

NOTE: Structures dashed where inaccurate, dotted where covered. In the area of ASARCO drilling, structures shown solid where determined by substantial drilling data; dashed where only approx. known.

MINERALIZATION

- Veins, or mineralized fault
- Disseminated Cu bodies, > 0.4 % Cu
- Limits of hypogene alteration. Dotted where uncertain

American Smelting and Refining Company

GEOLOGY of the Porphyry Copper Belt SAN XAVIER - MISSION

Pima County, Arizona

Approx. Scale: 1 inch = ½ mile

Compiled April, 1960
J.E. Kinnison

DEFENDANT'S EX 5-B

ATTACHMENT A

SX-1.1.0

60-1.1

MINING D...

NOV 27 1967

TUCSON

J. E. K.

NOV 29 1967

Please copy for JEK, WES

J. H. C.

11-29-67

NOV 29 1967

T. A. S.

NOV 28 1967

Pls Note Notes

RTM

ACO

SWS

WB

JHC

JE

RT

Return to

U.S. MINING DEP

AMERICAN SMELTING AND REFINING COMPANY
Sahuarita Arizona
November 22, 1967

MEMORANDUM TO MR. S. L. TAINTER

Re: SAN XAVIER RESERVATION
Diamond Drilling; Phelps Dodge and Pima Mining Companies

Pima Mining Company has not moved either of its two drill rigs during the past week. The Phelps Dodge drill rig on Sec. 2; T16S, R12E has not moved to date; it was brought to my attention that this rig had apparently done no drilling as of November 21. The second Phelps Dodge drill rig was evidently in the process of making its second move since last week's location check as it was not visible this morning. This rig drilled a shallow hole adjacent to ASARCO's west reservation boundary during the past week.

D. K. HALL
Resident Geologist

DKH:tt

S.L.T.

NOV 22 1967

11-24-67
cc to RBM.
TAS

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

August 3, 1966

TO: J. H. COURTRIGHT

FROM: J. E. KINNISON

SAN XAVIER
SOUTHERN TRACT II
DEVELOPMENT DRILLING

Following Mr. Saegart's request, I have reviewed the recent drilling in the subject area. Mr. Dennis Hall of Mission has provided me with the most recent drill data. I recommend the following drilling program:

1. Sixteen drill holes, which aggregate 12,350 feet--3200 feet rock bit and 9150 feet core.

2. Provision for interspaced drilling in the northwestern part of the chalcocite-oxide blanket, which may aggregate 1500 feet in four holes. Breakdown as follows: 800 feet rock bit, and 700 feet core.

The 16 holes are shown on the attached sketch map, and an estimated depth listed beside each hole. The actual depth will, of course, be determined at the drill site by the resident staff.

Drill holes A and B are designed to delimit the northern edge of tactite ore which may be reached by an open pit.

Deep drill holes C and D are spaced symmetrically with reference to other deep drill holes, and will test chalcopyrite values in an area which appears to be waste. These holes will also penetrate a deep tactite layer.

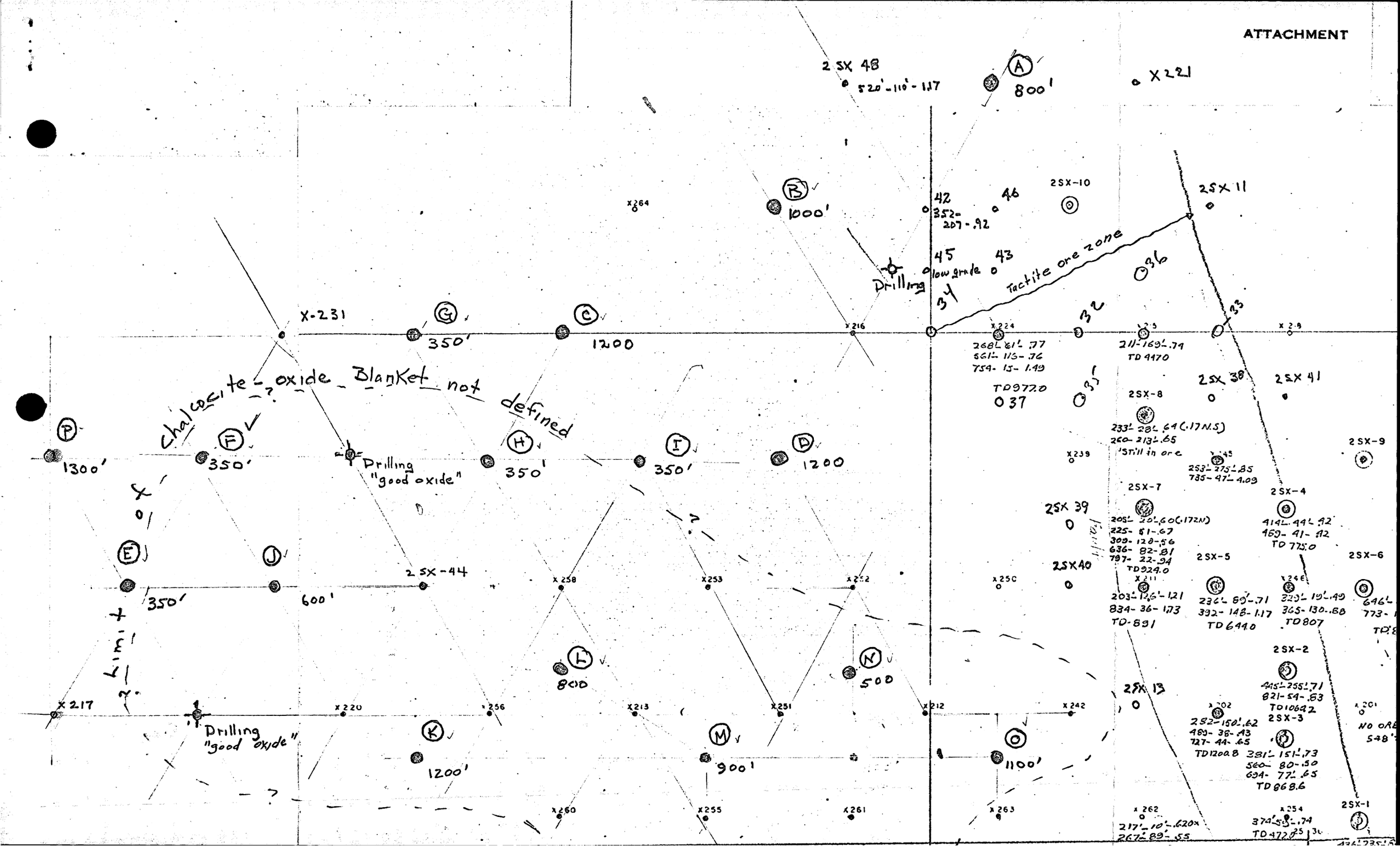
The remaining holes are designed to provide adequate data for an ore reserve calculation in that area known to contain mixed chalcocite and oxide values. The depth of these holes is partly determined by the slope of a large pit, designed to strip across the Eisenhower group and into the southern part of Tract II.

Drill hole 2SX-44 appears to be an interior waste hole which has a rather large influence on tonnage available. To provide for interspaced drilling near this drill hole (44), and elsewhere in the northwest portion of the blanket, I recommend 1500 feet in four holes. These four interspaced drill holes are not shown on the attachment, and will be determined after the other holes are completed.

John E. Kinnison
JOHN E. KINNISON

JEK/pjc
Attachment
cc: PALewis, w/ attachment
WESaegart, w/ attachment

ATTACHMENT


2 SX 48
520'-110'-1.17
A
800'
X 221
B
1000'
42
352-
207-.92
46
2SX-10
2SX 11
45
low grade
43
Drilling
Tactite ore zone
036
34
32
33
X-231
G
350'
C
1200
X 216
X 224
268L 81L .77
561- 113- .76
754- 15- 1.49
TD 977.0
037
211-169L.74
TD 9470
2SX 38
2SX 41
2SX-8
233L 28L .64 (.17 N.S)
260- 213L .65
Still in ore
2SX-9
P
1300'
F
350'
Drilling
"good oxide"
H
350'
I
350'
D
1200
X 239
253L 275L .85
735- 47L 4.09
2SX-7
2SX-4
2SX 39
205L 20L .60 (.172N)
225- 81- .67
309- 120- .56
636- 82- .81
787- 22- .94
TD 924.0
414L 44L .42
489- 41- .42
TD 775.0
2SX40
2SX-5
2SX-6
E
J
350'
600'
2 SX-44
X 258
X 253
X 252
X 250
203L 126L-1.21
834- 36- 1.73
TD-891
236L 89L-.71
392- 148- 1.17
TD 644.0
329L 19L.49
365- 130- .88
TD 807
646L
773-
2SX-2
L
800
N
500
2SX 13
445L 255L.71
821- 54- .83
TD 1064.2
X 217
X 220
X 256
X 213
X 251
X 212
X 242
X 202
282-150L.62
489- 38- .43
727- 44- .65
TD 1208
2SX-3
NO ORE
548'
Drilling
"good oxide"
K
1200'
M
900'
O
1100'
381L 151L.73
560- 80- .50
694- 77L .65
TD 868.6
X 260
X 255
X 261
X 263
X 262
217L 10L .620x
267L 89L .55
X 254
374L 55L .74
TD 472.0
2SX-1
Chalcocite - oxide - Blanket - not defined
?
+ 1-3'
?

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 27, 1965

To: Mr. P. A. Lewis

From: Mr. John E. Kinnison

San Xavier - Maps

Enclosed please find 2 copies each of geological maps of the San Xavier Indian Reservation, which consist of a bedrock geological map of a cross section. Mr. Anzalone had asked me for copies of these maps, which are somewhat out of date in as much as I compiled them several years ago. One set is intended specifically for the geology department, while the other set may be retained, if you desire, for your files. Would you please transmit the one set to Mr. Anzalone.

JOHN E. KINNISON

JEK:bam
Enclosures

JEKinnison!

July 6, 1965

Mr. Norman Weiss, Milling Engineer
Tucson Office

SAN XAVIER SAMPLES

Dear Sir:

With reference to your letter of June 21, 1965 I am herewith reporting our copper assays for the 40 composite pulps received from the Mission Unit.

As requested the pulps will be returned to the Mission Unit, attention Mr. Ron Burton, Chief Assayer.

Yours very truly,

ORIGINAL SIGNED BY
G. G. Gunther

GGG/cb

JEKinnison - with assay certificate
STainter - " " "

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 6 196 5

MARKED SAN XAVIER SAMPLES

See Letter NWeiss 6/21/65

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
X-202	-C-1			0.65											
X-202	-C-2			0.23											
X-211	-C-1			1.20											
X-211	-C-2			0.34											
X-212	-C-1			0.34											
X-212	-C-2			0.26											
X-212	-C-3			0.25											
X-213	-C-1			1.43											
X-213	-C-2			0.47											
X-213	-C-3			0.55											
X-213	-C-4			0.21											
X-213	-C-5			0.97											
X-215	-C-1			0.74											
X-215	-C-2			0.70											
X-220	-C-1			0.27											
X-224	-C-1			0.81											
X-242	-C-1			0.28											
X-245	-C-1			1.22											
X-245	-C-2			0.74											
X-245	-C-3			4.15											
X-246	-C-1			0.28											

HILL PRINTING CO.—EL PASO

cont'd page 2

BY

H. B. Nicholas CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 6 196 5

MARKED SAN XAVIER SAMPLES

See Letter Nicholas 6/21/65

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
X-246-C-2				0.92											
X-246-C-3				0.17											
X-250-C-1				0.29											
X-250-C-2				1.28											
X-251-C-1				0.37											
X-251-C-2				0.36											
X-253-C-1				0.29											
X-254-C-1				0.15											
X-254-C-2				0.85											
X-255-C-1				0.93											
X-255-C-2				0.35											
X-256-C-1				0.28											
X-258-C-1				0.36											
X-259-C-1				0.15											
X-260-C-1				0.46											
X-261-C-1				0.48											
X-262-C-1				0.73											
X-262-C-2				0.48											
X-263-C-1				0.30											

HILL PRINTING CO.—EL PASO

BY H. B. Nicholas CHIEF CHEMIST

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 21, 1965

Mr. G. G. Gunther
El Paso Ore Testing and Assay Laboratory
P. O.Box 895
El Paso, Texas 79999

SAN XAVIER SAMPLES

Dear Sir:

Mr. John Kinnison of our Exploration Department here has encountered some difficulty in checking copper assays on diamond drill core samples from the San Xavier Indian Lands drilling, and would like to have you run some careful determinations. For this purpose Mission Unit will send you today 20 composite pulps, for copper assay only. Please return the pulps to Mission Unit, attention Mr. Ron Burton, Chief Assayer, when you are through with them. These run from 0.3 to 1.4 percent copper. We feel that Hawley and Hawley are at fault and that Mission assaying is more precise. Results are desired reasonalby soon.

Yours very truly,

ORIGINAL SIGNED BY
NORMAN WEISS

NORMAN WEISS
Milling Engineer

NW:cmr

cc: JEKinnison
STainter (Mission Unit)

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 10, 1965

TO: P. A. LEWIS
Mission Unit

FROM: JOHN E. KINNISON

SAN XAVIER-EISENHOWER
GEOLOGIC DATA

I have recently talked with Sal Anzalone who states that they have in the Unit files virtually nothing concerning the San Xavier ground, particularly in regards to certain aspects of drilling data.

I am, therefore, sending out to your attention all of the data which we have here and which may be pertinent in this matter. I have not cataloged the information and therefore trust the good fortune that it will be safely kept, because in some instances there are no other copies.

In reference to the drill hole data on the Indian Reservation, particularly concerning specific gravity measurements for each run, I believe these have been left in storage at the old East Pima Laboratory contained there in pencilled form on work sheets; if these are not found there I will make a further search in this office for that data.

Some of the data I am sending consists of various cross sections not only on the Indian Reservation itself, but also crossing through the Eisenhower ground now held by Anaconda. These sections were never completed and there has been subsequent drilling since their compilation, therefore Mr. Anzalone may find little use for them, but he will be the best judge of this.

I believe it would be best to turn these data over to Mr. Anzalone to sort through and to determine what use he can best make from them.

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jak
cc: JHCourtright
SAnzalone

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 10, 1965

TO: P. A. LEWIS
Mission Unit

FROM: JOHN E. KINNISON

SAN XAVIER TRACT II
COMPOSITE ASSAYS

I believe you already have my file memorandum of January 11, 1965, on the subject heading. Find enclosed two other copies which may be useful either to Mr. Anzalone and certainly to Mr. Burton in connection with the difference in assays between those done by Hawley & Hawley and those done by the Mission Unit.

I have talked to Mr. Burton in a preliminary way on this several months ago, at the suggestion of Mr. Weiss, but have not had a chance to follow it up in a further manner. I may inadvertently not have included a copy of the tabulated assays for Mr. Burton's perusal, and apologize for such. Would you please forward one of these copies to him.

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jak
Encls.
cc: JHCourtright
SAnzalone

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
January 11, 1965

FILE MEMORANDUM

SAN XAVIER, TRACT II
COMPOSITE ASSAYS

Drill core pulps in the southern part of tract II, in the area of mining interest, were made into composite samples, under my direction, and were assayed for Cu, MoS_2, and certain other elements. The composites were made in the customary manner by weighing out from each run an amount of pulp proportional to the length of that run. Assays were made by the Mission assay office, and some by Hawley and Hawley. Individual composite data and assay results are tabulated on the attached forms (one set to Mission and one set Tucson Office). A comparison of the original assays for Cu and the Mission Cu assays of the composite samples is shown (Att. A), and the results check closely. The Cu assays made on 20 of these composites by Hawley, compared to Mission, show that Hawley averages about .05% Cu higher (Att. B). The reason for this is not now known; however, at the suggestion of Mr. Weiss I discussed this in a preliminary way with Mr. Burton at the Mission Unit, who will look into Hawley's procedures.

Because the exploration department often uses Hawley and Hawley as the assayer for drill cores and other samples, I believe this problem should be followed out until we can define where their source of error is. I have noted the same tendency, that Hawley runs high, when compared to Silver Bell. I have found, however, that Hawley can duplicate very closely their own results, so that the error is certainly a systematic one and is not haphazard.

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jak
cc: JEKinnison, Att. A & B only
Mission Unit: Attention P. A. Lewis, Att. A, B, and composite forms
S. A. Anzalone
File: Att. A, B, and composite forms

COMPARISON: ORIGINAL ASSAYS VS COMPOSITE ASSAY BY MISSION
40 Samples Total

Sample No.	Math Wt'd. Total Cu	Mission	Difference
X-263-C-1	.26% Cu	.27% Cu	+.01
X-262-C-1	.70	.69	-.01
X-262-C-2	.46	.45	-.01
X-261-C-1	.47	.45	-.02
X-260-C-1	.46	.45	-.01
X-259-C-1	.13	.13	----
X-258-C-1	.32	.34	+.02
X-256-C-1	.27	.26	-.01
X-255-C-1	.88	.90	+.02
X-255-C-2	.31	.31	----
X-254-C-1	.14	.16	+.02
X-254-C-2	.74	.83	+.09
X-253-C-1	.28	.28	----
X-251-C-1	.36	.36	----
X-251-C-2	.33	.35	+.02
X-250-C-1	.29	.30	+.01
X-250-C-2	1.02	1.28	+.26
X-246-C-1	.26	.26	----
X-246-C-2	.90	.96	+.06
X-246-C-3	.14	.18	+.04
X-245-C-1	1.16	1.18	+.02
X-245-C-2	.69	.70	+.01
X-245-C-3	4.09	4.11	+.02
X-242-C-1	.27	.27	----
X-224-C-1	.74	.75	+.01
X-220-C-1	.27	.26	-.01
X-215-C-1	.73	.72	-.01
X-215-C-2	.72	.69	-.03
X-213-C-1	1.42	1.40	-.02
X-213-C-2	.44	.44	----
X-213-C-3	.50	.50	----
X-213-C-4	.18	.16	-.02
X-213-C-5	.94	.94	----
X-212-C-1	.30	.34	+.04
X-212-C-2	.24	.26	+.02
X-212-C-3	.21	.22	+.01
X-211-C-1	1.21	1.15	-.06
X-211-C-2	.32	.30	-.02
X-202-C-1	.65	.63	-.02
X-202-C-2	.21	.20	-.01
	.60 Average	.61 Average	+.01 Average

COMPARISON: HAWLEY & HAWLEY, TUCSON VS MISSION
20 Samples Total

Sample No.	Hawley & Hawley	Mission	Difference
X-263-C-1	.30% Cu	.27% Cu	-.03
X-262-C-1	.75	.69	-.06
X-262-C-2	.51	.45	-.06
X-261-C-1	.50	.45	-.05
X-260-C-1	.47	.45	-.02
X-259-C-1	.16	.13	-.03
X-258-C-1	.37	.34	-.03
X-256-C-1	.29	.26	-.03
X-255-C-1	.95	.90	-.05
X-255-C-2	.35	.31	-.04
X-254-C-1	.18	.16	-.02
X-254-C-2	.95	.83	-.12
X-253-C-1	.31	.28	-.03
X-251-C-1	.38	.36	-.02
X-251-C-2	.37	.35	-.02
X-250-C-1	.32	.30	-.02
X-250-C-2	1.36	1.28	-.08
X-246-C-1	.32	.26	-.06
X-246-C-2	1.12	.96	-.16
X-246-C-3	.29	.18	-.11
	.51 Average	.46 Average	-.05 Average

MINING DEPT.
DEC 1 1964
TUCSON

MIS-9.9

AMERICAN SMELTING AND REFINING COMPANY
Sahuarita Arizona 85629

R.B.M.
NOV 27 1964

November 27, 1964

Mr. John Kinnison
Southwestern Mining Department
American Smelting and Refining Company
813 Valley National Building
Tucson, Arizona

MISSION UNIT
Assays - San Xavier
Sample Composites

Dear Sir:

Attached are the assays for the San Xavier sample composites requested by you. If you wish additional determinations, please let us know.

Very truly yours,

ORIGINAL SIGNED BY
P. A. LEWIS

P. A. LEWIS
Superintendent

JDV:vnt
attach

cc: RBMeen, w/attach
JHCourtright, "
NWeiss, "
SAAnzalone, "
JDVincent, "

AMERICAN SMELTING AND REFINING COMPANY

MISSION UNIT

SAN XAVIER COMPOSITES **Work Sheet**

Samples **1962**

SAMPLE No.	TOTAL Cu	oz/TON Ag	oz/TON Au	MoS_2	S	Zn	Pb	
X-263-C-1	.27			.0048				
262-C-1	.69			.0224				
262-C-2	.45			.0245				
261-C-1	.45	TR	TR	.0067				
260-C-1	.45			.0246				
259-C-1	.13			.0122	1.2			
258-C-1	.34			.0133				
256-C-1	.26			.0156				
255-C-1	.90			.0139				
255-C-2	.31			.0067	1.7			
254-C-1	.16			.0067	1.1			
254-C-2	.83			.0115	3.5			
253-C-1	.28			.0064	1.3			
251-C-1	.36			.0074				
251-C-2	.35			.0066				
250-C-1	.30			.0068				
250-C-2	1.28	.36	TR	.0053				
246-C-1	.26			.0125				
246-C-2	.96	.26	TR	.0185	9.6			
246-C-3	.18			.0054	2.2			
245-C-1	1.18	.32	TR	.0143	8.0	.10	.05	
245-C-2	.70	.18	TR	.0355	4.3	.07	.03	

AMERICAN SMELTING AND REFINING COMPANY

MISSION UNIT

SAN XAVIER COMPOSITES **Work Sheet**

Samples _____ **1962**

SAMPLE NO.	TOTAL Cu	oz/TON Ag	oz/TON Au	MoS_2	S	Zn	Pb	
X-245-C-3	4.11	1.33	.001	.0026	10.0	6.95	.02	
242-C-1	.27	NIL	NIL	.0100				
224-C-1	.75	.02	NIL	.0077	5.0	.26	.06	
220-C-1	.26	NIL	NIL	.0254	1.5			
215-C-1	.72	.15	TR	.0139	3.7	.05	.02	
215-C-2	.69	.08	TR	.0067	4.9	.06	.04	
213-C-1	1.40	TR	NIL	.0091				
213-C-2	.44	NIL	NIL	.0109		.02	.01	
213-C-3	.50	TR	NIL	.0133		.02	.01	
213-C-4	.16	NIL	NIL	.0118				
213-C-5	.94	.14	TR	.0715		.02	.01	
212-C-1	.034	TR	NIL	.0064				
212-C-2	.026	NIL	NIL	.0081				
212-C-3	.22	NIL	NIL	.0102				
211-C-1	1.15	.22	TR	.0082		.04	.02	
211-C-2	.30	NIL	NIL	.0209				
202-C-1	.63	TR	NIL	.0107	2.6	.02	.01	
202-C-2	.20	NIL	NIL	.0247	2.2			

R Burton

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 17, 1965

Mr. C. P. Pollock, Vice President
American Smelting and Refining Company
120 Broadway
New York, N. Y. 10005

SAN XAVIER
DRILLING, TRACT II

Dear Sir:

Reference is made to my letter of January 18 to Mr. Meen (copy enclosed) recommending a resumption of diamond drilling on the San Xavier Reservation.

This drilling is now underway; however, Mr. von den Steinen has pointed out that the cost cannot be charged to Mission Unit operating expense since the San Xavier ground is still in the exploration stage, and therefore the Exploration Department should obtain a Mining Authorization to cover the cost.

The recommended drilling (described in John Kinnison's report to me dated January 4, 1965) amounts to 24 holes, totaling 4800' of rotary and 12,400' of core drilling. The estimated cost is:

4800' rotary drilling at $3.50/ft.	$ 16,800
12,400' core drilling at $7.30/ft.	90,520
Total	$107,320

These costs include the contractor's charges, sampling, assaying, etc.

If this program meets with your approval, please request a Mining Authorization in the amount of $107,000.

Yours very truly,

Original signed by
J. H. Courtright

J. H. COURTRIGHT

JHC/jak
Encl.
cc: TASnedden, w/encl.
RBMeen, " "
KvdSteinen," "
PALewis(2)," "
JEKinnison, w/o encl.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

September 29, 1964

Mr. P. A. Lewis, Superintendent

Mission Unit

Dear Sir:

For the purpose of evaluating certain drill holes in the Papago Reservation area directly north of the Eisenhower, Mr. John Kinnison is making up about 30 composites which he will deliver to you in the near future. Assays for gold, silver, total copper, zinc, and MoS_2 are required. This work is not urgent, and it is hoped that you can run the samples in the next two weeks.

Yours very truly,

ORIGINAL SIGNED BY
NORMAN WEISS

NORMAN WEISS
Milling Engineer

NW:cmr

RBMeen
HCourtright
JKinnison

M 3.01