



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
520-770-3500
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

J. H. C.

DEC 20 1966

December 15, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AND BATTERY INCLINE AREA
DIAMOND DRILLING.

The following briefly summarizes the results of the diamond drilling in the El Tiro and Battery Incline areas during the month of November, 1966.

A total of 1,624.4 feet of diamond core drilling was done by one truck mounted rig working in the El Tiro area and one skid mounted rig working in the Battery Incline area, east of Oxide Pit, each operating two shifts per day. The following results are available.

Hole No.	Approx. Elevation	Approx. Coordinates		+0.40% Copper Lenses				Ft. Drill. During Mo.	Depth End Mo.	Final Depth
		North	East	Depth to Top	Thick-ness	Avg. % Cu Total	N.S.			
D-217	2598.8	40,252.9	14,867.2	No +.40% Cu this interval				66.1	623.0	623.0
Re-Entry D-17	3124.3	36,170.5	19,155.2	1247.6	13.7	1.36	0.04	669.1	1,582.4	1,582.4
				1280.4	25.5	.43	.01			
G-2	2657.9	28,357.4	34,243.5	No +.40% Cu in hole				256.0	256.0	256.0
G-3	2737.9	28,164.7	32,202.9	"	"	"	"	236.0	236.0	236.0
G-4	2758.7	28,900.5	38,969.3	"	"	"	"	162.7	162.7	162.7
G-5	2619.8	27,562.0	34,632.1	88.0	38.4	0.76	0.08	234.5	234.5	234.5
Total								1,624.4		

EL TIRO AREA

Hole D-17 was re-entered with the express purpose of trying to penetrate the dacite sill in this area. Previously the area has been thought to be a feeder dike area, with the dacite dipping steeply to the east. D-17 was selected because it penetrated more of the dacite than any other hole and was near known ore in the Page Hill area in El Tiro Pit.

The hole was re-entered and drilling was continued from the old hole bottom at 913 feet. Dacite was penetrated to about 1250 feet where intercepts of mineralized tactite and hornfels alternating with dacite began to be encountered. Short intervals of these sediments contained in excess of one percent copper as chalcopyrite. At about 1430 feet the base of the dacite was

reached and the hole continued in alternating marble, hornfels, and tectite. These sediments were strongly altered but contained no ore grade mineralization. The hole was bottomed at 1582.4 feet.

The most important aspect of this hole is that it demonstrates the dacite encountered under the Union Ridge-Page Hill area is a sill, not a feeder dike, about 1,000 feet thick and is underlain by altered sediments. It was disappointing that the hole penetrated no ore grade material, however, the possibility of ore grade mineralization in sediments underlying the dacite still exists. Old hole D-87 has been re-entered and drilling is progressing with the objective being a penetration of the dacite in an area more favorable for ore grade mineralization.

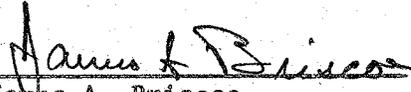
BATTERY INCLINE AREA

G-3 collared in intensely altered syenodiorite porphyry and continued in that rock, except for a short interval of post mineral andesite, to the bottom at 236.3 feet. Sulfides were encountered at 68 feet, but the hole contained no continuous runs of plus 0.40% copper. Un-enriched rock ran about 0.04% copper.

G-4 collared in monzonite and remained in that rock to the bottom at 162.7 feet. Sulfides were encountered at 96 feet but no ore grade copper was found. Un-enriched mineralization ran about 0.02% copper.

G-5 was located by a molybdenum geochemical anomaly. The hole collared in monzonite and went into syenodiorite at 35 feet. Sulfides were encountered at 80 feet with +0.4% copper material being cored from 88.0 feet to 126.4 feet. The hole bottomed at 234.5 feet in syenodiorite. Un-enriched mineralization averaged 0.10% copper.

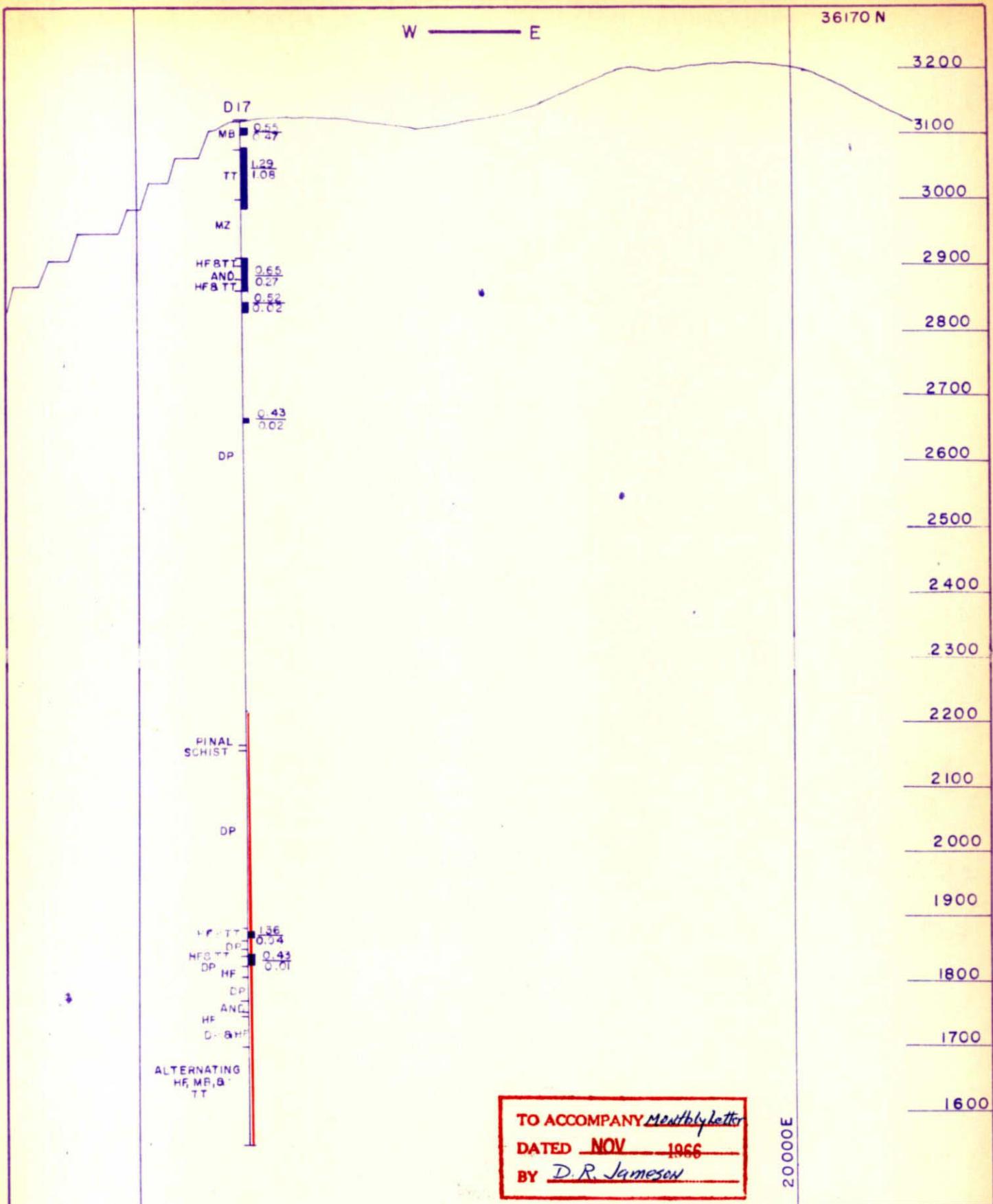
G-6 was also located on the moly geochemical anomaly 360 feet easterly from G-5. The hole collared in monzonite and post mineral andesite, and went into strongly altered monzonite at 16.3 feet. Sulfides and ore grade chalcocite were encountered at 76.6 feet, ore grade enrichment dropping off at 128 feet. The hole bottomed in monzonite at 168.7 feet. Un-enriched mineralization averaged about 0.2% copper.


James A. Briscoe
Geologist

JAB:jca

W ————— E

36170 N



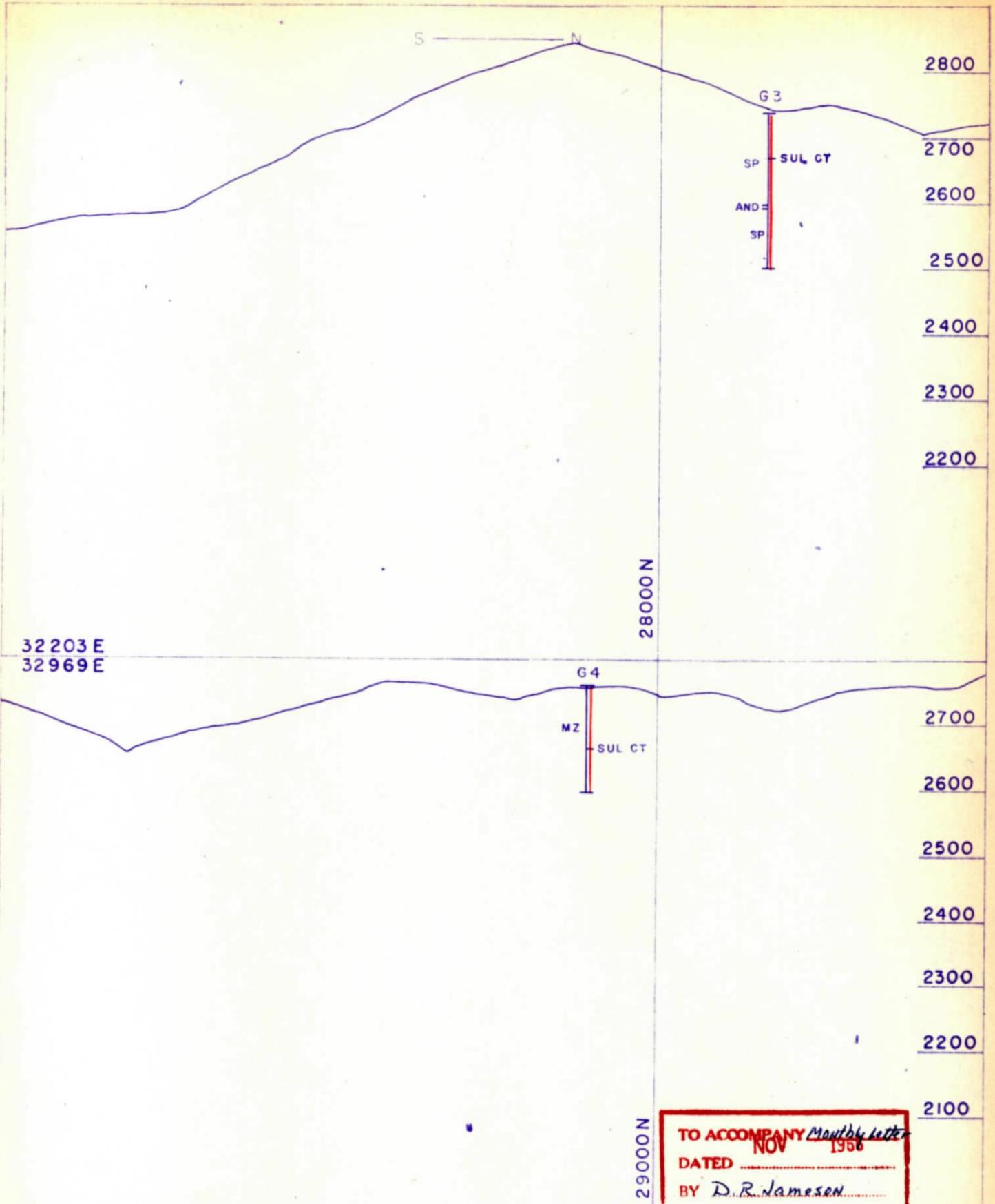
TO ACCOMPANY *Monthly letter*
 DATED NOV 1966
 BY D. R. Jameson

20000E

19000E

■ + 0.4 % Total Copper Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

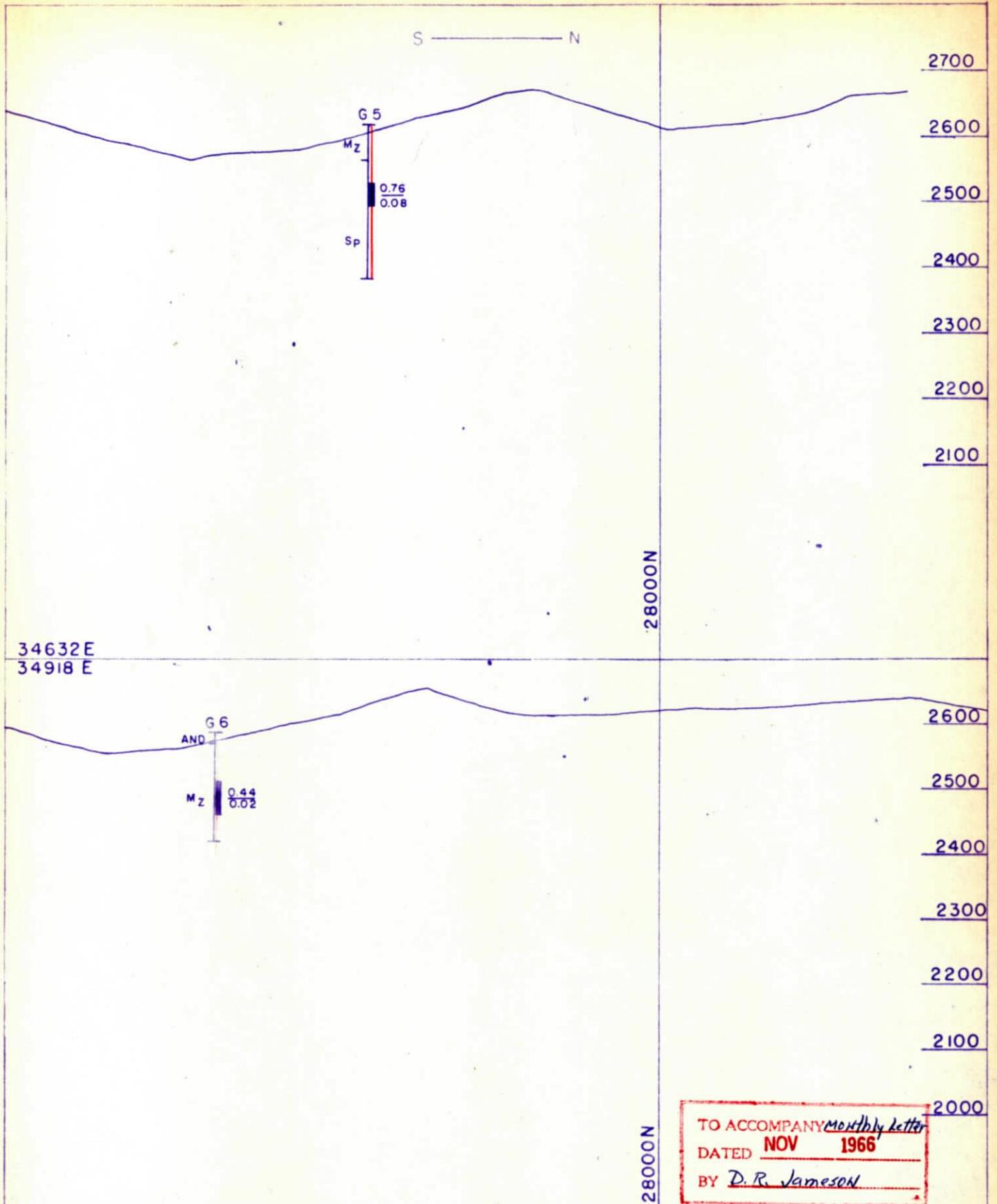
AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN	DATE NOV 1966	FILE S-121- A



TO ACCOMPANY *Monthly letter*
 DATED *NOV 1966*
 BY *D. R. Jameson*

■ +0.4% Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
BATTERY INCLINE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN	DATE NOV 1966	FILE S-121- A



■ +0.4% Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
BATTERY INCLINE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN	DATE NOV 1966	FILE S-121- A

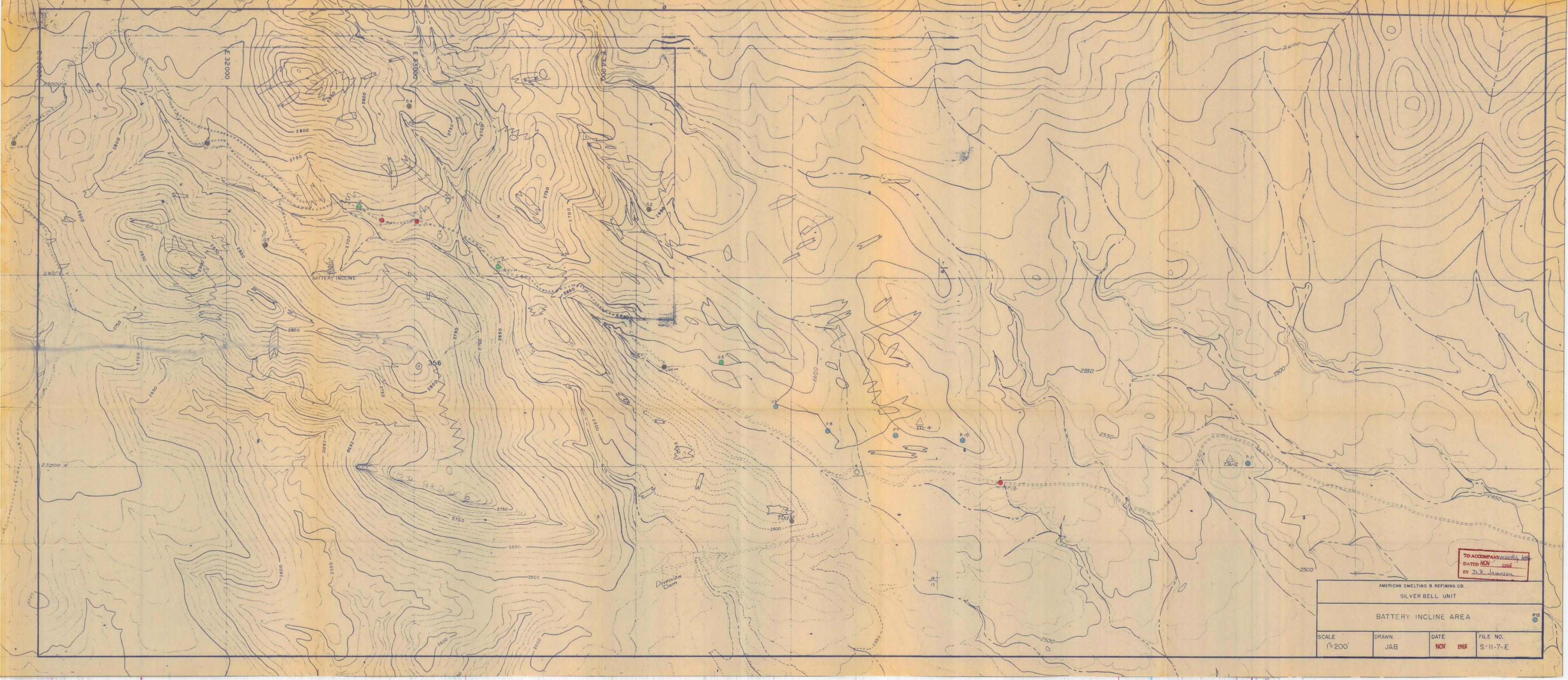
EXPLANATION FOR THE PLAN MAP OF THE BATTERY INCLINE AREA

- 8-13 Old Churn drill holes drilled by the S. W. Mudd interests in 1909. Assays by KCN.
- G Series Recent diamond drill holes.

COPPER CONTENT OF DRILL HOLES

- G-10
● 40 or more feet, of 0.40% copper material.
100'-75'
@1.00% Starting at 100 feet there is 75 feet of 1.00% copper material.
- Less than 40 feet of +0.40% copper material.
- None to short runs of +0.40% copper material.
- P-10
● Proposed diamond drill holes.

 Outline of capping thought to overlie moderate to strong copper mineralization after J. C. Playter, 1949.



TO ACCOMPANY monthly letter
DATED NOV 1966
BY D.R. Jameson

AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
BATTERY INCLINE AREA			
SCALE 1"=200'	DRAWN JAB	DATE NOV 1966	FILE NO. S-11-7-E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

Silver Bell,

Arizona

J. H. C.

November 21, 1966

NOV 25 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AND BATTERY INCLINE AREA DIAMOND DRILLING.

The following briefly summarizes the results of the diamond drilling in the El Tiro, North Butte and Battery Incline areas during the month of October, 1966.

A total of 1,933.4 feet of diamond core drilling was done by one truck mounted rig working in the El Tiro area and one skid-mounted rig working in the North Butte, and Battery Incline areas, each operating two shifts per day. The following results are available:

Hole No.	Approx. Coordinates		Depth to Top	Thick-ness	Average % Cu		Ft. Drilled During Mo.	Depth End Mo.	Final Depth
	North	East			Total	N.S.			
D-216	41,857.3	15,086.0	No	+0.40% Cu lenses this inter.			373.6	915.3	915.3
D-217	40,260	14,885	No	+0.40% Cu lenses this inter.			556.9	556.9	
F-151	30,249.2	23,583.3	No	ore runs in hole			169.3	169.3	169.3
F-152	30,892.2	23,345.8	158.4	48.3	1.49	0.02			
			233.6	27.9	0.44	Tr.			
			287.6	112.3	0.67	0.04	602.0	602.0	602.0
*G-1	26,716.3	35,003.6	No	ore runs in hole			<u>231.6</u>	231.6	231.6
							Total	1,933.4	

* The G prefix will be used to designate holes drilled in the Battery Incline area east of Oxide Pit.

D-216 was a proposed deep hole to test for mineralized sediments thought to underlie the dacite in the North Silver Bell area. The hole collared in Quaternary alluvium and penetrated 73.0 feet before bedrock was reached. Bedrock was dacite and that rock was cored to 189.1 feet where monzonite was encountered. Dacite was again cut at 217.5 feet, and chloritic hornfels occurred between 294.7 and 305.7 feet. Dacite was again cored from 305.7 to 471.7 where monzonite was encountered. Monzonite was cored the rest of the hole except for xenoliths of chloritic hornfels between 294.7 to 305.7 feet and 631.2 to 634.2 feet and magnetite rich tactite from about 776 to 779.5 feet. The hole bottomed in monzonite at 915 feet.

No +0.40% copper material was cored in the hole.

The significant aspects of the hole were the encountering of small intercepts of metasediments, and the large monzonite body. The first two blocks of sediments I believe were xenoliths or foreign fragments contained in the dacite. The third block encountered around 776 feet was very high in its magnetite content, and was

highly garnetized. I think this block may represent a larger body of sediments, intruded by monzonite and barely missed by the diamond drill hole.

The monzonite is part of a large body that lies to the north of the drill hole and is for the most part covered by alluvium. Since the alluvium was so deep there was no way to tell where, or if the monzonite was to be expected. Apparently the hole cored either a thick dike or the southern edge of the monzonite stock. Because the hole did penetrate monzonite the basic question of whether sediments underlie the dacite sill still remains unanswered. The highly altered block of sediments in the monzonite at about 776 feet is encouraging and suggests that further testing should be done.

D-217 was drilled to test for sediments beneath the dacite to the west of Jesuit Hill. The hole collared in dacite and remained in that rock to 195.7 feet where hornfels sediments were encountered. Below this depth sediments were cut by dacite, monzonite and andesite dikes and/or sills. Various types of metasediments were encountered, including quartzite, marble, silstone, hornfels, and tactite (see section). The contact of some of the igneous rocks and possible dips in the sediments varied between 50 and 65 degrees, the direction of dip being unknown. The sediments were strongly altered by very little sulfides were encountered and there were no ore runs in the hole. Circa 252 feet disseminated molybdenite, assaying 0.122% Mo occurs in limy hornfels. Molybdenite and sparse chalcopryrite was also found along the contact and in post mineral andesite circa 513.3 feet. This indicates there was mineralization after the post mineral andesite was intruded.

The strong alteration of the sediments and the short run of higher-than-average Mo indicates the area around Jesuit Hill should receive more attention.

F-151 collared in monzonite mixed with alaskite, went into clean monzonite around 38 feet and remained in that rock to the bottom at 169.3 feet. No ore was encountered in the hole, and the monzonite showed only sparse alteration and mineralization.

F-152 collared in dacite and went into quartzite at 31.3 feet. Below this level dikes and/or sills of dacite, monzonite, and syenodiorite cut hornfels and tactite (see cross section).

High grade chalcopryrite ore was encountered between 158 feet and 207 feet, having an average grade of 1.47% sulfide copper. Between 233 feet and 261 feet the rock averaged 0.44% sulfide copper. From 288 feet to 400 feet the rock averaged 0.63% sulfide copper. The hole was bottomed by the capabilities of the drill rig at 602.0 feet in weakly mineralized rock.

Battery Incline Area East of Oxide Pit.

G-1 collared in very strongly altered rock, tentatively identified as Precambrian Pinal schist. The hole remained in this rock, except for a small dike of syenodiorite porphyry, to the bottom at 231.6 feet. Pyrite was finely disseminated throughout the rock in weak amounts. No enrichment was noted and copper content averaged about 0.03%.

G-2 collared in monzonite and remained in that rock, except for a short run of syenodiorite. Sulfides were encountered at 136 feet but no ore and only traces of enrichment were noted. Unenriched rock averaged about 0.02% copper. The hole bottomed at 256.0 feet.

JAB:jca


James A. Briscoe

S ————— N

3000

2900

2800

2700

2600

2500

2400

F151
240' BEFORE
SECT

MZ
SUL. CT

F152

DP
QTZITE
DP
MZ
HF
DP
HF 1.49
0.02
TT 0.44
TR
HF 0.67
0.04
SP
HF
MZ
HF

31000N

SECTION 23346 E

TO ACCOMPANY _____
 DATED _____
 BY _____

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

SCALE 1" = 200'	DRAWN JAB	DATE OCT 1966	FILE S-121- A
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S ————— N

2700

2600

2500

2400

2300

G1

SUL. CT

P PC
PINAL
SCHIST?

SP

270000

SECTION 35004 E
SECTION 34244 E

2700

2600

2500

2400

2300

G2

MZ

SP

SUL. CT

MZ

290000

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

BATTERY INCLINE AREA
DRILL HOLE PROJECTIONS

■ +0.4 % Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE

1" = 200'

DRAWN

DATE

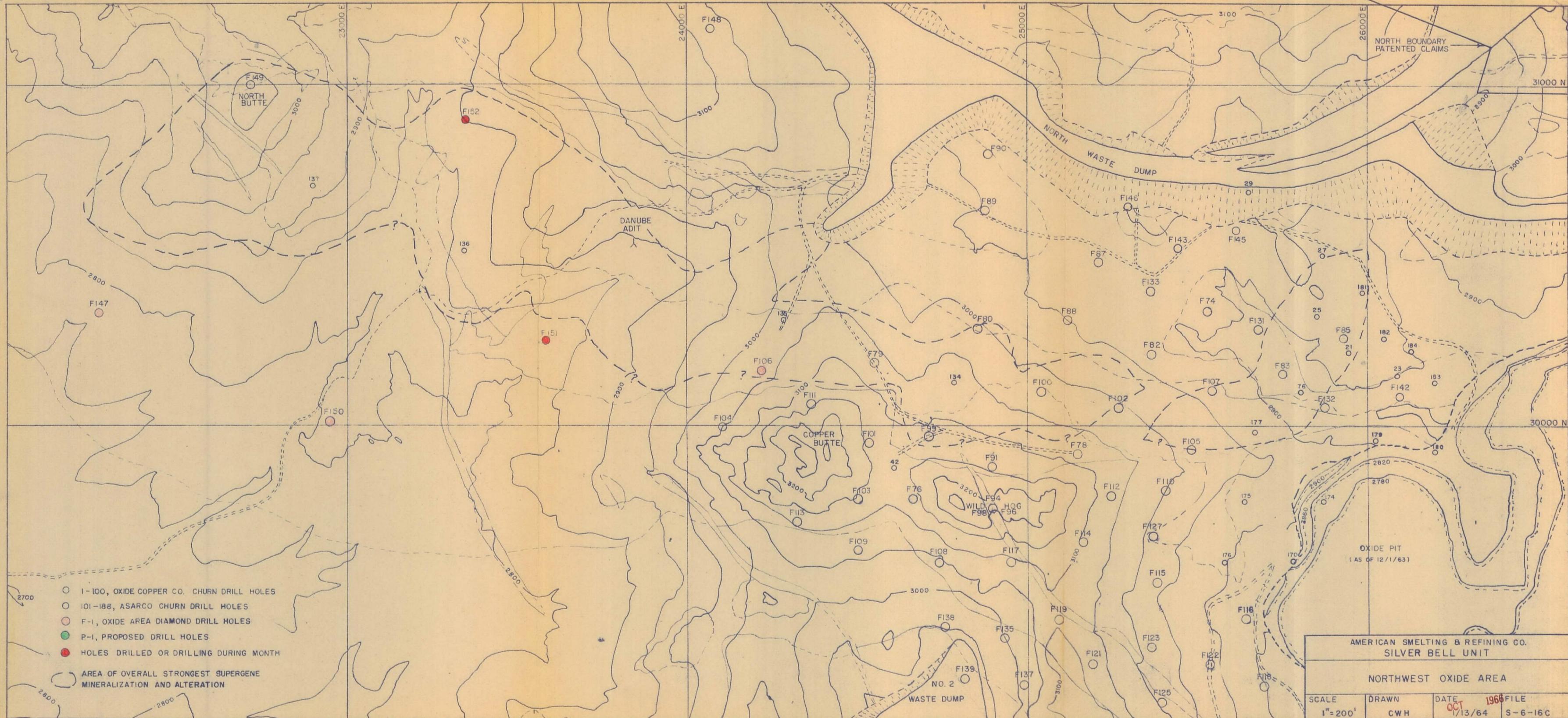
OCT

1966

FILE

S-121-

A



- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH

○ AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

NORTHWEST OXIDE AREA

SCALE 1" = 200'	DRAWN CWH	DATE OCT 1/13/64	FILE 1966 S-6-16C
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EXPLANATION FOR THE PLAN MAP OF THE BATTERY INCLINE AREA

- 8-13 Old Churn drill holes drilled by the S. W. Mudd interests in 1909. Assays by KCN.
- G Series Recent diamond drill holes

COPPER CONTENT OF DRILL HOLES

- 40 or more feet, of 0.40% copper material.
100'-75' Starting at 100 feet there is 75 feet of 1.00% copper material.
@1.00%
- Less than 40 feet of +0.40% copper material.
- None to short runs of +0.40% copper material.
- Proposed diamond drill holes.

 Outline of capping thought to overlie moderate to strong copper mineralization after J. C. Playter, 1949.



AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
BATTERY INCLINE AREA			
SCALE 1" = 200'	DRAWN JAB	DATE OCT 1966	FILE NO. S-11-7-E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

Silver Bell,

Arizona

October 14, 1966

J. H. C.

OCT 24 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: QUARTERLY GEOLOGIC REPORT AND ORE RESERVE MAPSOXIDE PIT:

During the third quarter of 1966 most of the mining in Oxide Pit was carried out on the 2700 level. The greatest advance was made in the northwest corner and a lesser advance in the southwest corner. The eastern 2/3 of the north side of the level was mined back to final toe.

The advance to the northwest was through strongly altered monzonite and moderately altered syenodiorite and passed into weak to moderately altered dacite at the back. The rock throughout this area was strongly faulted and sheared, and locally brecciated.

In the monzonite and syenodiorite the mineralization was ore grade calcocite and chalcopryrite associated with weak to moderate pyrite. Quartz-molybdenite veinlets were fairly numerous throughout the area, but were principally associated with the syenodiorite. The dacite encountered at the back of the advance primarily contained leach grade calcocite and chalcopryrite.

The advance in the southwest corner was through weak to moderately altered monzonite and syenodiorite. These rocks contained ore-grade calcocite and chalcopryrite associated with weak to moderate pyrite. Quartz-molybdenite veinlets were present, but somewhat less common than in the northwest corner.

The mining back to "final toe" on the north side of the 2700 level was through weak to moderate altered monzonite. The face mined contained about equal amounts of ore-grade and leach-grade material plus a minor amount of waste. The ore minerals, calcocite and chalcopryrite, occurred in approximately equal volumes and were associated with weak to moderate pyrite.

The remainder of the mining in Oxide Pit was carried out on the south face of the 2740 level of the West Extension. Two-thirds of this face is composed of moderate to strongly altered Alaskite which is cut by a few major faults and is intensely sheared and veined intermediately. The ore values are derived from the numerous calcocite-chalcopryrite-pyrite veinlets, and the calcocite-chalcopryrite disseminations. Leach grade material occurs in the western reaches of this area and the lower values are to be attributed to a lessening in intensity of veining.

There was no notable sloughing in the Oxide Pit area during this quarter. Now through the summer rains, it appears that they effected an average 0.6 inch expansion of the cracks in the 3050 and 3100 levels in the southeast corner of the pit.

EL TIRO PIT:

This quarter mining took place on the west end of 2630, the northeast and east faces of the 2750, and the northeast and east perimeter of the 2790 and 2830 levels. The greatest advance was made on the 2790 level where as many as six shovel shifts a day were run, the face being pushed back as much as 350 feet.

The 2630 advance was through weak to moderately altered alaskite. The alaskite was mostly ore grade with the values being derived primarily from chalcocite with lesser assistance from chalcopyrite. The mineralization occurred as disseminations, and controlled by veinlets. Leach grade material occurred in the central part of the mined expanse and was primarily the result of deep leaching.

The 2750 was mined from the northwest to the southeast. The beginning of this mining was in weak to moderately altered monzonite which contained a moderate amount of pyrite and chalcopyrite occurring both in veinlets and disseminated, with weak associated chalcocite. As mining progresses southeastward the monzonite became less altered and increased in intensity of silicification. With an increase in silicification the copper values dropped to leach-grade probably a result of less enrichment. Around 16,800E altered sediments were encountered and persisted to around 17,100E. These sediments were silty, chlorite hornfels with local limey zones. The sediments are believed to lie along the El Tiro fault zone and are taken as evidence of the zone. They are intensely faulted in directions transverse to that of the El Tiro zone. Due to the intense faulting there has been deep leaching of sulfides resulting in high oxide values, but overall leach grade. Farther to the southeast more monzonite was encountered which ran ore grade.

The 2790 level was heavily mined during the quarter with about half of the material being leach and the other half waste-grade. Only two small pods of ore grade material were encountered, one around (36,750N, 17,550E) and the other near (36,000N, 18,000E). The majority of rock removed was dacite with zones of monzonite and altered sediments. These rocks were weakly altered and had a low original total-sulfide content.

The 2830 level mining was also primarily in dacite with lesser amounts of monzonite and minor syenodiorite and altered sediments. With the exception of the (36,00N, 18,600E) area the mining was of about equal portions of waste and leach-grade material. This low grade is primarily the result of low original total-sulfide content. The exceptional area gained its higher grade primarily because of the favorability of the sedimentary host.

There has been no important sloughing in El Tiro pit this quarter, but there is one area on 2830 that should be taken into consideration when 2790 perimeter approaches final toe. The potential trouble spot is around 36,850N, 18,000E, where there is a well developed joint-fault plane of altitude N 33° W, 55° SW, that controls the trend of the pit face for a distance of approximately 300 feet. At this time this plane forms the face of both the 2830 level and the overlying 2870 level, with no catch bench between. This possible future sloughing may be avoided by leaving a wider catch bench on the 2830 as the 2790 is brought to final toe. It would probably also be beneficial to use closer spaced holes and lighter charges when shooting the trim out in this vicinity. This would possibly cause less back breaking disturbance of this zone.

Nicholas R. Nuttycombe
Nicholas R. Nuttycombe
Resident Geologist

LEGEND

CREST - - - - -

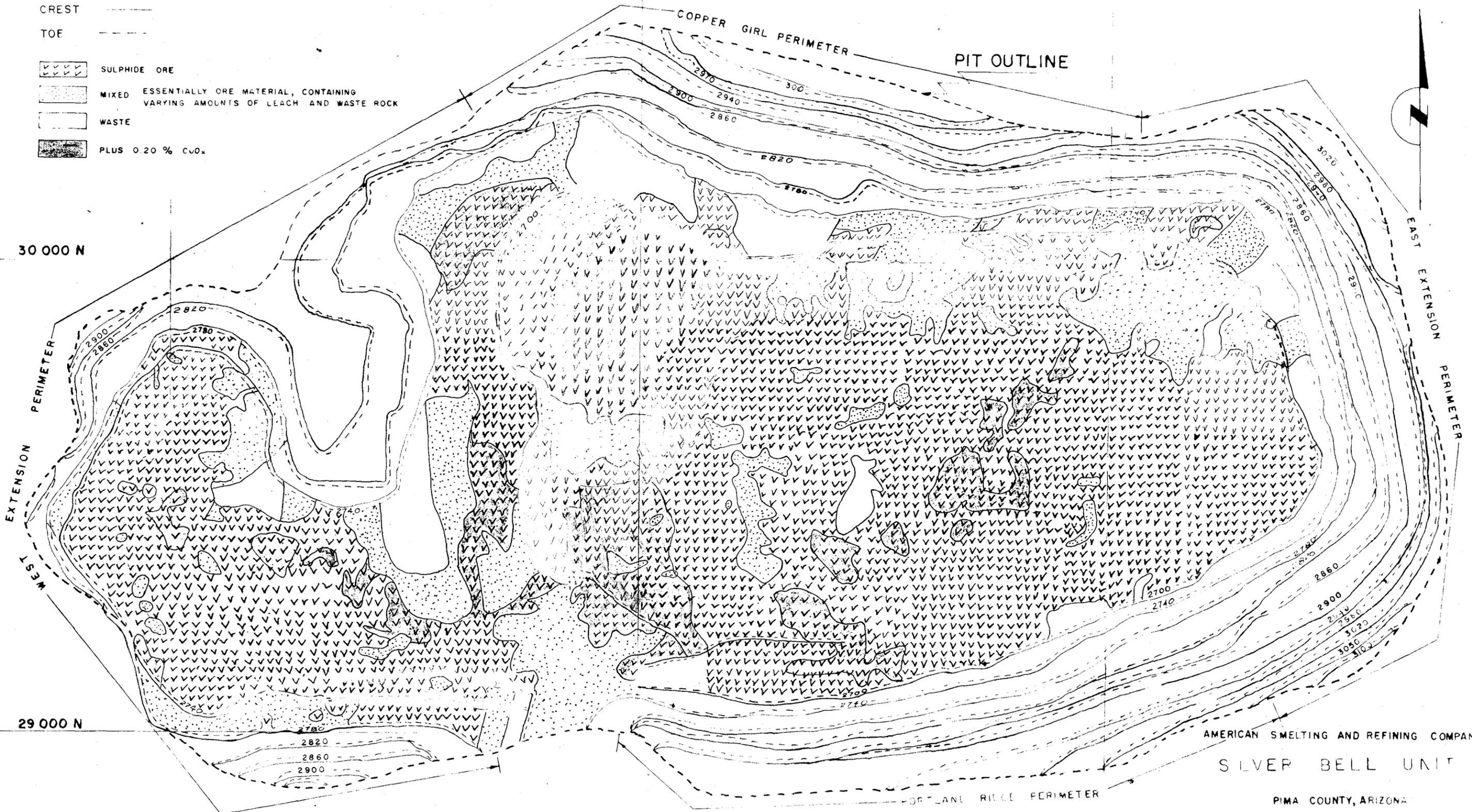
TOE - - - - -

 SULPHIDE ORE

 MIXED ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK

 WASTE

 PLUS 0.20 % CO_2



AMERICAN SMELTING AND REFINING COMPANY

SILVER BELL UNIT

PIMA COUNTY, ARIZONA

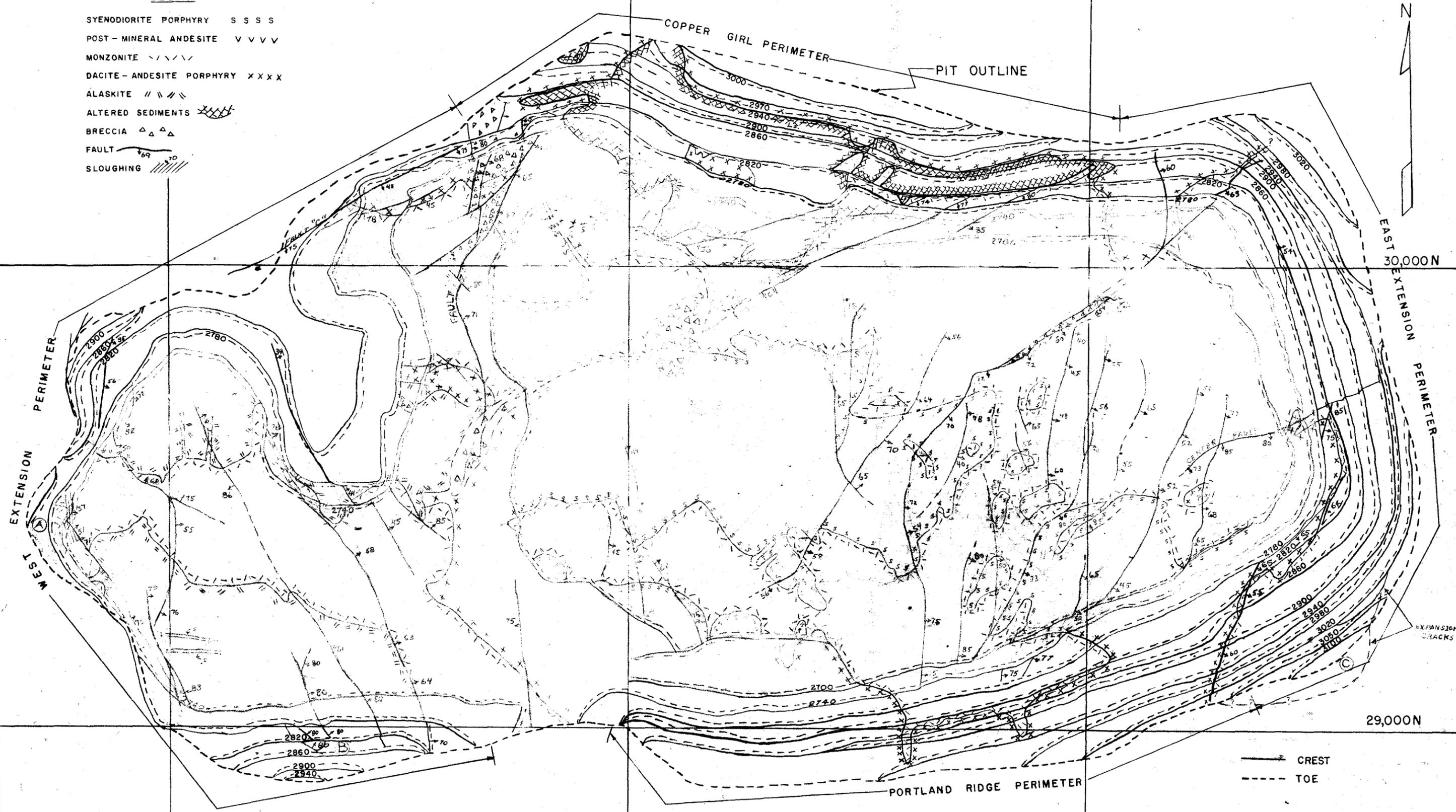
OXIDE PIT

SCALE 1" = 200'

GEOLOGIC MAP SEP 1966

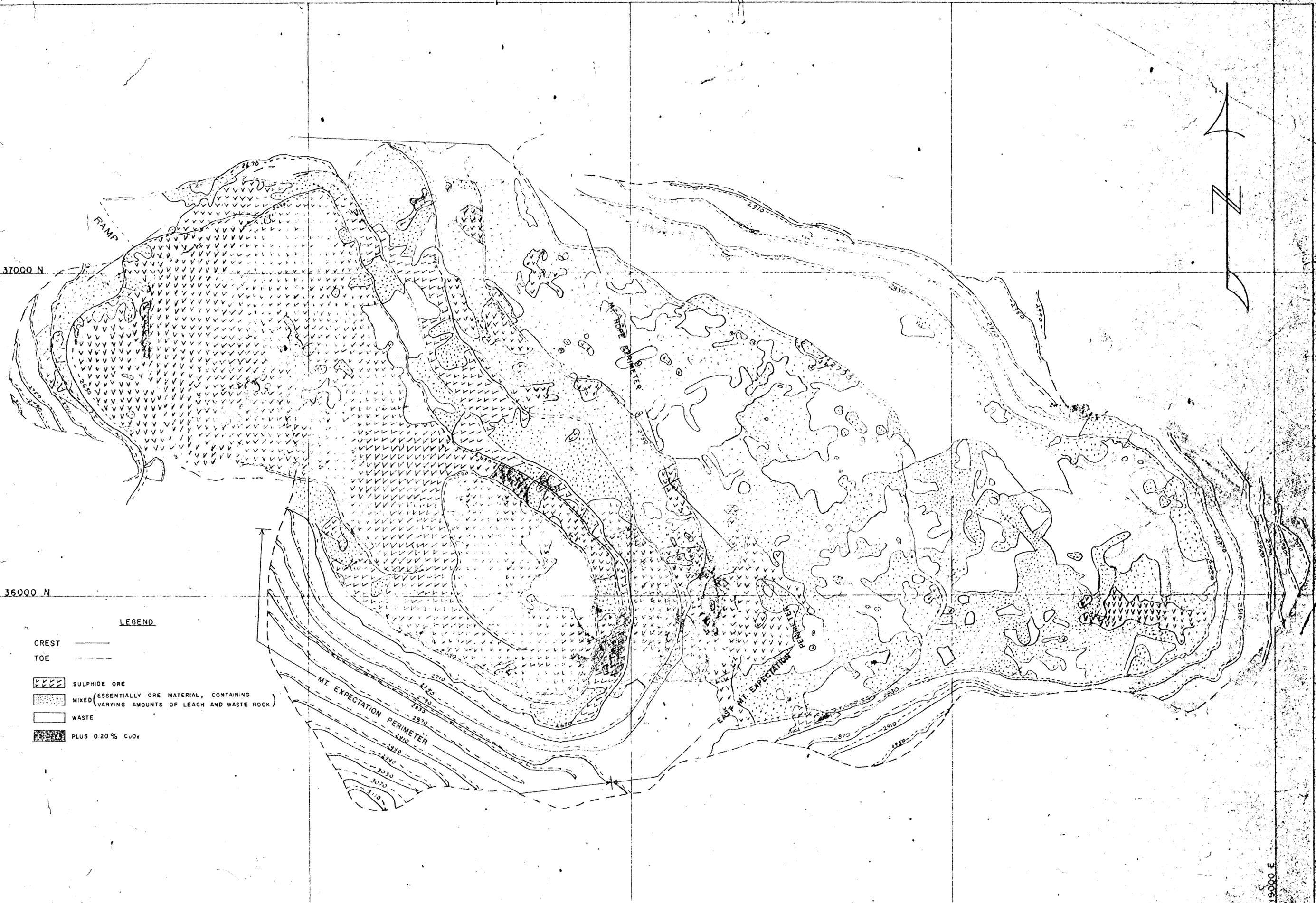
LEGEND

- SYENODIORITE PORPHYRY S S S S
- POST-MINERAL ANDESITE V V V V
- MONZONITE \ \ \ \
- DACITE-ANDESITE PORPHYRY X X X X
- ALASKITE // // //
- ALTERED SEDIMENTS
- BRECCIA
- FAULT
- SLOUGHING



— CREST
 - - - TOE

AMERICAN SMELTING AND REFINING COMPANY			
SILVER BELL UNIT			
PLAN OF OXIDE PIT			
GENERAL GEOLOGY AS OF SEP. 1966			
SCALE	DRAWN BY	DATE	FILE



LEGEND

- CREST ———
- TOE - - - - -
-  SULPHIDE ORE
-  MIXED (ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK)
-  WASTE
-  PLUS 0.20% Cu₂O

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
PLAN OF EL TIRO PIT PROGRESS FOR SEP 1968			
SCALE 1" = 200'	DRAWN DRC	DATE 1-9-62	FILE S-121-2080

18000 E

16000 E

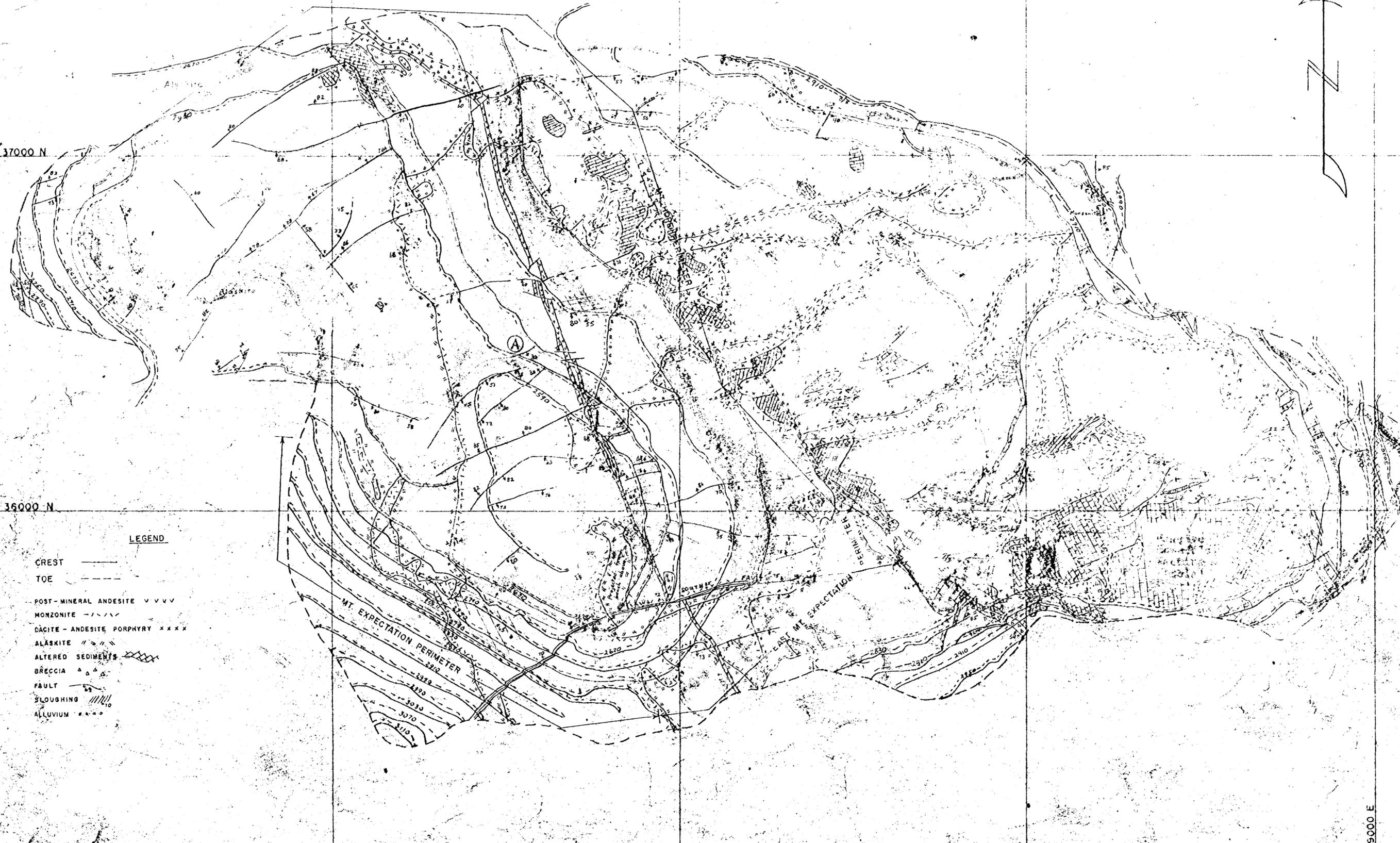
17000 E

18000 E

37000 N

36000 N

35000 N



LEGEND

- CREST ———
- TOE - - - - -
- POST-MINERAL ANDESITE v v v v
- MONZONITE - / - / - /
- DACITE - ANDESITE PORPHYRY x x x x
- ALASKITE // // //
- ALTERED SEDIMENTS ALTERED SEDIMENTS
- BRECCIA BRECCIA
- FAULT FAULT
- SLOUGHING SLOUGHING
- ALLUVIUM ALLUVIUM

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
PLAN OF EL TIRO PIT PROGRESS FOR SEP 1966			
SCALE 1" = 200'	DRAWN DRC	DATE 1-9-66	FILE S-121-2060

19000 E

18000 E

17000 E

16000 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

October 19, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AND NORTH BUTTE AREA DIAMOND DRILLING

The following briefly summarizes the results of the diamond drilling in the El Tiro and North Butte areas during the month of September 1966.

A total of 1,441.6 feet of diamond core drilling was done by one truck-mounted rig working in the El Tiro area and one skid-mounted rig working in the North Butte area, each operating two shifts per day. The following results are available:

Hole No.	Approx. Elevation	Approx. Coordinates		Depth to Top	Thick-ness	Avg. % Cu		Ft. Drill. During Mo.	Depth End Mo.	Final Depth
		North	East			Total	N.S.			
D-214	2653.9	40,710.4	16,776.8	413.2	16.8	0.47	0.01	123.0	377.9	377.9
D-215	2516.11	42,687.5	15,964.0	45.1 120.3	31.8 42.5	0.44 0.43	0.36 0.11	262.3	262.3	262.3
D-216	2561.28	41,857.3	15,086.0	No 0.40% Cu lenses this interval.				541.6	541.6	915.2
F-149	3074.47	31,000.6	22,718.5	161.7 241.3	31.0 36.7	5.37 0.42	5.28 0.07	292.7	403.6	403.6
F-150	2816.86	30,008.7	22,948.4	5.0	63.9	1.39	1.16	<u>222.0</u>	222.0	222.0
								Total	<u>1,441.6</u>	

EL TIRO AREA

D-214 collared in alluvium, cut alaskite at 20 feet, dacite at 31.3 feet, fine grained alaskite at 49.3 feet, mixed dacite and alaskite at 68.7 feet, alaskite at 70 feet, granodiorite at 101.7 feet, alaskite at 111.2 feet to the bottom of the hole at 377.9 feet.

The alaskite encountered in this hole presents some problems of identification. Except for a short run near the collar (see Section 40680N) the alaskite is finely crystalline to about 250 feet where it grades into its more normal, coarsely crystalline, texture. The finely crystalline phase can only with difficulty be distinguished from the dacite. Identification is facilitated by cutting and polishing a fragment of the core and noting whether the quartz is shard-like (typical of the dacite), or bounded by rectangular feldspar crystals, denoting the igneous texture of the alaskite.

The finely crystalline alaskite may represent a chilled zone, in places surrounding the more coarsely crystalline mass of alaskite. The existence of this chilled alaskite is important in determining the relationship of the alaskite and the dacite porphyry, and the presence or absence of deep lying sediments.

The sulfide contact was cut at 83.3 feet, 52.2 feet of 0.48/0.03% copper material was cored. Protore grade was 0.25% copper.

D-215 collared in alluvium and cut biotite rich dacite at 14.2 feet, monzonite at 117.3, dacite at 123.9 feet, monzonite at 183.5, dacite at 192.2, intensely sili-cified dacite at 197 feet, alaskite circa 220 feet, monzonite at 242.4 feet, alaskite at 244.6 to the bottom of the hole at 262.3 feet.

The capping on D-215 carried higher than average oxide copper, +0.4% copper material between 45.1 feet and 76.9 feet, having a grade of 0.44/0.36% copper. Mixed capping and sulfides were encountered circa 104 feet with a +0.4% copper lense between 120.3 and 162.8 showing a grade of 0.43/0.11% copper. Protore grade was 0.18% copper.

D-216 was a proposed deep hole to test for mineralized sediments thought to underlie the dacite in the North Silver Bell area. The hole collared in Quaternary alluvium and penetrated 73.0 feet before bedrock was reached. Bedrock was dacite and that rock was cored to 189.1 feet where monzonite was encountered. Dacite was again cut at 217.5 feet, and chloritic hornfels occurred between 294.7 and 305.7 feet. Dacite was again cored from 305.7 to 471.7 where monzonite was encountered. Monzonite was cored the rest of the hole except for xenoliths of chloritic hornfels between 294.7 to 305.7 feet and 631.2 to 634.2 feet and magnetite rich tactite from about 776 to 779.5 feet. The hole bottomed in monzonite at 915 feet.

No +0.40% copper material was cored in the hole.

The significant aspects of the hole were the encountering the small intercepts of metasediments, and the large monzonite body. The first two blocks of sediments I believe were xenoliths or foreign fragments contained in the dacite. The third block encountered around 776 feet was very high in its magnetite content, and was highly garnetized. I think this block may represent a larger body of sediments, intruded by monzonite and barely missed by the diamond drill hole.

The monzonite is part of a large body that lies to the north of the drill hole and is for the most part covered by alluvium. Since the alluvium was so deep there was no way to tell where, or if the monzonite was to be expected. Apparently the hole cored either a thick dike or the southern edge of the monzonite stock. Because the hole did penetrate monzonite the basic question of whether sediments underlie the dacite sill still remains unanswered. The highly altered block of sediments in the monzonite at about 776 feet is encouraging and suggests that further testing should be done.

D-217 is now being drilled in the canyon directly west of Jesuit Peak as a further test for the presence of sediments below the dacite (~~see Plate 1~~).

NORTH BUTTE AREA

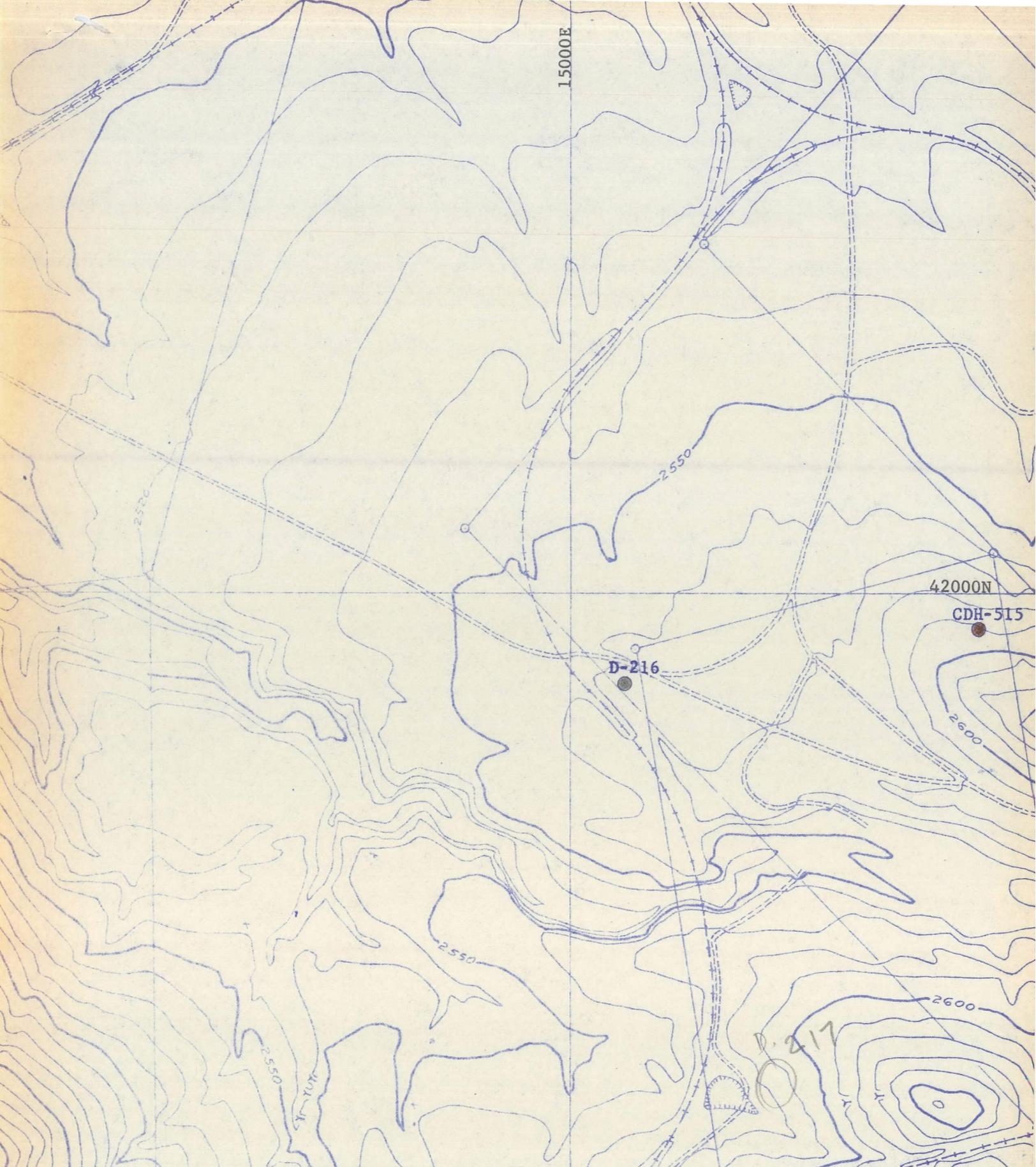
F-149 collared in dacite, cut monzonite at 56.9 feet, dacite at 57.3, siltstone at 56.3, dacite at 63.5 feet, siltstone at 71.5 feet, dacite at 72.5 feet, quartzite (identified as Permian Sherrer quartzite), intermixed quartzite and hornfels at 161 feet, and chloritic hornfels, with short intercepts of quartzite, dacite and monzonite at 171 to 345 feet where alaskite was intercepted. The hole bottomed in alaskite at 403.6 feet. Protore grade in the alaskite is 0.07% copper.

F-150 collared in alaskite and remained in that rock to 201 feet where monzonite was encountered. The hole bottomed in monzonite at 222.0 feet. Three post mineral andesite dikes cut the alaskite at 33.1 to 65.2, 68.5 to 68.9 and 186.2 to 188.1 feet.

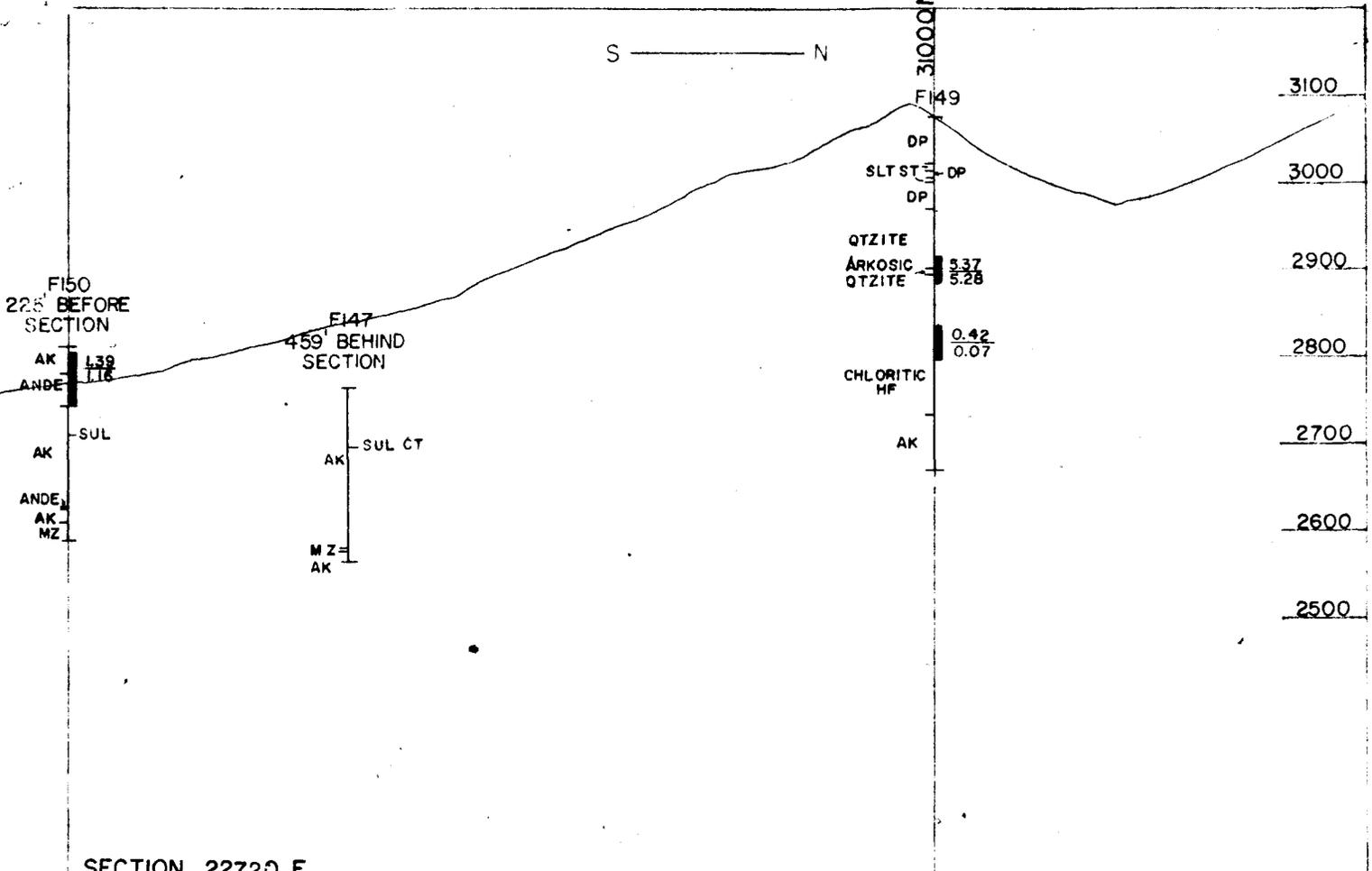
The base of the leached capping was about 100 feet. Sixty four feet of 1.39/1.16% copper material was cored from the collar of the hole to 69 feet. The material consisted of green copper oxides precipitated on altered felspar in the alaskite and post mineral andesite. No +0.40% copper material was found in the sulfide zone. Proto grade was 0.08% copper in the alaskite and 0.05% copper in the monzonite.


James A. Briscoe
Geologist

JAB:jca



American Smelting & Refining Company SILVER BELL UNIT			
West Extension of Quartzite Peak Area Map showing Location of D-216			
Scale 1" = 200'	Drawn JAB	Date SEP 1966	File S-121- A



SECTION 22720 E

■ +0.4% Total Copper Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
OXIDE AREA			
DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	JAB	SEP 1966	S-121-A

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

September 20, 1966

J. H. C.

OCT 3 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AND NORTH BUTTE AREA DIAMOND DRILLING

The following briefly summarizes the results of the diamond drilling in the El Tiro and North Butte areas during the month of August, 1966.

A total of 1,727.8 feet of diamond drilling was done by one truck-mounted rig and one skid-mounted rig, each operating two shifts per day. On August 24th, the skid rig was moved to the North Butte area, while the truck-mounted rig remained in the El Tiro area, its target being deep lying sediments. On September 15th, the truck rig (Chicago Pneumatic 15) was exchanged for a larger Longyear 44 rig, capable of drilling to 2,000 feet at NX wire line size. The following results are available:

Hole No.	Approx. Elevation	Approx. Coordinates		<u>+0.40% Cu Lenses</u>				Ft. Drill. During Mo.	Depth End Mo.	Final Depth
		North	East	Depth to Top	Thick-ness	Avg. % Cu T. Cu	N. S.			
D-207	2607.5	41,758.5	16,183.0	No 0.40% Cu Lenses this inter.				51.0	255.7	255.7
D-208	2537.9	42,230.7	16,107.5	134.7	6.3	0.51	0.01	247.5	382.2	382.2
D-209	2645.6	41,456.5	16,380.8	No 0.40% Cu lenses				223.0	223.0	223.0
D-210	2615.1	41,937.7	15,911.4	102.6	14.7	1.12	0.94	331.7	331.7	331.7
D-211	2629.0	41,310.9	16,460.0	No 0.40% Cu lenses this inter.				173.0	173.0	173.0
D-212	2560.7	41,927.3	16,467.0	60.8	17.1	.73	.11	199.1	199.1	199.1
D-213	2577.80	41,610.9	16,647.3	No 0.40% Cu lenses				136.7	136.7	136.7
D-214	2653.9	40,710.4	16,776.8	82.7	52.2	.48	.03	254.9	254.9	377.9
F-149	3074.48	31,000.6	22,718.5	161.7	31.0	5.37	5.28			
				241.3	36.7	0.42	0.07	<u>110.9</u>	110.9	403.6
Total								<u>1,727.8</u>		

Note: Part of D-214, F-149, and all of D-215 were drilled after the first of the month.

The important aspects of each hole up to September 15th are as follows:

D-210 collared in dacite and, except for several dike and xenoliths, remained in that rock to the bottom of the hole at 331.7 feet. Dikes and xenoliths were as follows: monzonite at 66.9 to 73.2 feet, post mineral andesite at 92.1 to 102.6 feet, granodiorite porphyry circa 127 feet and a few inches thereafter, alaskite 277.7 to 285.5 feet, alaskite xenolith 309 to 309.8, silicified alaskite (?) at 325.9 to 330 feet. This silicified alaskite is thought to be correlative to the silicified layer directly overlying normal alaskite encountered in D-208, and therefore alaskite is assumed to be present a few inches to a few feet below the bottom of the hole. Sulfides were encountered at 117.8 feet, however no consecutive runs of +0.40% sulfide copper was encountered. At 87.9 feet in the leached capping, there was 14.7 feet of 1.12/0.94% copper. Protore grade is 0.17% copper.

D-211 collared in dacite, cut monzonite at 26.6 feet, granodiorite (?) circa 45 feet, monzonite at 143.8 feet, Pinal schist at 150.3 feet, dacite at 152.8, monzonite at 157.4, dacite at 158.6, intense silicification at 170.1 feet, with wisps of alaskite texture showing up near the bottom of the hole at 173.0 feet. Sulfides were encountered circa 37 feet but no +0.40% copper mineralization was cored in the hole. Protore grade averaged 0.16% copper in monzonite, Pinal Schist, dacite and alaskite.

D-212 collared in alluvium, cut monzonite at 35.0 feet, dacite at 39.5 feet, biotite rich monzonite at 48.2 feet, dacite at 72.4 feet, monzonite at 74.9 feet, dacite at 88.1 feet, monzonite at 150.5 feet, dacite at 153.6 feet and to the bottom of the hole at 199.1 feet. Sulfides were encountered at 63.0 feet, plus 0.4% copper was cored from 60.8 feet to 77.9 feet with a grade of 0.73/.11. Protore grade in dacite averaged 0.15% copper.

D-213 collared in dacite and remained in that rock to the bottom of the hole at 136.7 feet. Sulfides were encountered circa 43 feet but no consecutive +0.4% copper mineralization was cored. Protore grade was 0.13% copper.

D-214 collared in alluvium, cut alaskite at 20 feet, dacite at 31.3 feet, fine grained alaskite at 49.3 feet, mixed dacite and alaskite at 68.7 feet, alaskite at 70 feet, granodiorite at 101.7 feet, alaskite at 111.2 feet to the bottom of the hole at 377.9 feet.

The alaskite encountered in this hole presents some problems of identification. Except for a short run near the collar (see section 40680N) the alaskite is finely crystalline to about 250 feet where it grades into its more normal, coarsely crystalline, texture. The finely crystalline phase can only with difficulty be distinguished from the dacite. Identification is facilitated by cutting and polishing a fragment of the core and noting whether the quartz is shard-like (typical of the dacite), or bounded by rectangular feldspar crystals, denoting the igneous texture of the alaskite.

The finely crystalline alaskite may represent a chilled zone, in places surrounding the more coarsely crystalline mass of alaskite. The existence of this chilled alaskite is important in determining the relationship of the alaskite and the dacite porphyry, and the presence or absence of deep lying sediments.

The sulfide contact was cut at 83.3 feet, 52.2 feet of 0.48/0.03% copper material was cored. Protore grade was 0.25% copper.

D-215 collared in alluvium and cut biotite rich dacite at 14.2 feet, monzonite at 117.3, dacite at 123.9 feet, monzonite at 183.5, dacite at 192.2, intensely silicified dacite at 197 feet, alaskite circa 220 feet, monzonite at 242.4 feet, alaskite at 244.6 to the bottom of the hole at 262.3 feet.

The capping on D-215 carried higher than average oxide copper, +0.4% copper material between 45.1 feet and 76.9 feet, having a grade of 0.44/0.36% copper. Mixed capping and sulfides were encountered circa 104 feet with a +0.4% copper lense between 120.3 and 162.8 showing a grade of 0.43/0.11% copper. Protore grade was 0.18% copper.

F-149 collared in dacite, cut monzonite at 56.9 feet, dacite at 57.3 feet, siltstone at 56.3, dacite at 63.5 feet, siltstone at 71.5 feet, dacite at 72.5 feet, quartzite (identified as Permian Sherrer quartzite), intermixed quartzite and hornfels at 161 feet, and chloritic hornfels, with short intercepts of quartzite, dacite and monzonite at 171 to 345 feet where alaskite was intersected. The hole bottomed in alaskite at 403.6 feet. Protore grade in the alaskite is 0.07% copper.

SUMMARY:

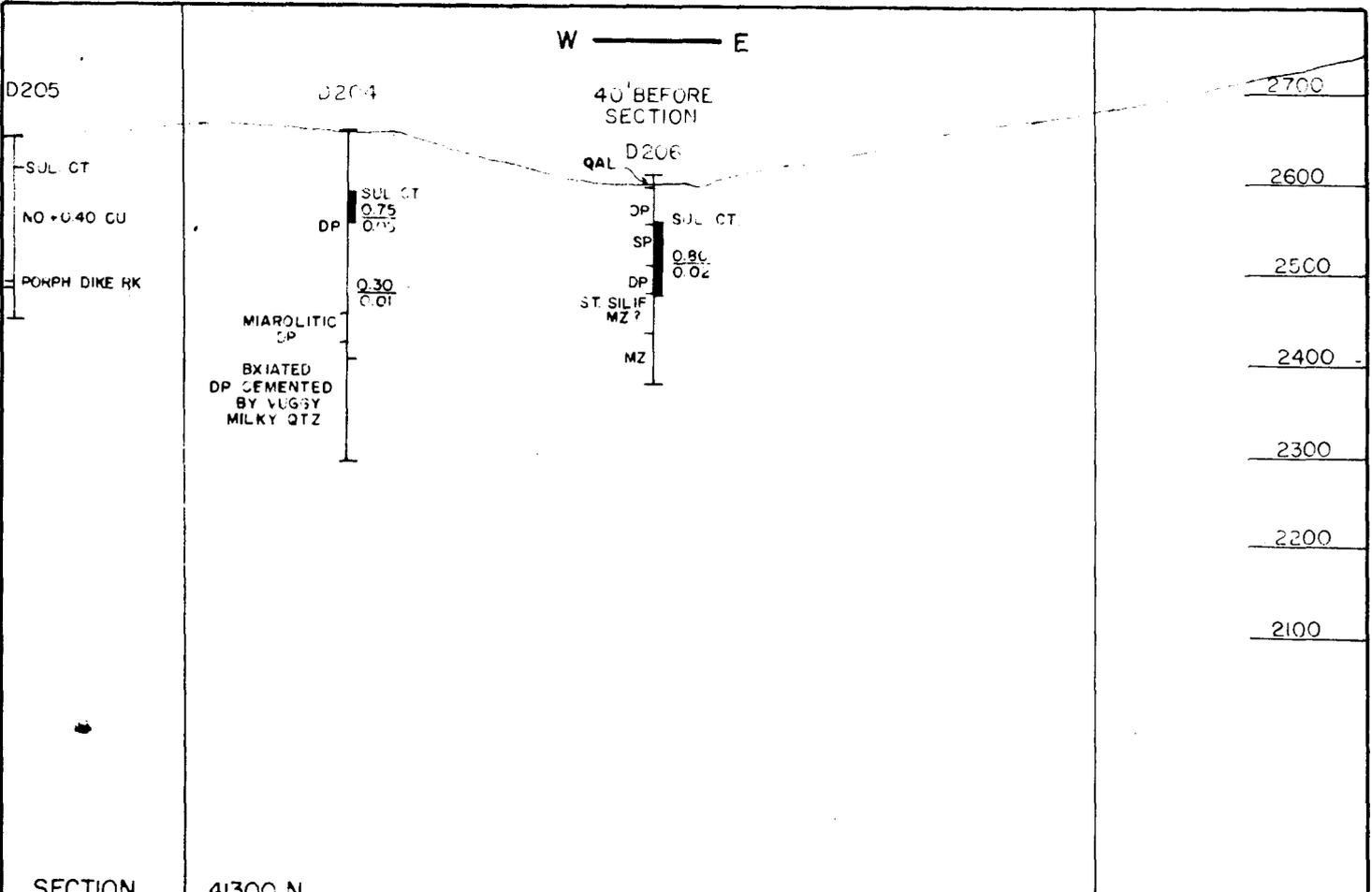
A preliminary bench plan map of holes D-176 to D-210 indicates the chalcocite blanket in the north Silver Bell area is too thin, too low grade, and too broken by rugged topography to be mineable at this time. For this reason shallow drilling for the chalcocite blanket was terminated with hole D-213. Hole D-215 was drilled as a location hole for a new claim. An effort is being made to penetrate the dacite sill and intersect sediments thought to underlie it, with drill holes D-214, D-216, and D-217. D-214 bottomed in alaskite, and D-216 is presently being collared.

The skid-mounted rig has been moved from the El Tiro area to the North Butte area where it is now drilling for a chalcocite blanket.



James A. Briscoe
Geologist

JAB:jca



SECTION
SECTION

41300 N
41460N

17000 E

█ +0.4 % Total Copper
Advance for month
Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN JAB	DATE SEP 1965	FILE S-121- A

18000 E

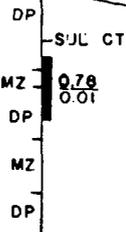
W ——— E

12' BEFORE SECTION

2700

D207

2600



2500

2400

2300

2200

2100

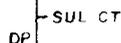
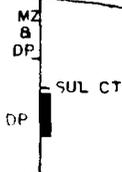
SECTION 41770N
SECTION 41615 N

10' BEHIND SECTION
CDH 507

2700

D213

2600



2500

2400

2300

2200

2100

17000 E

16000 E

█ + 0.4 % Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	JAB	SEP 1966	S-121- A

W ————— E

5' BEFORE SECT
D209

DP
MZ = NO + 0.40 CU
INTENSE TO
COMPLETE SIL'N
RK TYPE AK
AK

2700

2600

2500

2400

2300

2200

2100

SECTION
SECTION

41460 N

41300 N

2700

35' BEHIND
SECTION
CDH 514

D211

DP
MZ = SUL CT
SUL CT
DP
GRANODIORITE
PORPHYRY
15' FINAL MZ = DP
SCHIST
INTENSELY
SIL. AK

2600

2500

2400

2300

2200

2100

17000 E

16000 E

█ + 0.4 % Total Copper
Advance for month

Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA •
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

JAB

DATE

SEP

1966

FILE

S-121-

A

W ——— E

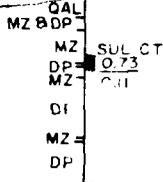
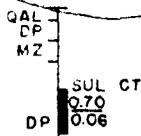
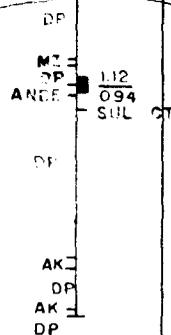
SECTION 42080 N
SECTION 41930 N

D210

CDH508

72' BEHIND SECTION

D212



2600
2500
2400
2300
2200
2100
2000

17000 E

16000 E

█ + 0.4 % Total Copper
Advance for month
Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN JAB	DATE SEP 1966	FILE S-121- A
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W ————— E

SECTION 40680 N

30' BEFORE
SECTION
CDH 510

DP

30' BEHIND
SECTION

D214

FINELY
XYLINE
AK

AK

QA
DPA
AK B/D
DP

SUL CT
0.48
0.03

2800

2700

2600

2500

2400

2300

2200

17000 E

16000 E

█ +0.4% Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assays Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE
1" = 200'

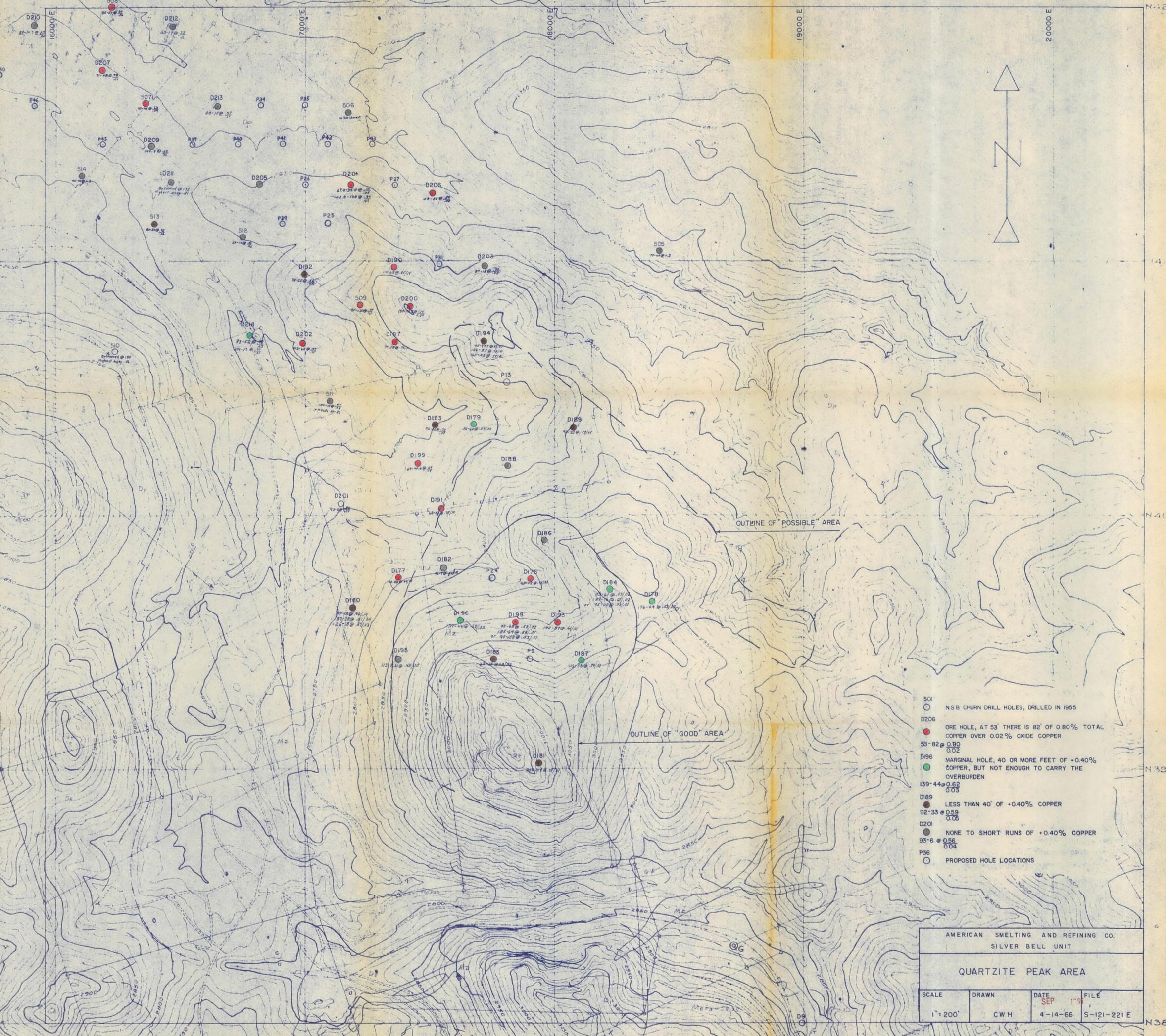
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JAB

DATE
SEP

1966

FILE
S-121- A

N42000
N41000
N40000
N39000
N38000



- 501 ○ NSB CHURN DRILL HOLES, DRILLED IN 1955
- D206 ● ORE HOLE, AT 53' THERE IS 82' OF 0.80% TOTAL COPPER OVER 0.02% OXIDE COPPER
- 53-82 ● 0.80
0.02
- D196 ● MARGINAL HOLE, 40 OR MORE FEET OF +0.40% COPPER, BUT NOT ENOUGH TO CARRY THE OVERBURDEN
- 139-44 ● 0.52
0.05
- D189 ● LESS THAN 40' OF +0.40% COPPER
- 92-33 ● 0.59
0.05
- D201 ● NONE TO SHORT RUNS OF +0.40% COPPER
- 93-6 ● 0.56
0.04
- P36 ○ PROPOSED HOLE LOCATIONS

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
QUARTZITE PEAK AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CW H	SEP 1956	S-121-221 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

J. H. C.

September 9, 1966

SEP 26 1966

MEMORANDUM TO: Mr. Walt Waidler, Assistant Superintendent

Subject: "INDICATED" AND "POSSIBLE" ORE TO BE ENCOUNTERED
ON THE 2790 LEVEL, EAST EXTENSION, EL TIRO PIT.

General Description of Procedures and Objectives

During the last year I have changed the scale of the pit geologic maps from one inch equals fifty feet to one inch equals one hundred feet. The new scale yields a more readable map without loss of significant detail. In addition, the geology can now be related to the assays plotted on the hundred scale shot plan maps prepared by the engineering department. As each shot plan becomes available, the assays are color coded for grade and oxide copper content as follows:

0.00 - 0.19%	Copper (Waste)	- Blue)	
0.20 - 0.39%	Copper (Leach)	- Yellow)	total copper
0.40 - 0.59%	Copper (Ore)	- Green)	
0.60 - 0.79%	Copper (Ore)	- Orange)	
0.80 - 1.49%	Copper (Ore)	- Red)	sulfide copper
1.50 - 2.49%	Copper (Ore)	- Purple)	
2.50 - 3.49%	Copper (Ore)	- Grey (Lead Pencil))	
3.50 & Higher	Copper (Ore)	- Black)	

x 0.20 - 0.39% oxide copper in +0.40% sulfide copper material
. +0.40% oxide copper in +0.40% sulfide copper material

These colored assay grades are then contoured and colored with their respective colors. (See Plate I) This assay breakdown is designed to show any possible relation between ore grade mineralization and rock type or geologic structure.

The ultimate objective of this mapping technique is to enable the resident geologist to make a reasonably accurate forecast of the location, grade and tonnage of ore in the pits, particularly the irregular replacement ore bodies found in the altered sediments in El Tiro Pit. With this in mind I have prepared a sketch map of the geology, "Indicated", and "Possible" ore to be encountered on the 2790 level as projected from the 2830 level.

"Indicated" ore is defined as: Ore projected to the unmined 40 foot bench from the blast hole assays from the level immediately above and modified by any existing exploration diamond drill hole data, and data obtained from pit mapping. Grade and shape of the orebody can be predicted with fair accuracy barring any unexposed geologic factors.

"Possible" ore is defined as: Ore that is thought to be present because of interpretation of geologic and assay data such as mapping, or proximity to the top of the chalcocite blanket. Grade and exact shape of the ore body can only be determined in a general manner.

The accuracy of future reports should increase as more information is plotted on maps, and the relationship between structure, rock type and mineralization in the sediments becomes better understood.

Ore on the 2790 Level in the Page Hill Area

The main feature of the 2790 level, Page Hill Area, is the elongate block of metasediments surrounded by dacite and cut by monzonite and syenodiorite porphyry dikes. Contained in this block is a replacement type ore shoot containing copper mainly as chalcopyrite, and minor oxide, and chalcocite. The body lies almost east-west to slightly northwest, apparently controlled by an east-west vein direction. Mining on the 2830 and 2870 levels indicate the ore shoot dips steeply to the north.

All the diamond drill holes except D44 and D88 missed the body. D44 just barely touched the edge of the low grade while D88 penetrated the edge of the indicated 1.5% area. The low assay on D88 may mean that the ore shoot is pinching out or becoming lower in grade on the 2790 level. The geologic log shows the hole penetrated hornfels and dacite, indicating the location is very near the metasediment-dacite contact. For this reason I feel that D88 probably cut a narrow, lower grade zone, and the rotary drill assays from the bench above are probably a more reliable indicator of actual grade to be encountered on the 2790 level.

Using the criteria outlined above, it is estimated that 72,000 tons of material at a grade of 0.8% copper should be encountered in the altered sediments on the 2790 level, Page Hill Area. (See Plate II)

Three small pods of "Possible" ore in the sediments lie to the south of the main shoot. A small pod of "Possible" ore consisting of chalcocite in monzonite and dacite may be found near 35,920 N, 18,000 E. (See Plate II)

It should be understood that the above predictions are based on the geology of one plane of a three dimensional problem, and are therefore not infallible. If it is necessary to absolutely confirm the presence of the projected ore before mining, it could be tested by several 40 foot rotary drill holes.

As a reference, a copy of the original ore reserve map is included in this report as Plate III.

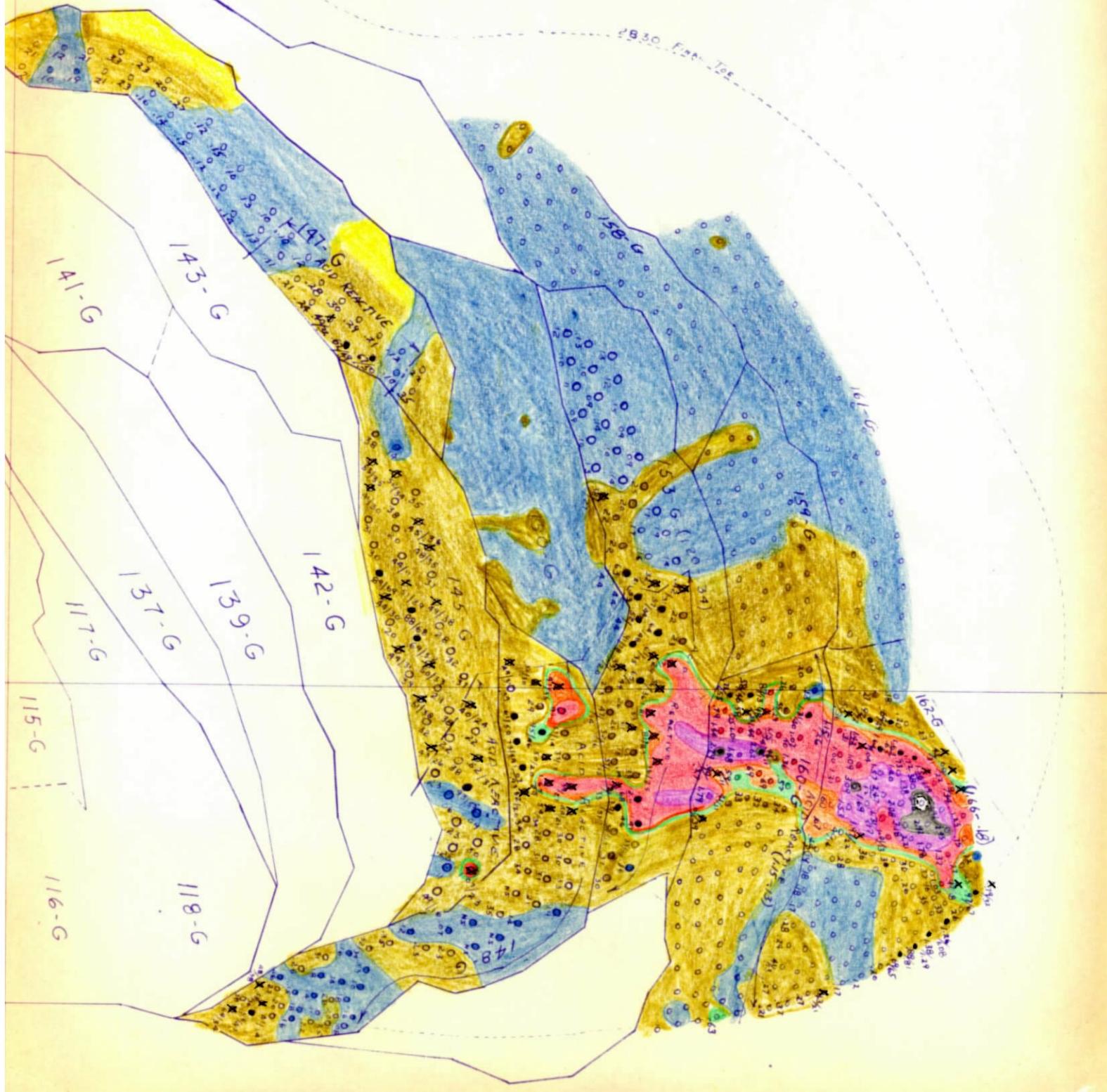

James A. Briscoe
Geologist

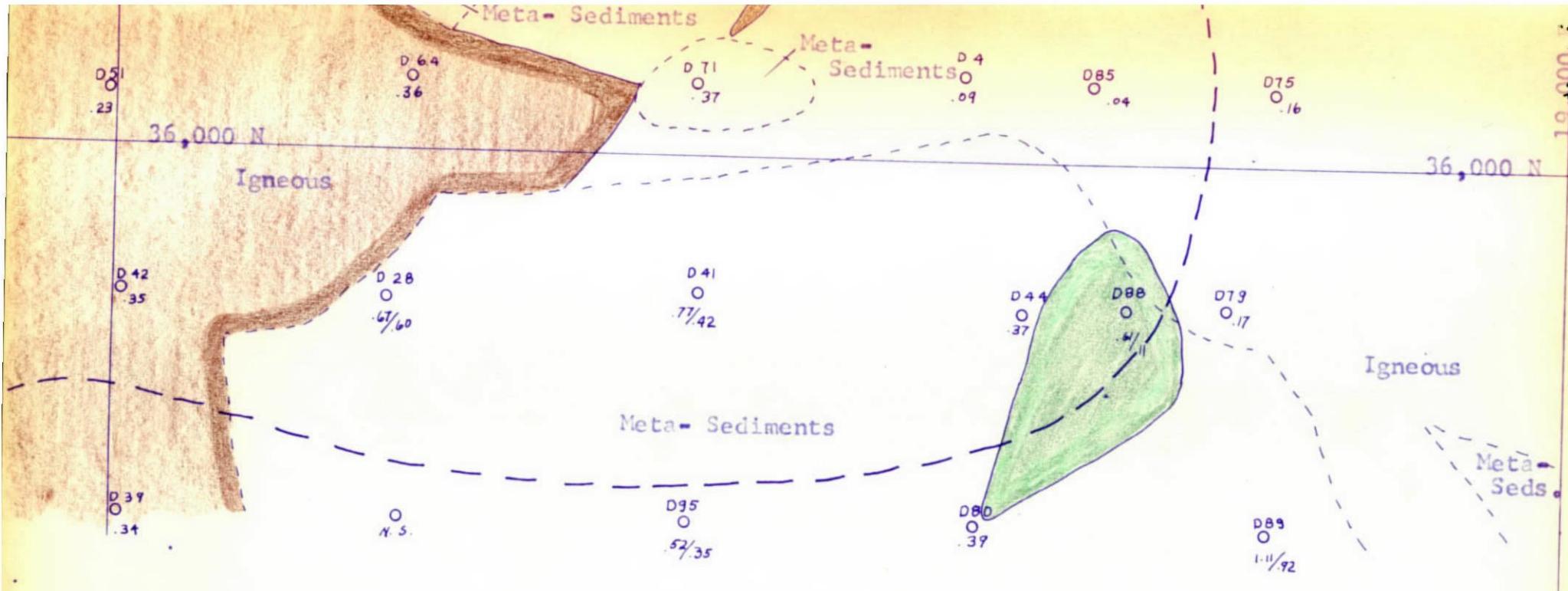
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cc: RBMeen
JHCourtright 2
DRJameson 2
WCWaidler
File 10



El TIRO PIT
2830 "G" BENCH
SHOT No. _____ - G
PLATE I





ORE RESERVE MAP CALCULATED FROM DIAMOND DRILL HOLE DATA, 2790 LEVEL, PAGE HILL AREA

EXPLANATION

- 0.40% to 0.59% Sulfide Copper
- Possible Leach Ore
- D41 Diamond Drill Hole
-
- $\frac{.77}{.42}$ Total Copper / Non-Sulfide Copper

114. (114) J.H. 1/1

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

OCT 10 1966

J. E. K.
OCT 13 1966

Silver Bell,

Arizona

S.V.F.

August 25, 1966

MR. ~~WES, SHIFFER, BAW~~
READ AND RETURN _____
PREPARE ANSWERS _____ HANDLE _____
FILE _____ INITIALS _____

OCT 19 1966

OCT 12 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: THE RELATION OF PRIMARY PYRITE AND CHALCOPYRITE CONCENTRATION TO THE DEPOSITION OF ORE GRADE CHALCOCITE, AND THE DEVELOPMENT OF ATYPICAL LEACHED CAPPING IN THE WILD HOG-COPPER BUTTE AREA WEST OF OXIDE PIT.

Drilling in the Wild Hog-Copper Butte area, which has outlined a possible orebody of some 11,500,000 tons, has also revealed some interesting and possibly important relationships between rock type, grade of primary chalcopryrite, percent of pyrite, and the locus of ore grade chalcocite enrichment. The pyrite-chalcopryrite ratio in this area also has marked effects on the appearance of leached capping overlying ore.

The first thing noted during the drilling was that rock type appears to have considerable effect on ore grade, although in the Oxide Pit area ore grade has always been considered to be independent of rock type.

The following is an average of the primary chalcopryrite grade encountered in the various rock types during the drilling.

<u>Rock Type</u>	<u>No. of Holes in which Primary Mineral was encountered</u>	<u>Average Grade of Pyrite</u>
Syenoediorite Porphyry	8	0.23
Alaskite	29	.16
Monzonite Porphyry	25	.11
Dacite Porphyry	3	.04

It should be noted that the above order of favorability will not invariably hold for every assay intercept, i.e.: In places (particularly on the ridge to the south of Wild Hog-Copper Butte) monzonite porphyry appeared more favorable than alaskite. Generally however these relations appear valid.

Wild Hog-Copper Buttes area has been considered a poor drilling risk in the past because of the strong copper oxide staining in the alaskite, and lack of live limonite. It was assumed that all the copper, because of insufficient strength of the leaching solutions, had remained in the capping, and no chalcocite blanket could be expected. In addition weak brown limonite stain indicated that the rock had been poorly mineralized to start with.

Drilling in the alaskite revealed ore grade chalcocite on chalcopryrite finely disseminated along crystal boundary and quartz veinlets. The unusual aspect of the rock was its extremely low pyrite content ranging from barely a

*assumption
before proof JAB*

trace to sparse amounts. The total sulfide content in this area amounts to less than 2% (possibly less than 1% in places), accounting for the weak limonite staining of the alaskite, and prominent green copper oxide in the capping.

On the ridge southeast of the Buttes (see Plate 4) green copper oxide stain diminishes and disappears and red hematite stain, limonite and live limonite increase. Drilling in this area shows that protore grade is somewhat lower but pyrite content is substantially higher (Plates 2 & 3), with total sulfide content being about 3-5% or about equal to that in Oxide Pit.

CONCLUSION:

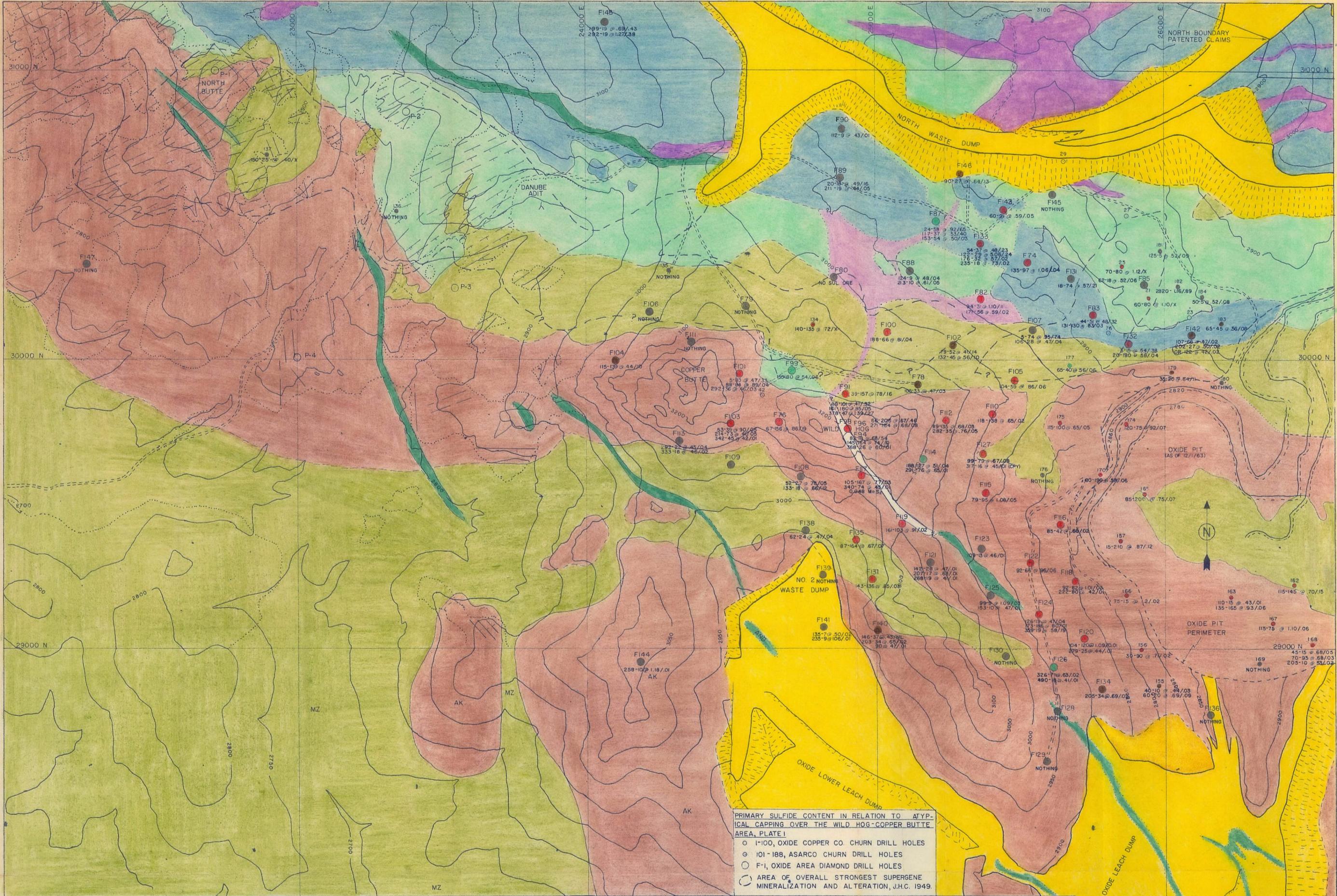
The apparent reason for the presence of ore under the Wild Hog-Copper Butte area is the higher grade of the chalcopyrite protore, being in places little more than a tenth of a percent below cut-off grade of 0.40% copper. There is also a possibility that enrichment didn't come from above the Wild Hog-Copper Butte area, but was from lateral migration of copper solutions from the Oxide Pit or other areas. This is important because of the presence of similar capping over the North Butte area. If the ore in the Wild Hog-Copper Butte area was derived from downward moving solutions then ore can be expected under similar capping in the North Butte area. If, however, the ore was derived from laterally moving solutions then ore may or may not be found under similar capping in the North Butte area depending on whether or not similar conditions prevailed. The drilling program planned for the near future in the North Butte area should show which of the hypotheses is correct. If the downward movement idea is indicated then there is a chance of a possible commercial connection of the two areas.

The initial drilling program proposed for the North Butte area consists of holes P-1 through P-5. Hole P-1 is located over good typical live-limonite capping in alaskite. Holes P-2 and P-3 are located on molybdenum geochemical anomalies. Hole P-4 is located on alaskite with oxide capping similar to that of the Wild Hog-Copper Buttes area. If P-4 hits ore then the Wild Hog-Copper Butte capping can be considered a valid indicator of low grade copper mineralization and more holes can be drilled in similar rock around P-4.

what if it does not? - one hole hardly sufficient to test an ore body probably, let alone a whole theory. JAB

James A. Briscoe
James A. Briscoe
Geologist

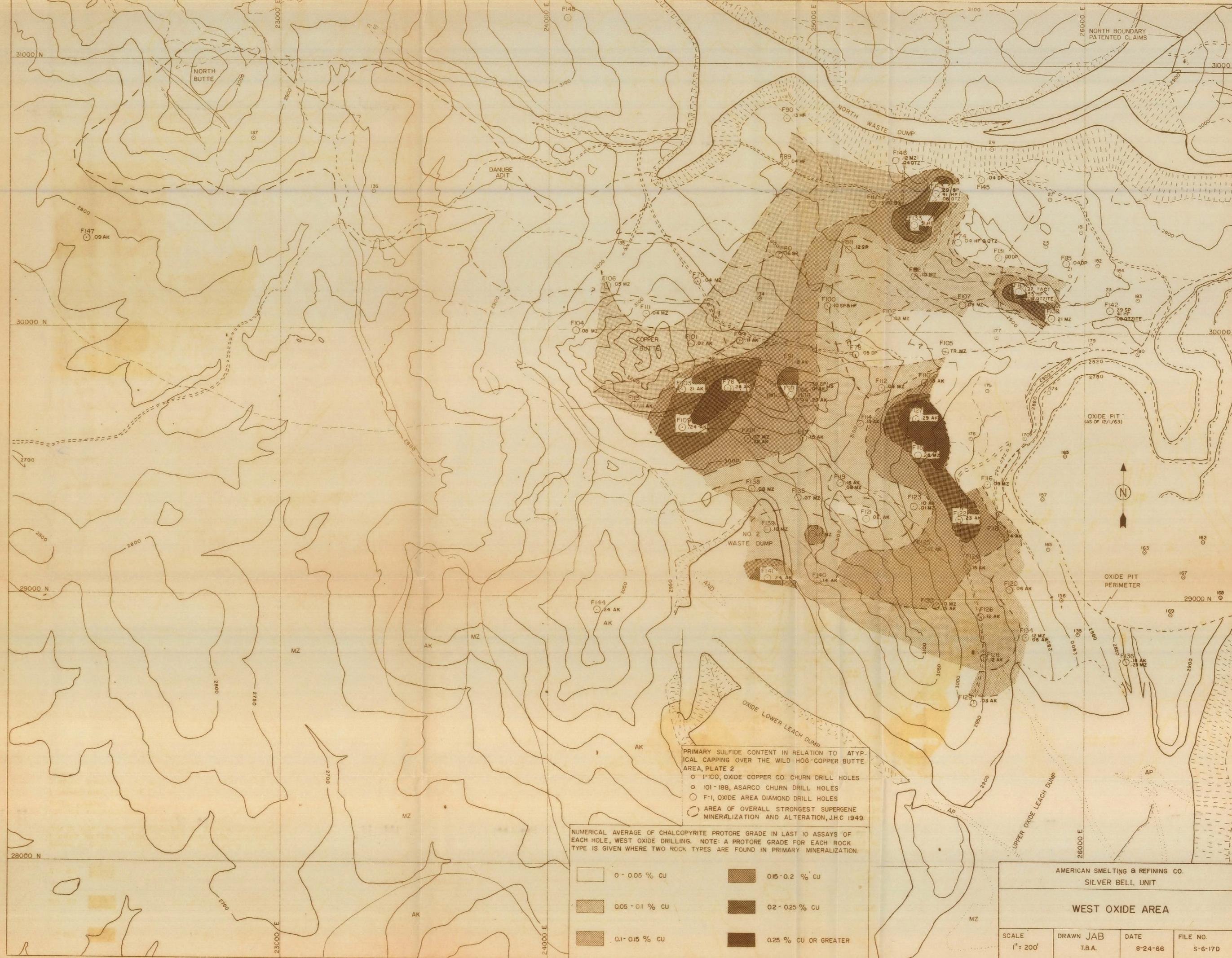
JAB:jca



PRIMARY SULFIDE CONTENT IN RELATION TO ATYPICAL CAPPING OVER THE WILD HOG-COPPER BUTTE AREA, PLATE I

- I-100, OXIDE COPPER CO CHURN DRILL HOLES
- I01-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION, J.H.C. 1949.

<ul style="list-style-type: none"> ANDESITE DIKES (POST MINERAL) DIKE ROCKS (DIORITE, ANDESITE, PORPHYRY, ETC.) PRE-MINERAL QUARTZ MONZONITE, PRE-MINERAL SYENODIORITE PORPHYRY " " " DACITE PORPHYRY " " " 	<ul style="list-style-type: none"> ALASKITE, PRE-MINERAL PALEOZOIC SEDIMENTARIES, CHIEFLY LIMESTONE. " " " OBSERVED CONTACT INFERRED CONTACT CONCEALED CONTACT 	<p>MINERALIZED FAULTS OR SHEETED ZONES</p> <ul style="list-style-type: none"> FISSURE HAVING VERTICAL OR NEARLY VERTICAL DIP 60° TO 80° DIP. 60° TO 40° DIP. 	<ul style="list-style-type: none"> ORE HOLE, 40' OR MORE FEET OF +0.40% COPPER, ENOUGH TO CARRY THE OVERBURDEN. TOTAL COPPER OVER OXIDE COPPER, F-119, 161-103 @ .91/.02. MARGINAL HOLE, 40' OR MORE FEET OF +0.40% COPPER, BUT NOT ENOUGH TO CARRY THE OVERBURDEN. LESS THAN 40' OF +0.40% COPPER. NONE TO SHORT RUNS OF +0.40% COPPER. 	<p>AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT</p> <p>WEST OXIDE AREA</p>
<p>AFTER J.H. COURTRIGHT, 1949 SYENODIORITE PORPHYRY ADDED BY J.A. BRISCOE, SEPT. 1966.</p>		<p>SCALE 1" = 200' DRAWN T.B.A. DATE 8-24-66 FILE NO. S-6-17D</p>		<p>PLATE</p>



PRIMARY SULFIDE CONTENT IN RELATION TO ATYPICAL CAPPING OVER THE WILD HOG-COPPER BUTTE AREA, PLATE 2

- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 01-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION, J.H.C. 1949

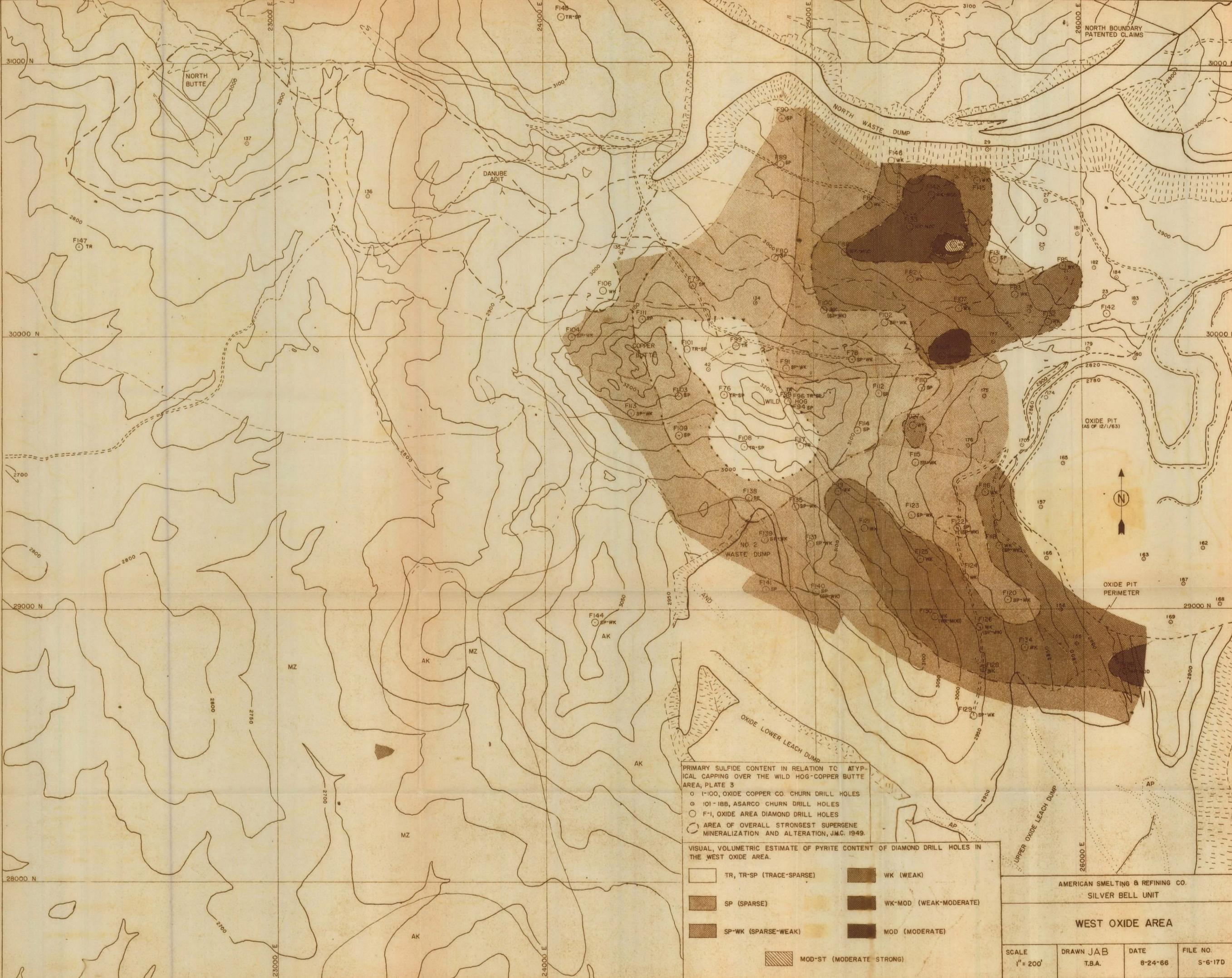
NUMERICAL AVERAGE OF CHALCOPYRITE PROTORE GRADE IN LAST 10 ASSAYS OF EACH HOLE, WEST OXIDE DRILLING. NOTE: A PROTORE GRADE FOR EACH ROCK TYPE IS GIVEN WHERE TWO ROCK TYPES ARE FOUND IN PRIMARY MINERALIZATION.

□ 0 - 0.05 % CU	■ 0.15 - 0.2 % CU
▨ 0.05 - 0.1 % CU	■ 0.2 - 0.25 % CU
▩ 0.1 - 0.15 % CU	■ 0.25 % CU OR GREATER

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

WEST OXIDE AREA

SCALE 1" = 200'	DRAWN JAB T.B.A.	DATE 8-24-66	FILE NO. S-6-17D
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PRIMARY SULFIDE CONTENT IN RELATION TO ATYPICAL CAPPING OVER THE WILD HOG-COPPER BUTTE AREA, PLATE 3

- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION, J.M.C. 1949.

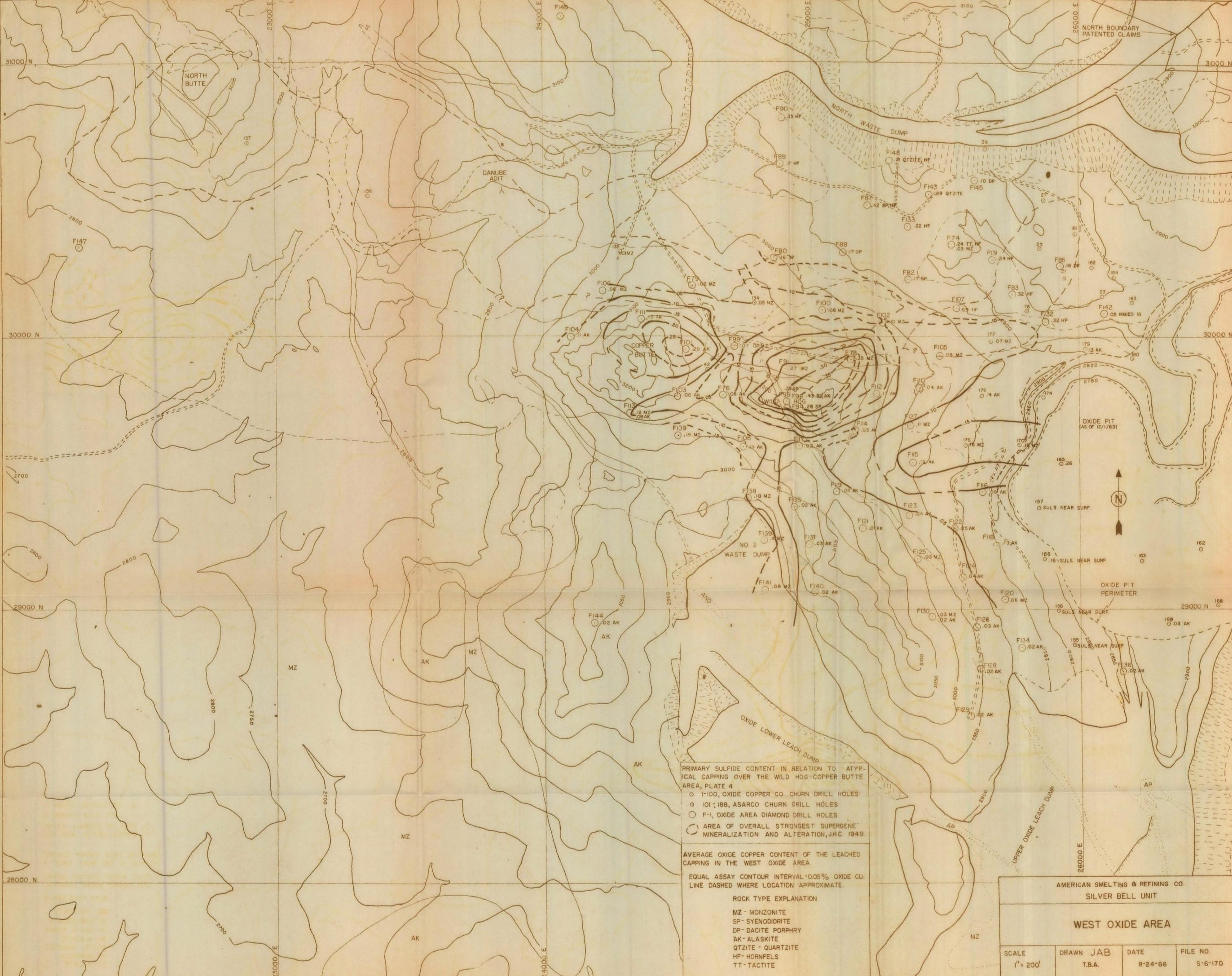
VISUAL, VOLUMETRIC ESTIMATE OF PYRITE CONTENT OF DIAMOND DRILL HOLES IN THE WEST OXIDE AREA.

	TR, TR-SP (TRACE-SPARSE)		WK (WEAK)
	SP (SPARSE)		WK-MOD (WEAK-MODERATE)
	SP-WK (SPARSE-WEAK)		MOD (MODERATE)
	MOD-ST (MODERATE STRONG)		

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

WEST OXIDE AREA

SCALE 1" = 200'	DRAWN JAB T.B.A.	DATE 8-24-66	FILE NO. S-6-17D
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PRIMARY SULFIDE CONTENT IN RELATION TO ATYPICAL CAPPING OVER THE WILD HOG-COPPER BUTTE AREA, PLATE 4

- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION, JHC 1949

AVERAGE OXIDE COPPER CONTENT OF THE LEACHED CAPPING IN THE WEST OXIDE AREA

EQUAL ASSAY CONTOUR INTERVAL -0.05% OXIDE CU. LINE DASHED WHERE LOCATION APPROXIMATE.

ROCK TYPE EXPLANATION

- MZ - MONZONITE
- SP - SYENODIORITE
- DP - DACITE PORPHYRY
- AK - ALASKITE
- QTZITE - QUARTZITE
- HF - HORNFELS
- TT - TACTITE

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
WEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE NO.
1" = 200'	JAB	8-24-66	S-6-17D
	T.B.A.		

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

August 18, 1966

J. H. C.
AUG 25 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON THE EL TIRO AREA DIAMOND DRILLING

The following briefly summarizes the results of the diamond drilling in the El Tiro area during the month of July, 1966.

A total of 1,888.8 feet of diamond drilling was done by one truck-mounted rig and one skid-mounted rig, each operating two shifts per day. The following results are available:

Hole No.	Approx. Elevation	Approx. Coordinates		+0.40% Copper Lenses				Ft. Drill. During Mo.	Depth End Mo.	Final Depth
		North	East	Depth to Top	Thick-ness	Avg. % Cu T. Cu	N. S.			
D-200	2797.9	40,821.9	17,424.7	133.4	70.3	1.14	0.24	106.3	276.7	276.7
D-201	2742.7	40,044.1	17,145.7	No +0.40% copper lenses				205.0	205.0	205.0
D-202	2653.1	40,678.8	16,990.7	41.2	65.0	0.57	0.11	213.0	213.0	213.0
D-203	2713.8	40,980.7	17,718.8	86.7	18.0	0.78	0.05	223.8	223.8	223.8
D-204	2657.0	41,302.3	17,182.0	67.0	35.8	0.75	0.05	367.0	367.0	367.0
D-205	2642.9	41,305.8	16,813.1	No +0.40% copper lenses.				202.3	202.3	202.3
D-206	2610.3	41,269.9	17,510.5	52.8	71.4	0.75	0.02	232.0	232.0	232.0
D-207	2605	41,770	16,189	70.7	67.5	0.78	0.01	204.7	204.7	
D-208	2540	42,242	16,090	Assays not available				134.7	134.7	
				Total				<u>1,888.8</u>		

Note: Part of D-208 and all of D-209 and D-210 were drilled after the first of the month.

The important aspects of each hole up to August 15, 1966 are as follows:

D-202 collared in dacite and remained in that rock to the bottom at 213.0 feet except for a syenodiorite dike from 97.3 to 107 feet. The enriched chalcocite blanket was at 41.2 to 151.8 feet, the +0.40% copper runs comprising the area between 41.2 feet and 106.2 feet. The protore averaged 0.25% copper.

D-203 collared in weakly altered dacite. Sparce sulfide mixed with leached capping were noted from 27 feet to 70 feet where sulfides became predominate. Monzonite dikes were cut at 32.2 to 27.8 feet, 46.5 to 59.0 feet, 89.7 to 112.0 feet and 130.9 to the bottom of the hole at 223.8. Plus 0.40% copper formed a narrow band between 86.7 feet and 104.7 feet. Protore grade in the Monzonite was 0.21% copper.

D-204 collared in dacite and remained in that rock for the total depth drilled. At 203.4 feet the texture became miarolitic with some sulfide in the cavities. At 236.4 feet the dacite was brecciated and cemented with vuggy milky quartz. The quartz carried only sparse sulfide but the dacite breccia contained higher than usual copper values in chalcopyrite. Plus 0.40% copper was cored from 67.0' to 102.8'. From 102.8' to 241.5 feet the grade of chalcopyrite was higher than normal giving 138.7 feet at 0.30/01% copper. Protore grade was 0.22% copper.

D-205 collared in dacite and remained in that rock to the bottom of the hole at 202.3 feet. From 163.1 feet to approximately 178 feet a biotite rich dike rock was cored. Due to alteration it was impossible to correlate this rock with any known rock types. No +0.40% copper was cored in this hole. Protore grade was 0.14% copper.

D-206 collared in dacite, cut syenodiorite at 54.8 feet, re-entered biotite rich dacite at approximately 118 feet, and cored highly altered monzonite at approximately 135 feet to the bottom of the hole at 232.0 feet. The rock in this area is highly altered and silicified making rock identification difficult. Sulfides were encountered at 50 feet with the +0.40% copper enrichment extending from 52.8 feet to 135.0 feet. Protore grade averaged 0.16% copper.

D-207 collared dacite and cut monzonite dikes at 85.9 to 105 feet, 155 feet to 212.9 feet, and bottoming in dacite at 255.7 feet. Sulfides were encountered at 55 feet. Plus 0.40% copper was cored from 70.7 feet to 138.2 feet giving 67.5 feet at 0.78/0.01% copper. Protore grade was 0.19% copper.

D-208 collared in monzonite, went into dacite at 42.5 feet, into a porphyritic intrusion at 61.5 feet and back into dacite at 82.4 feet. The porphyritic intrusion was intersected again at 141.0 feet, and at 155 feet dacite was again cored. The dacite was cut by monzonite dikes at 190.1 feet to 195.2 feet, and 225 to 228 feet. At approximately 258.7 feet the drill went into alaskite.

This alaskite intercept is particularly important because it indicates the base of the dacite sill has been penetrated. I felt the base of the dacite was fairly shallow in this area (see Memorandum to Mr. D. R. Jameson, Superintendent: Deep Drilling to Explore the Possibility of Sediments Underlying the Dacite Porphyry in the North Silver Bell Area, July 11, 1966) but the 259 feet depth was much more shallow than I expected. Alaskite has also been penetrated in D-209, and if the dacite-alaskite contact can be cut in one more hole the altitude of the contact can (barring large-displacement faults) be calculated. D-210 is being deepened with this purpose in mind.

Strongly altered sediments or syenodiorite was intercepted at 356 feet. A breccia dike containing alaskite fragments was cored from 373.1 feet to 375 feet. At 375.8 feet the drill went into a dark, mineralized andesite porphyry and bottomed in that rock at 382.2 feet. The rock cannot at present be correlated to any named rock type.

High oxide +0.40% copper was intersected from 44.0 feet to 82.4 feet giving 27.6 feet at 0.61/0.43% copper. Low oxide, +0.40% copper was cored from 82.4 feet to 141.0 feet giving 58.6 feet of 0.65/0.06% copper. Protore grade was 0.16% copper.

D-209 collared in dacite, and continued in that rock to 95.5 feet where it was cut by a 4.4 foot monzonite dike. At 105 feet the rock becomes intensely silicified with destruction of all texture. This silicification continues to about 170 feet. From 136 feet on down wisps of texture suggest the rock is alaskite and by 170 feet good alaskite texture is discernable. The hole bottomed in alaskite at 223.0 feet.

Sulfides were encountered around 95 feet and a 4.4 foot run of enriched rock was assayed. The intense silification starting at 105 feet precluded deposition of chalcocite below this depth. Protore grade was 0.17% copper.

D-210 collared in dacite and remained in that rock to the present depth of 267.9 feet, except for a monzonite dike between 66.9' and 73.2 feet and a post-mineral andesite dike at 92.1 feet to 102.6 feet. No +0.40% copper lenses have been cored in this hole. The hole is being deepened in an effort to penetrate the dacite alaskite contact.

In summary, the results of wide spaced holes D-204, D-206, D-207 and D-208 indicate the presence of a chalcocite blanket in the northwest corner of the Quartzite Peak area. The drilling to date outlines an area of interest 3,700 feet long by 1,000 feet wide (approximate dimensions) beginning on the north slope of Quartzite Peak, and extending in a northwest direction, to the north west corner of the map. Leached capping indicates the chalcocite blanket probably underlies the disputed land to the northeast of ASARCO Patented land, and some ASARCO unpatented claims beyond the north edge of the Quartzite Peak area map.



James A. Briscoe
Geologist

JAB:jca

W ————— E

3000

2900

2800

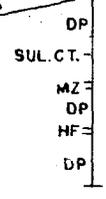
2700

2600

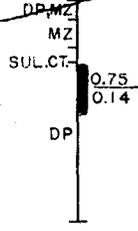
2500

2400

10' BEFORE SECTION
D201



23' BEFORE SECTION
D191



SECTION 40050 N
SECTION 40680 N

2800

2700

2600

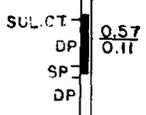
2500

2400

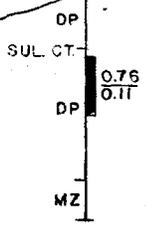
2300

2200

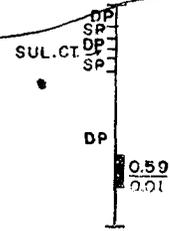
D202



D197



D194



17000 E

18000 E

█ + 0.4 % Total Copper Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE JUL 1966	FILE S-121-A

W ————— E

3000

2900

2800

2700

2600

2500

2400

17' BEFORE SECTION

D188

DP
SUL.CT.
Y.SP?
DP

D199

DP
SUL.CT.
SLT ST. 0.65
DP 0.07
MZ
DP
HF
DP

SECTION 40210 N

SECTION 40990 N

2900

2800

2700

2600

2500

2400

2300

14' BEFORE SECTION

D190

DP
MZ, DP
SUL.CT.
DP 0.85
MZ 0.14
DP

43' BEFORE SECTION
D192

DP
SUL.CT. 0.55
0.05

18000 E

17000 E

■ +0.4 % Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assays Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUL 1966	S-121- A

W ————— E

3000

2900

14' BEHIND SECTION

48' BEHIND SECTION

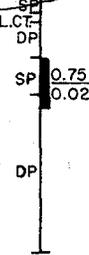
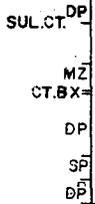
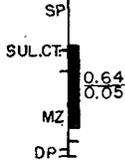
DI76

DI77

DI82

DI76

2800



2700

2600

2500

2400

SECTION 39740 N
SECTION 39580 N

3000

2900

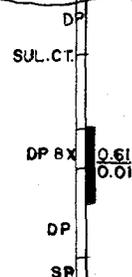
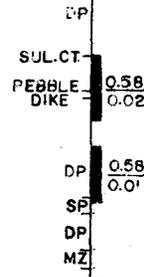
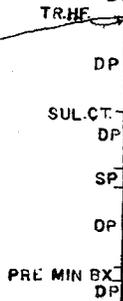
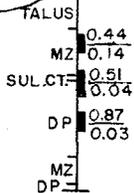
53' BEHIND SECTION

DI96

DI98

DI93

DI80



2800

2700

2600

2500

2400

17000 E

█ + 0.4 % Total Copper
Advance for month
Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

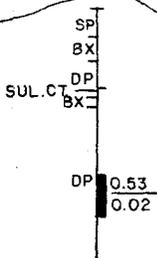
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SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JUL 1966	FILE S-121-A
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W ————— E

77' BEHIND
SECTION
D178



3100

3000

2900

2800

2700

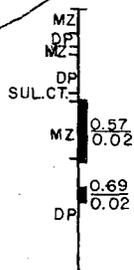
2600

2500

SECTION 39580 N

SECTION 39740 N

34' BEFORE
SECTION
D184



3100

3000

2900

2800

2700

2600

2500

19000 E

18000 E

■ + 0.4 % Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JUL 1966	FILE S-121- A
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W ————— E

2900

21' BEFORE SECTION
D189

2800

DP

SUL.CT.

SP

DP,QT,HF

DP

2700

2600

2500

2400

2300

D183

DP

SUL.CT.

MZ

DP

SP

HF?

DP

D179

DP

SUL.CT.

BX

DP

0.73
0.07

0.54
0.03

0.59

0.05

SECTION 40360 N
SECTION 39430 N

3100

D185

HF

DP

SUL.CT.

MZ,DP

MZ

D187

DP

SUL.CT.

MZ

DP

3000

2900

2800

2700

2600

2500

D195

QTZITE

DP

SP

MZ

SUL.CT.

SP

DP

SP

MZ

DP BX

0.68
0.02

0.70
0.01

18000 E

17000 E

■ +0.4% Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUL 1966	S-121- A

W ——— E

3100

3000

2900

2800

2700

2600

2500

D186

DP

SP

SUL. CT.

DP

SP

SECTION 39900 N

SECTION 38960 N

60' BEHIND SECTION

3200

D181

3100

3000

BOLSA QT

2900

SP, QT
EOL. 913

DP

2800

SP 0.75
DP 0.01

2700

2600

18000 E

17000 E

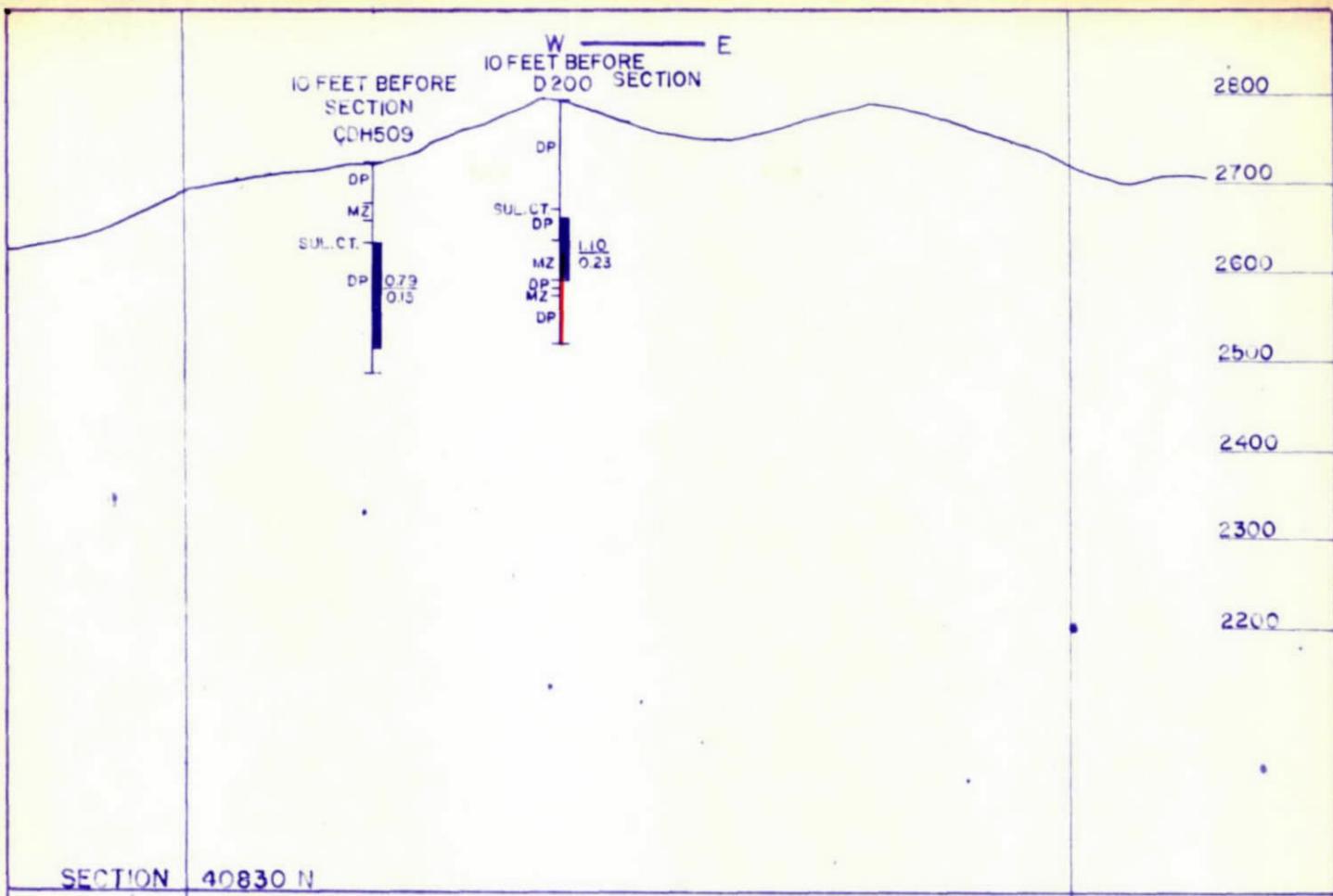
█ + 0.4 % Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUL 1966	S-121-A



█ + 0.4 % Total Copper
█ Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	JAB	JUL 1966	S-121-A

W ————— E

D205

D204

40' BEFORE SECTION

2700

SUL. CT.
NO +0.40 CU
PORPH DIKE RK

DP SUL. CT.
0.75
0.05
0.30
0.01
MIAROLITIC DP
BXIATED DP CEMENTED BY VUGGY MILKY QTZ

QAL D206
DP SUL. CT.
SP 0.80
DP 0.02
ST. SILIF MZ?
MZ

2600

2500

2400

2300

2200

2100

SECTION
SECTION

41300 N
41460 N

18000 E

17000 E

■ +0.4 % Total Copper
| Advance for month
Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

DATE

JUL 1966

FILE

S-121- A

W ————— E

12' BEFORE SECTION

D207



2700

2600

2500

2400

2300

2200

2100

SECTION	41770N
SECTION	41615 N

17000 E

15000 E

■ + 0.4 % Total Copper
| Advance for month

Note: Rock Types Generalized
 Cu Assays Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
 SILVER BELL UNIT

EL TIRO AREA
 DRILL HOLE PROJECTIONS

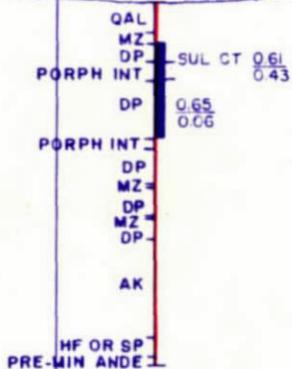
SCALE	DRAWN	DATE	FILE
1" = 200'		JUL 1966	S-121- A

W ——— E

SECTION

42240 N

10' BEFORE
SECTION
D208



2700

2600

2500

2400

2300

2200

2100

17000 E

16000 E

+ 0.4 % Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

DATE

JUL 1966

FILE

S-121- A

W ————— E

5' BEFORE SECT
D209

DP
MZ — NO + 0.40 CU
INTENSE TO
COMPLETE SIL'N
RK TYPE AK
AK

2700

2600

2500

2400

2300

2200

2100

SECTION 41460 N
SECTION 41300 N

17000 E

16000 E

■ + 0.4 % Total Copper
| Advance for month
Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

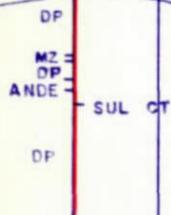
SCALE 1" = 200'	DRAWN	DATE JUL 1966	FILE S-121- A
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W ——— E

SECTION 42080 N
SECTION 41930 N

D210

CDH508
72' BEHIND SECTION



2600
2500
2400
2300
2200
2100
2000

17000 E

16000 E

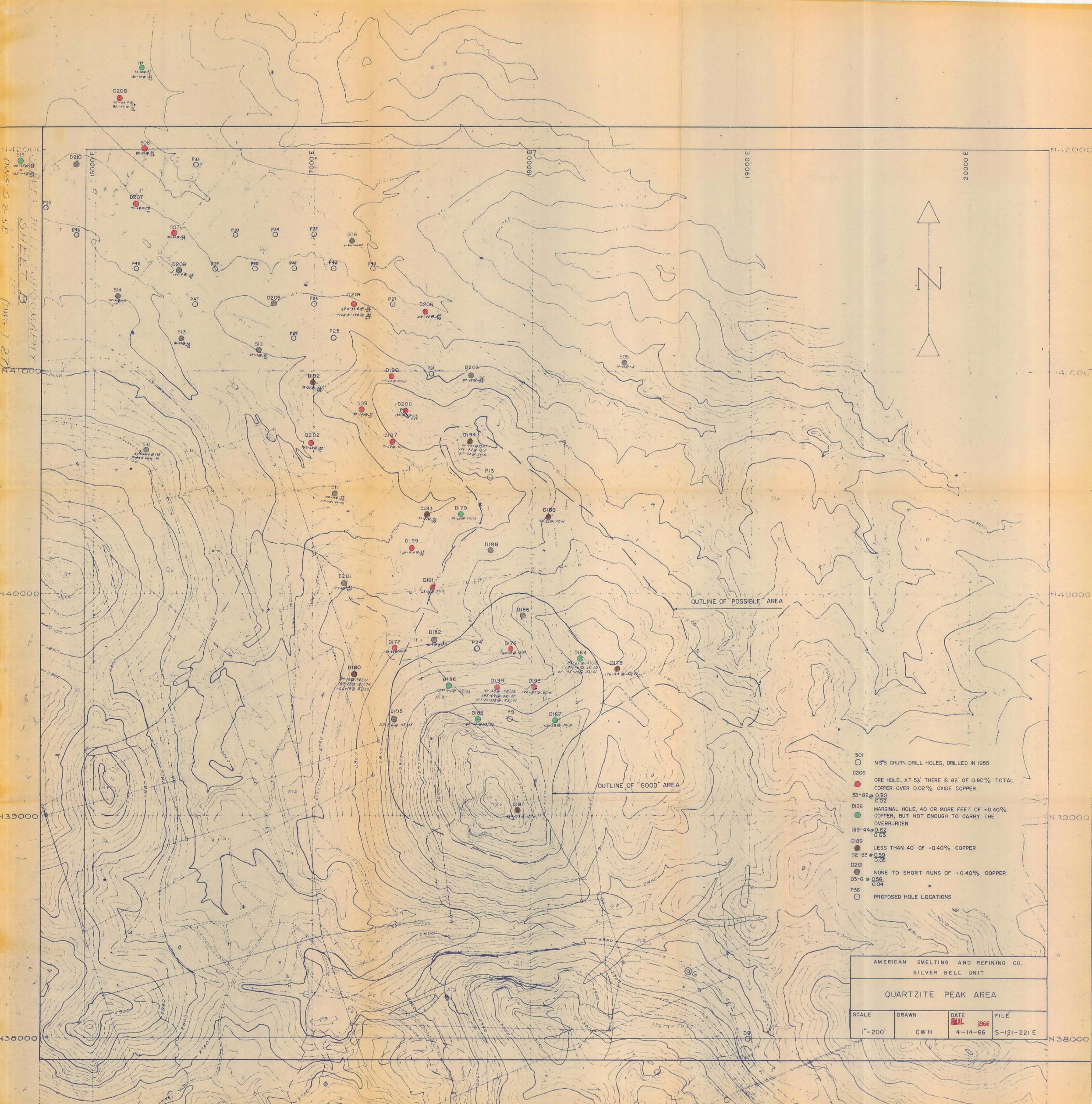
■ + 0.4 % Total Copper
 | Advance for month
 Note : Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN	DATE JUL 1966	FILE S-121- A
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DWG I 27
SHEET B
MILL TOPOGRAPHY



- 501 ○ N'SB CHURN DRILL HOLES, DRILLED IN 1955
- D206 ● ORE HOLE, AT 53' THERE IS 82' OF 0.80% TOTAL COPPER OVER 0.02% OXIDE COPPER
- 53'-82' @ 0.80 / 0.02
- D196 ● MARGINAL HOLE, 40 OR MORE FEET OF +0.40% COPPER, BUT NOT ENOUGH TO CARRY THE OVERBURDEN
- 139'-44' @ 0.62 / 0.03
- D189 ● LESS THAN 40' OF +0.40% COPPER
- 92'-33' @ 0.59 / 0.05
- D201 ● NONE TO SHORT RUNS OF +0.40% COPPER
- 93'-6' @ 0.56 / 0.04
- P36 ○ PROPOSED HOLE LOCATIONS

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
QUARTZITE PEAK AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR 1966 4-14-66	S-121-221 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

July 26, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: QUARTERLY GEOLOGIC REPORT AND ORE RESERVE MAPS

OXIDE PIT

During the second quarter, 1966, the north and west faces of the 2700 level were mined. The advance on the north side of the pit was divided equally between leach and ore grade material with two small pods of waste showing up near 30,000N, 27,500E and 29,800N, 28,200E (Plate 1). Between 26,850E and 27,400E monzonite, syenodiorite and a small amount of hornfels along the Oxide fault were encountered East of 27,400E. The advance was in monzonite. On the west side of the 2700 level ore and leach grade monzonite and syenodiorite were encountered. The advance south of 29,530N cut a large area containing +0.20% copper (Plate 2).

No important sloughing was noted during the quarter. However, after the start of the summer rains, the southeast corner of the pit (mentioned in the last report) should be closely watched for signs of renewed movement.

EL TIRO PIT

During the second quarter the advance on the 2630 level was entirely in ore grade alaskite except for two small pods of leach grade material showing up near 37,000N. Grade averaged +.70 consisting of chalcocite on chalcopyrite and pyrite.

The advance to the east on the 2790 level encountered leach and waste grade dacite cut by a monzonite dike. Along the El Tiro fault, very high grade ore was encountered (36,000N, 17,500E, Plates 3 & 4). Because of the high oxide content material was shipped to the leach dumps.

The 2830 level was pushed toward the east through very complex geology. The northern part of the advance between 36,000N and 37,000N was mainly through leach and waste grade dacite cut by monzonite, syenodiorite, and post mineral andesite dikes. One rather large pebble dike was encountered near 18,000E, and 36,500N (Plate 4). Approaching the latitude of 36,000N from the north large blocks of metasediments become more numerous until the entire advance south of that latitude is essentially composed of metasediments, cut by syenodiorite, monzonite and dacite. Around 35,950N, 18,600E high grade chalcopyrite ore was encountered. This body trends slightly southeast and is controlled by an almost east-west trending system of veinlets. The body was approximately 330 feet long and averaged 80 feet in width. The average of blast hole assays for three shots was +1.30% copper contained in chalcopyrite.

No important sloughing occurred in El Tiro pit during the last quarter.

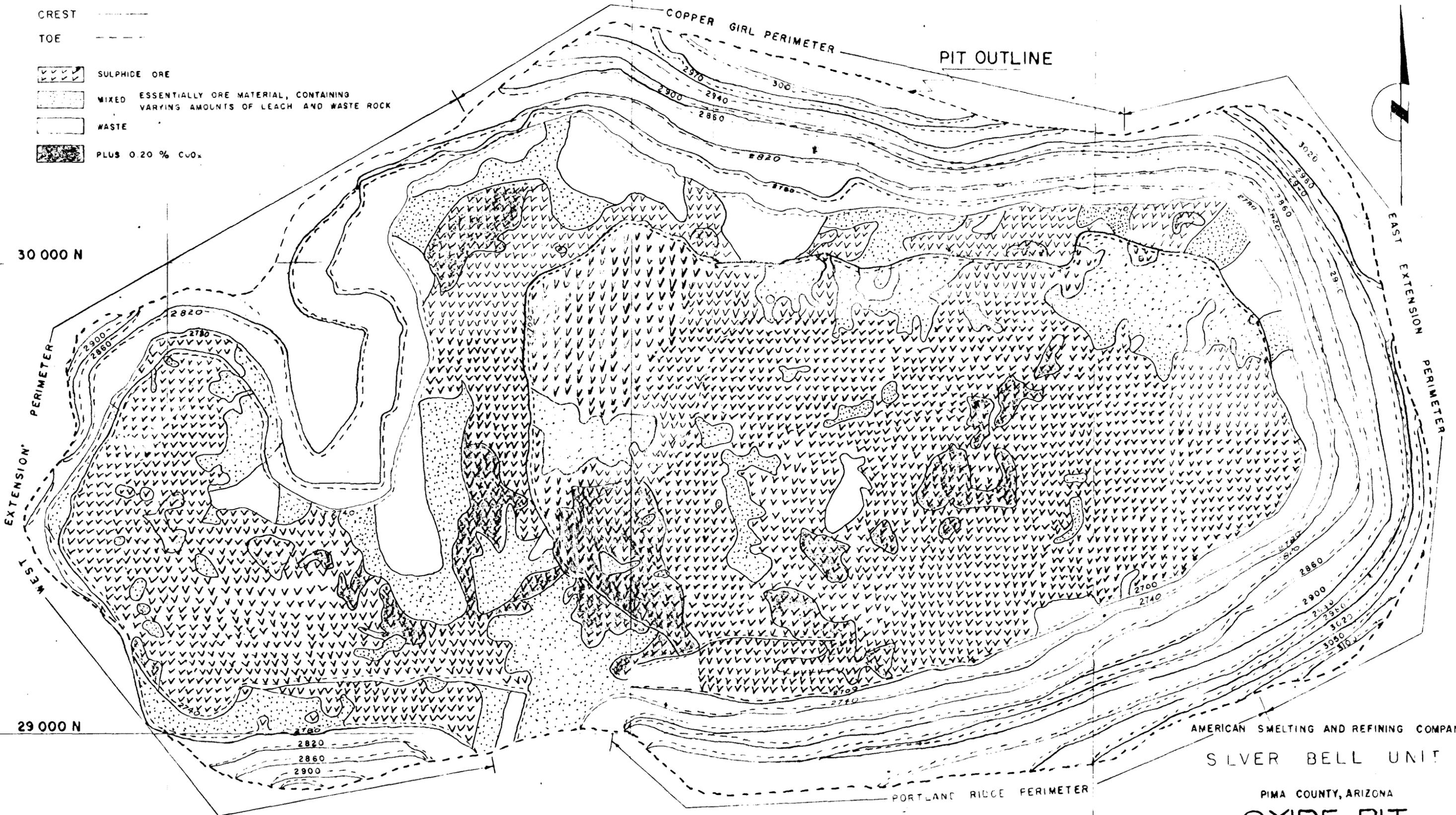
James A. Briscoe

James A. Briscoe
Geologist

by Balw

LEGEND

- CREST
- TOE
- SULPHIDE ORE
- MIXED ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK
- WASTE
- PLUS 0.20 % CuO_x



AMERICAN SMELTING AND REFINING COMPANY

SILVER BELL UNIT

PIMA COUNTY, ARIZONA

OXIDE PIT

SCALE 1" = 200'

JUL 1966

GEOLOGIC MAP Second Quarter 1966

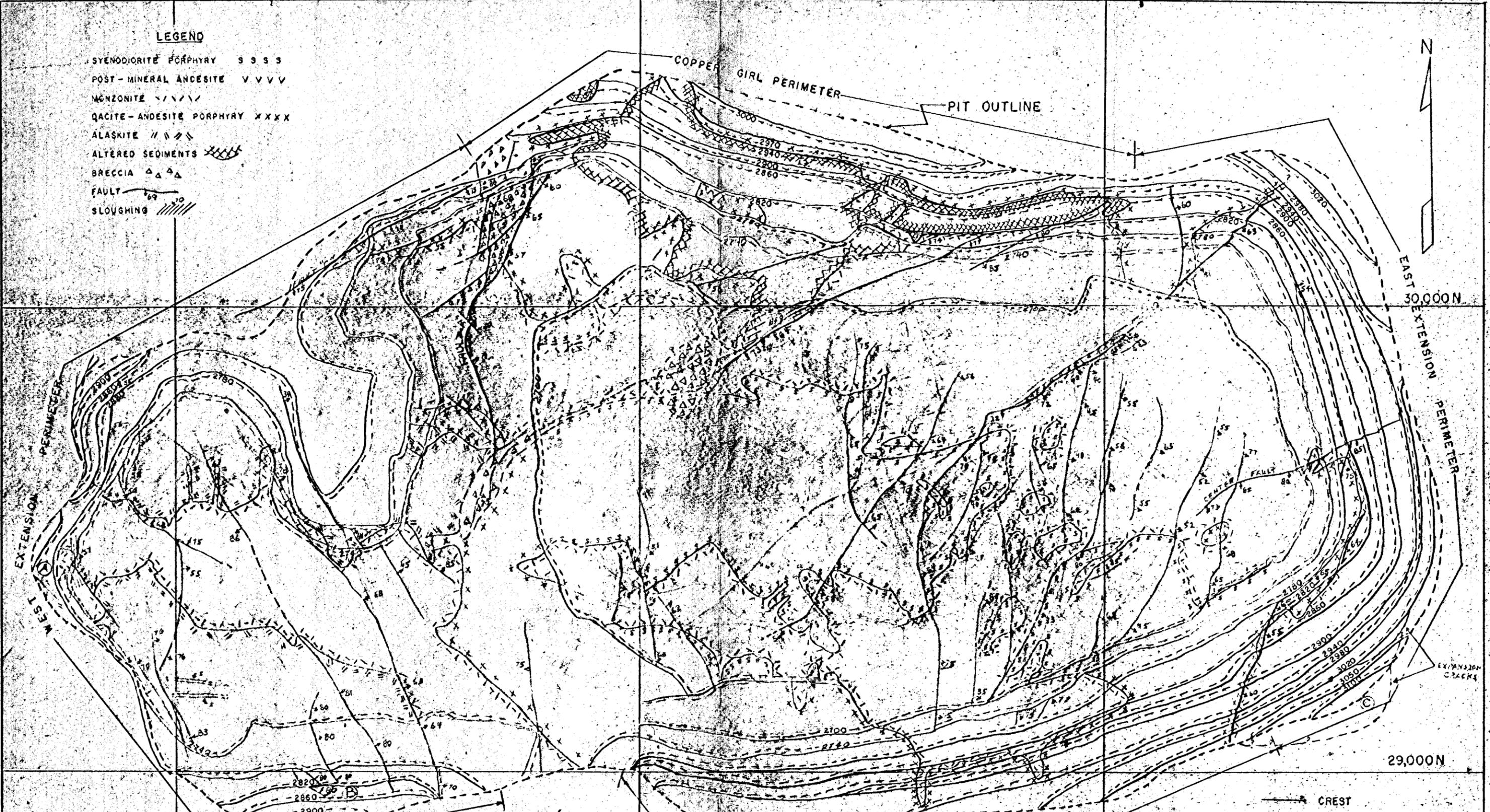
26 000 E

27 000 E

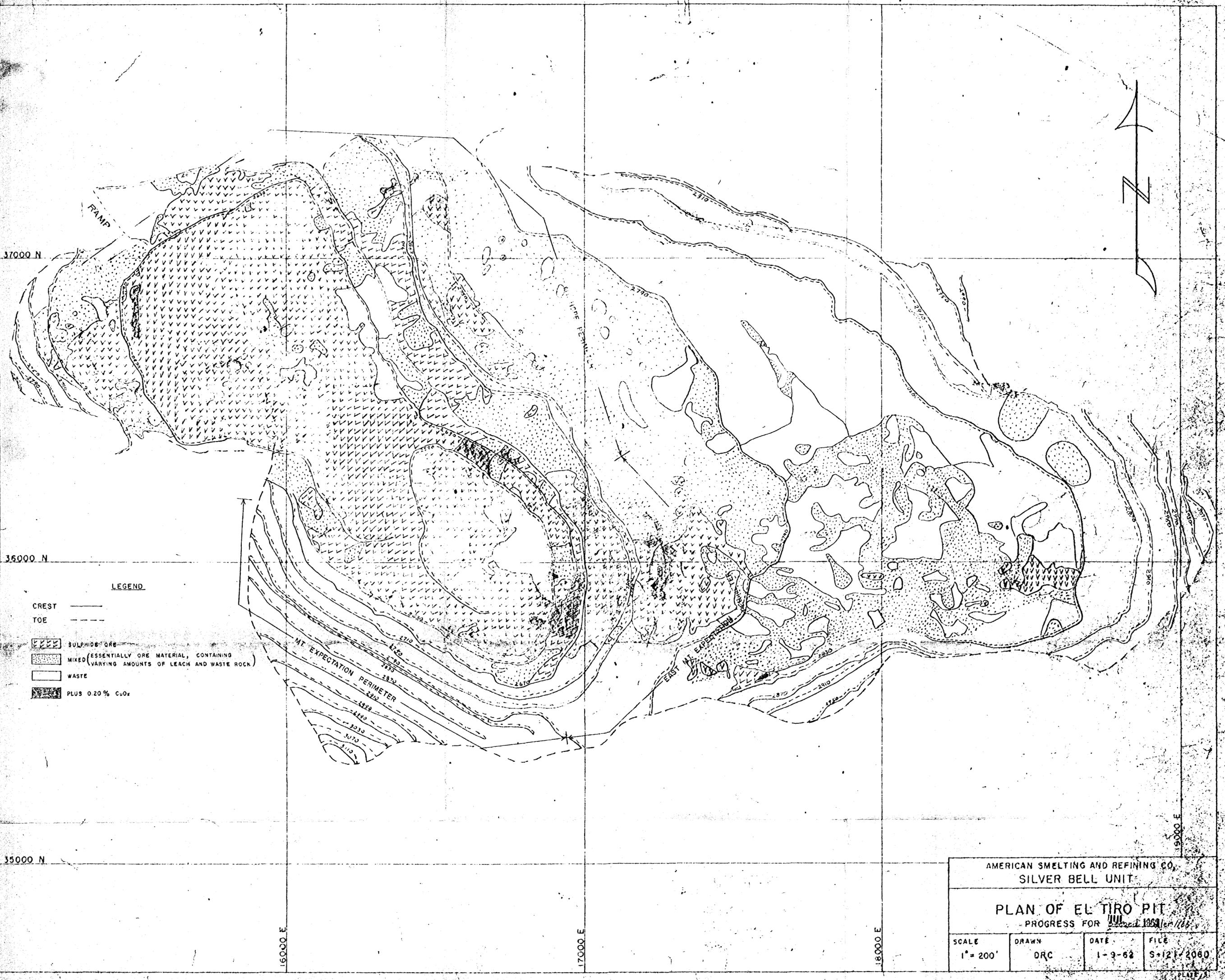
28 000 E

LEGEND

- SYENODIORITE PORPHYRY S S S S
- POST-MINERAL ANDESITE V V V V
- MONZONITE \ / \ / \ / \ /
- QACITE-ANDESITE PORPHYRY X X X X
- ALASKITE // // //
- ALTERED SEDIMENTS [X]
- BRECCIA ▲ ▲ ▲
- FAULT ————
- SLOUGHING [//]



TO ACCOMPANY MONTHLY LETTER			
DATED JUL 1966			
BY D.R. Johnson			
AMERICAN SMELTING AND REFINING COMPANY			
SILVER BELL UNIT			
PLAN OF OXIDE PIT			
GENERAL GEOLOGY AS OF JUL 1966			
SCALE	DRAWN BY	DATE	FILE
1"=200'	CWH	7/29/59	S-121-1988



37000 N

36000 N

35000 N

16000 E

17000 E

18000 E

19000 E

LEGEND

- CREST ———
- TOE - - - - -
-  SULPHIDE ORE
-  MIXED (ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK)
-  WASTE
-  PLUS 0.20% CuO_x

MT. EXPECTATION PERIMETER

EAST

RAMP

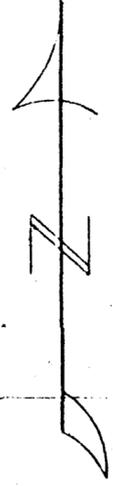
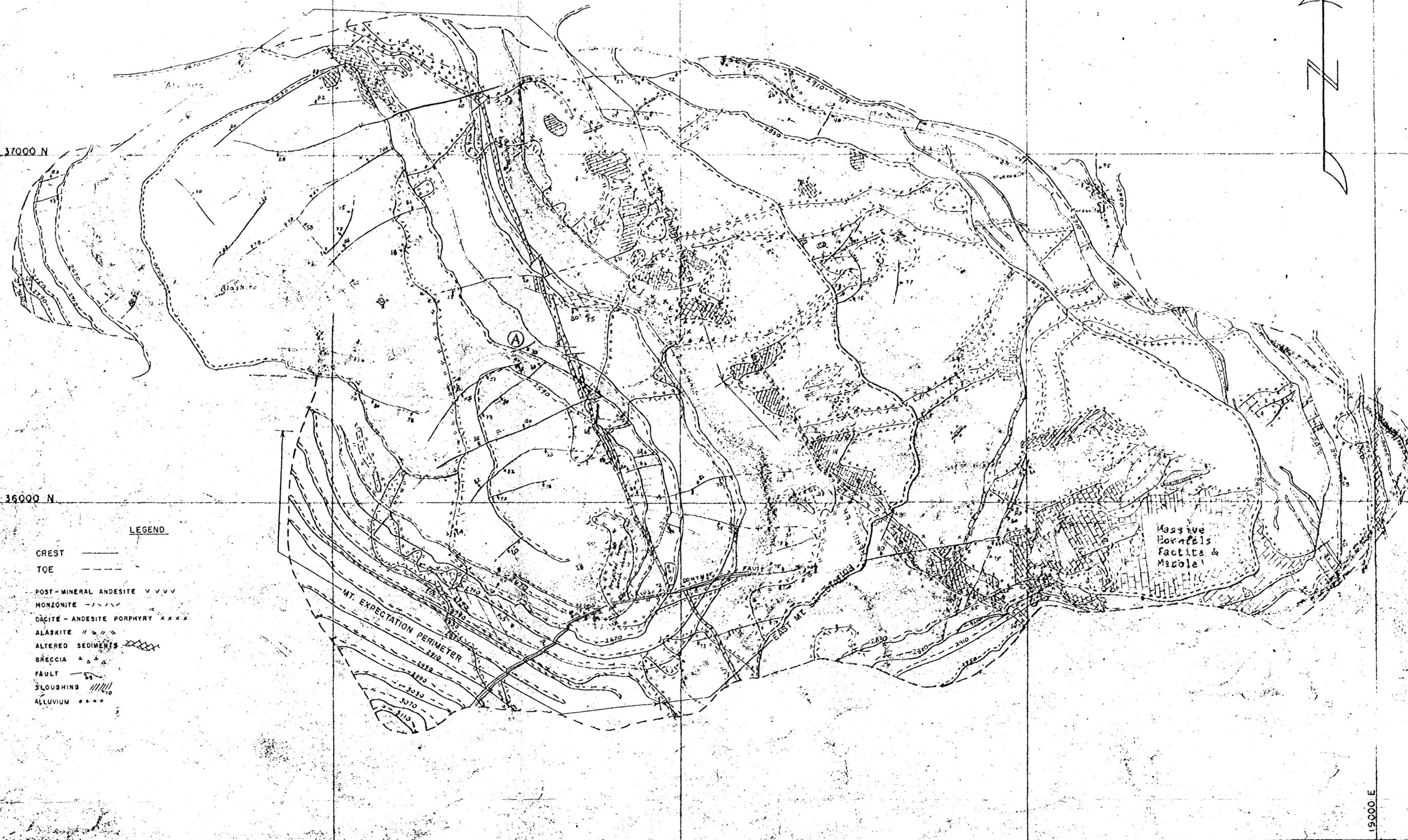
WIDE ENTRANCE

AMERICAN SMELTING AND REFINING CO.
SILVER BELL UNIT

PLAN OF EL TIRO PIT
PROGRESS FOR July 1962

SCALE 1" = 200'	DRAWN DRC	DATE 1-9-62	FILE S-121-2060
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PLATE 5



LEGEND

- CREST ———
- TOE - - - - -
- POST-MINERAL ANDESITE v v v v
- MONZONITE - / - / - /
- DACITE - ANDESITE PORPHYRY * * * *
- ALASKITE // // //
- ALTERED SEDIMENTS
- BRECCIA
- FAULT ———
- SLOUGHING
- ALLUVIUM

AMERICAN SMELTING AND REFINING CO.			
SILVER BELL UNIT			
PLAN OF EL TIRO PIT			
PROGRESS FOR <u>1966</u>			
SCALE	DRAWN	DATE	FILE
1" = 200'	DRC	1-9-62	S-121-2060

19000 E

18000 E

17000 E

16000 E

35000 N

36000 N

37000 N

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

Silver Bell,

Arizona

July 20, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AREA DIAMOND DRILLING

The following briefly summarizes the results of the diamond drilling in the El Tiro area during the month of June, 1966.

A total of 2,247.9 feet of diamond drilling was done during the month of June by one truck-mounted rig and one skid-mounted rig, each operating two shifts per day.

Hole No.	Approx. Elevation	Approx. Coördiantes		+0.40% Copper Lenses		Thick ness	Avg. % Cu		Ft. Drill. Depth Month	Final Depth
		North	East	Interval	T. Cu		N.S.			
D-192	2680.2	40,947.2	16,996.9	78.3 - 103.5	25.2	0.55	0.05	139.6	190.9	190.9
D-193	2909.7	39,577.19	18,012.0	141.8 - 228.7	86.9	0.61	0.01	279.0	305.0	305.0
D-194	2792.5	40,685.6	17,718.7	45.0 - 62.7 160.0 - 191.6	17.7 31.6	0.49 0.59	0.04 0.01	237.6	237.6	237.6
D-195	2868.5	39,434.9	17,374.8	28.4 - 41.6	19.2	0.51	0.24	247.4	247.4	247.4
D-196	2895.5	39,583.9	17,622.5	139.4 - 182.9	43.5	0.62	0.03	305.0	305.0	305.0
D-197	2742.9	40,682.8	17,363.1	74.2 - 132.1	57.9	0.76	0.11	248.9	248.9	248.9
D-198	2907.3	39,577.8	17,845.1	90.2 - 157.7 185.0 - 248.5	67.5 63.5	0.58 0.58	0.02 0.01	326.0	326.0	326.0
D-199	2712	40,210	17,450	69.4 - 115.0	45.6	0.65	0.07	294.0	294.0	294.0
D-200	2802	40,820	17,410	133.4 - 203.7	70.3	1.14	0.24	170.4	170.4	

Holes 201 thru 204 drilled after July 1st.

The important aspects of each hole, up to July 15th are as follows:

Hole D-192 started the month at 51.3 feet and was bottomed at 190.0 feet. The advance was entirely in dacite. Sulfides were encountered at 68.0 feet, and +0.40% copper was measured between 78.3 feet and 103.5 feet. Traces of molybdenite were noted and chalcopyrite protore assayed at an average of .10 Copper.

D-193 started the month at 26.0 feet. Patchy sulfides were encountered at 26 feet with the true sulfide contact at 65.3 feet. An enriched chalcocite zone of +0.40% copper was encountered between 141.8 and 228.7 feet. Dacite was cored from the collar to 281.5 feet where syenodiorite was encountered. From 142.2 to 186 feet the dacite was brecciated into angular to subangular fragments bonded by a silicified rock flour matrix. Some fragments of monzonite and metasediments were noted. The hole bottomed in syenodiorite at 305.0 feet. Protore in the syenodiorite averages 0.24% copper.

D-194 collared in strongly altered dacite and encountered strongly altered syenodiorite or hornfels alternating with dacite at 18.0 to 35.3 feet. Dacite was cored to the bottom at 237.6 feet except for a syenodiorite dike between 55 feet and 70 feet and a fluidized breccia dike from 87.6' to 107.2 feet. Sulfides were encountered at 45.6 feet, and short +0.40% copper zones were encountered at 55.4 - 62.7 feet, 125.9 - 134.8 feet and 160.0 - 191.6 feet. Protore grade was about 0.15% copper.

D-195 collared in quartzite and hornfels. Dacite was encountered at 28.4 feet, syenodiorite at 36.1 feet to 92.5 feet, alternating monzonite and syenodiorite at 92.5 to 106.7 feet, syenodiorite at 106.7 to 136.6, dacite at 136.6 to 148.2, again syenodiorite at 148.2 to 173.1, monzonite 173.1 to 232.7 and dacite at 232.7 to the bottom at 247.4. Sulfides were encountered at 109.5 feet, the enriched blanket extending to 182.5 feet. High oxide, +0.40% copper was encountered at 28.4-37.7 feet. One 8.6 foot run of +0.40% copper was cut at 113.1 feet. Weak limonite was found on fractures throughout the sulfide zone.

D-196 collared in hornfels and went into dacite at 7.7 feet. Syenodiorite dikes were encountered from 160 feet to 178.5 feet and 200.7 feet, the remainder of the hole being drilled in dacite. Patchy sulfides were encountered at 71.2 feet the main sulfide contact being at 100 feet. The enriched chalcocite blanket runs from 100 feet to 192 feet with +0.40% copper being found between 139.4 feet and 182.9 feet. Average protore grade is 0.13% copper.

D-197 collared in dacite, encountered monzonite at 205.8 feet, went back into dacite at 209.4 feet, encountered monzonite at 245.6 feet and bottomed in monzonite at 248.9 feet. The sulfide contact was somewhat gradational between 58 and 66 feet. The enriched blanket was encountered between 66 feet and 141 feet with a +0.40% copper zone from 74.2 to 132.1. Protore grade averages 0.18% copper.

D-198 was collared and drilled in dacite except for a syenodiorite dike at 235.0 feet to 255.5 feet, and a monzonite dike at 294.3 feet to 313.8 feet. Sulfides were encountered at 98.0, the enriched blanket extending from this point to 255.5 feet. Plus 0.40% copper zones cored from 90.2 feet to 157.7 feet and 185.0 feet to 248.5 feet. Protore grade averaged 0.09% copper.

D-199 collared in dacite. Siltstone was cored from 93.8 feet to 101.3 feet, monzonite from 136.1 feet to 212.2 feet, hornfels from 224.1 feet to 226.0 feet, all intervening intercepts being dacite. The hole bottomed in dacite at 294.0 feet. The sulfide contact is at 66.5 feet, and the enriched blanket was encountered between 69.4 feet and 148.6 feet. Plus 0.40% copper was measured from 69.4 feet to 115.0 feet. Average protore grade was 0.24% copper.

D-200 collared in dacite. Biotite rich quartz monzonite was cored between 159.6 feet and 204.8 feet. The rock appeared similar to the syenodiorite except that the plagioclase phenocrysts were not so lath-like. Monzonite was cored from 214.8 to 220. feet, all intercepts between the above dikes being dacite. Layering noted in the dacite had a dip of approximately 45 degrees. The hole bottomed in dacite at 276.6 feet. Patchy sulfides were encountered at 81 feet and graded into pure sulfides at about 125 feet. An enriched blanket was encountered between 81 and 221 feet, +0.40% copper being measured between 133.4 feet and 203.7 feet. Protore grade averaged 0.12% copper.

D-201 collared in dacite, went into monzonite at 14.0 feet and back into dacite at 16 feet. Syenodiorite was found between 48.7 and 51.8 feet, monzonite from 93.6 to 97.8 feet and hornfels from 147.0 to 150.2 feet. Dacite comprised the remaining intercepts, the hole being bottomed in that rock at 205.0 feet. The protore grade averaged 0.08% copper.

D-202 collared in dacite, and remained in that rock to the bottom at 213.0 feet except for a syenodiorite dike from 97.3 to 107 feet. The enriched chalcocite blanket was at 41.2 to 151.8 feet, the +0.40% copper runs comprising the area between 41.2 feet and 106.2 feet. Assays on protore grade are not yet available.

D-203 collared in weakly altered dacite. Sparce sulfides mixed with leached capping were noted from 27 feet to 70 feet when sulfides became predominate. Monzonite dikes were cut at 32.2 to 27.8 feet, 46.5 to 59.0 feet, 89.7 to 112.0 feet and 130.9 to 179.1, the present depth. The hole hasn't bottomed and assay results are unavailable at this time.

D-204 collared in dacite and drilling is continuing.

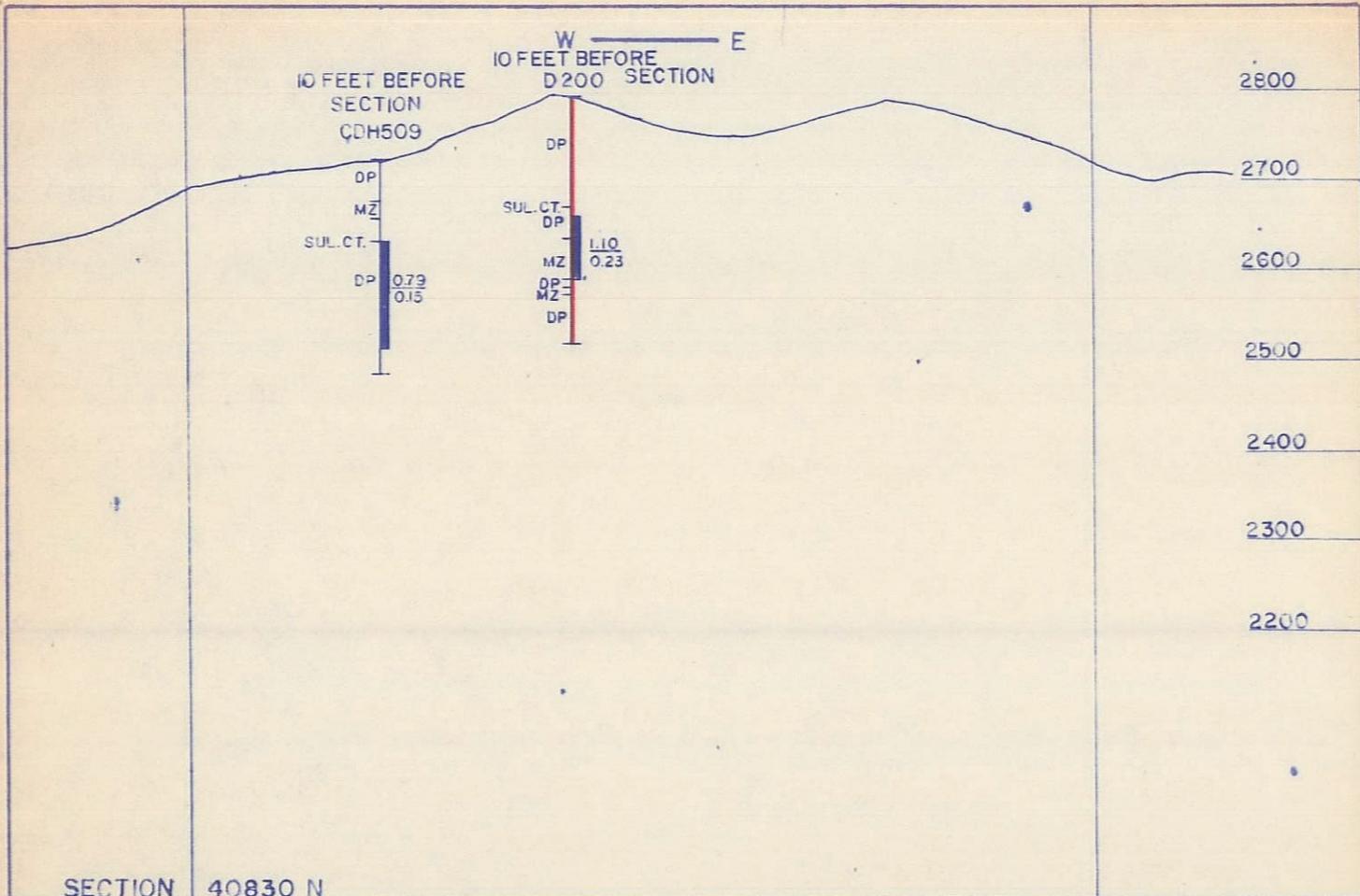
Drilling results were somewhat more encouraging this month. Drill holes D-193, 197, 198, 199, 200 and 202 cut ore grade material. Holes D-197, 200 and 202, which are grouped around old churn drill hole 509, were particularly encouraging. The +0.40% enriched blanket cut by these holes was in excess of 65 feet thick, and lay at the same approximate elevation.

Hole D-199 indicates a connection of ore grade material around CDH 509 and ore grade material on the north slope of Quartzite Peak.

It appears at this time that more drilling in the area is justified.


James A. Briscoe
Geologist

JAB:jca



SECTION 40830 N

17000 E

18000 E

 + 0.4 % Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN JAB	DATE JUL 1966	FILE S-121- A

W ————— E

3000

2900

2800

2700

2600

2500

2400

10' BEFORE SECTION

D201

DP
SUL.CT.
MZ
DP
HF
DP

23' BEFORE SECTION

D191

DP MZ
SUL.CT. 0.75
0.14
DP

SECTION 40050 N

SECTION 40680 N

2800

2700

2600

2500

2400

2300

2200

D194

DP
SP
SUL.CT.
DP
SP

D197

DP
SUL.CT. 0.76
0.11
DP
MZ

D202

SUL.CT. 0.57
DP 0.11
SP
DP

18000 E

17000 E

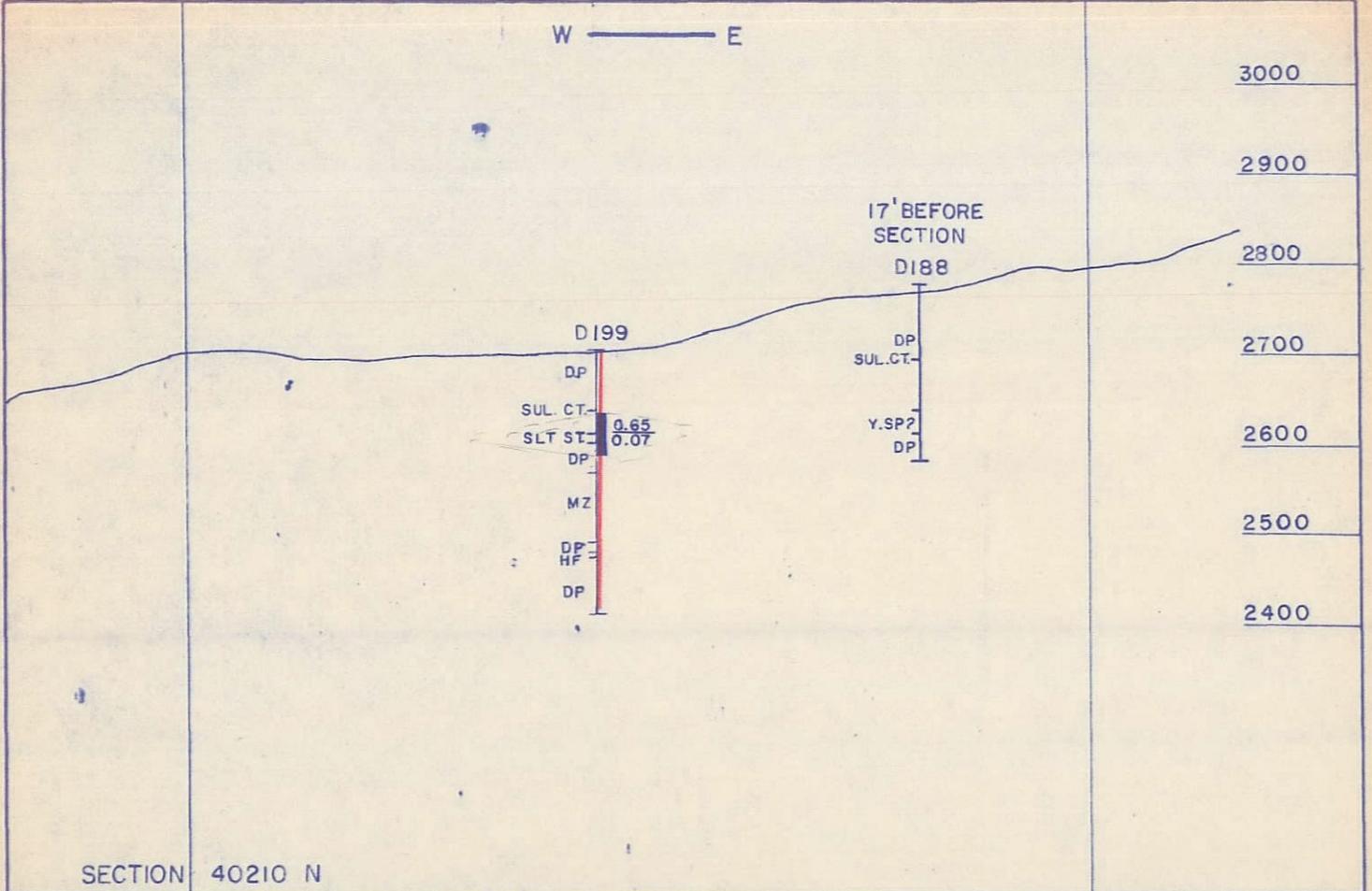
■ +0.4% Total Copper Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

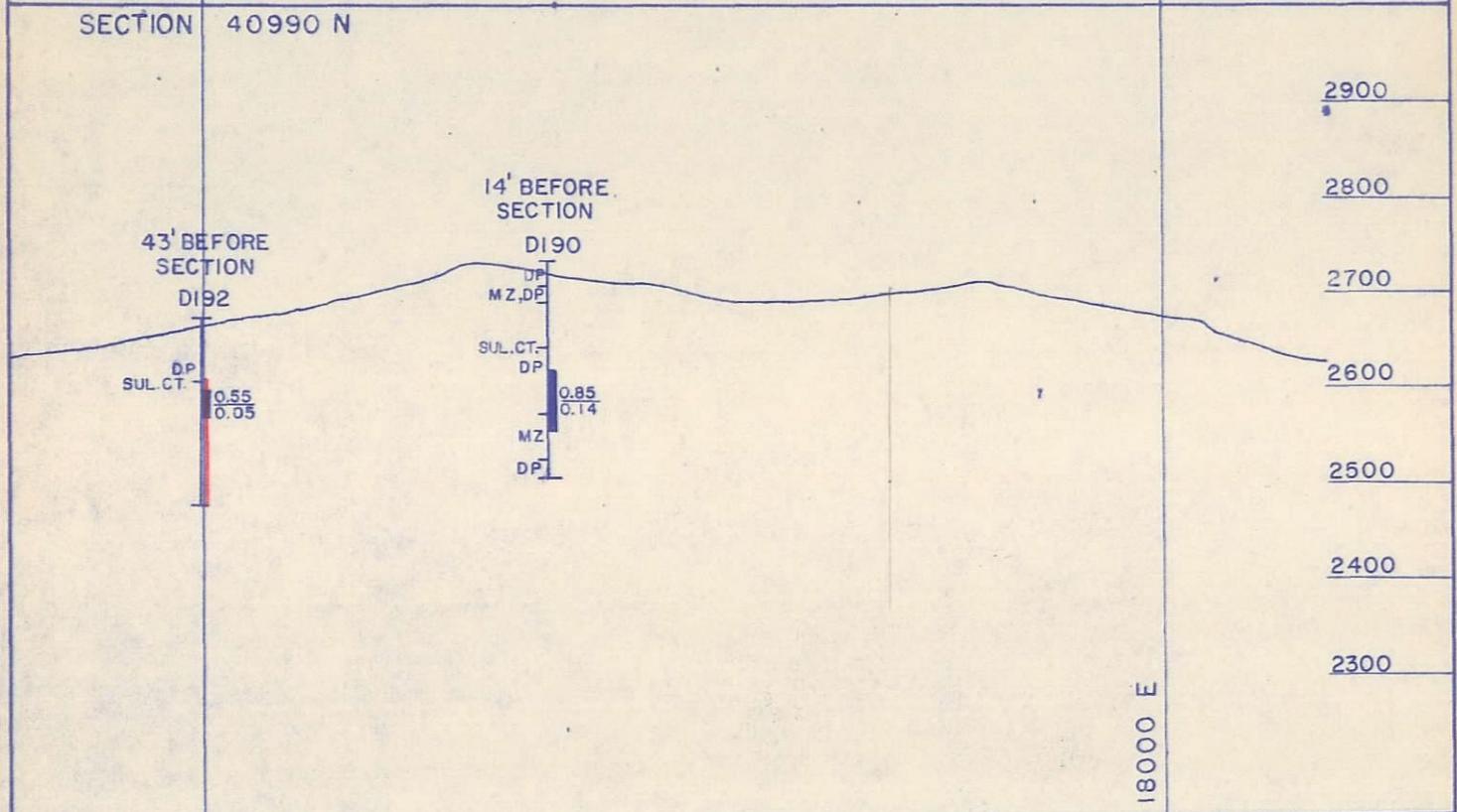
AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JUL 1966	FILE S-121-A
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SECTION 40210 N
SECTION 40990 N



█ +0.4% Total Copper Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

17000 E

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH		S-121- A

W ——— E

3100

3000

D186

2900

DP
SP
SUL. CT.

2800

DP

2700

SP

2600

2500

SECTION 39900 N

SECTION 38960 N

3200

60' BEHIND SECTION

D181

3100

3000

BOLSA QT

2900

SP, QT
EQL. QT

2800

DP

SP 0.75
DP 0.01

2700

2600

18000 E

17000 E

█ + 0.4 % Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assays Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

CWH

DATE

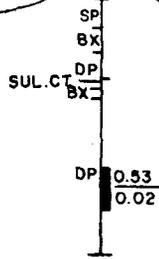
BUL 1966

FILE

S-121-A

W ————— E

77' BEHIND
SECTION
D178



3100

5000

2900

2800

2700

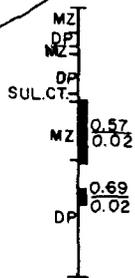
2600

2500

SECTION 39580 N

SECCIÓN 39740 N

34' BEFORE
SECTION
D184



3100

3000

2900

2800

2700

2600

2500

18000 E
19000 E

█ +0.4 % Total Copper
Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

CWH

DATE

JUL

FILE

1966

S-121-

A

W ————— E

2900

21' BEFORE SECTION

D189

2800

DP

SUL. CT. 0.59
SP 0.05

2700

DP, QT, HF

2600

DP

2500

D183

DP

SUL. CT. 0.73
MZ 0.07

DP

SP
HF

DP

2400

D179

DP

SUL. CT. 0.54
BX 0.03

DP

2300

SECTION 40360 N
SECTION 39430 N

3100

D185

HF

DP

SUL. CT. 0.68
MZ, DP 0.02

MZ

3000

D187

DP

2900

SUL. CT. 0.70
MZ 0.01

DP

2800

2700

D195

QTZITE

DP

SP

MZ

SUL. CT.

DP

SP

MZ

DP BX

2600

2500

18000 E

17000 E

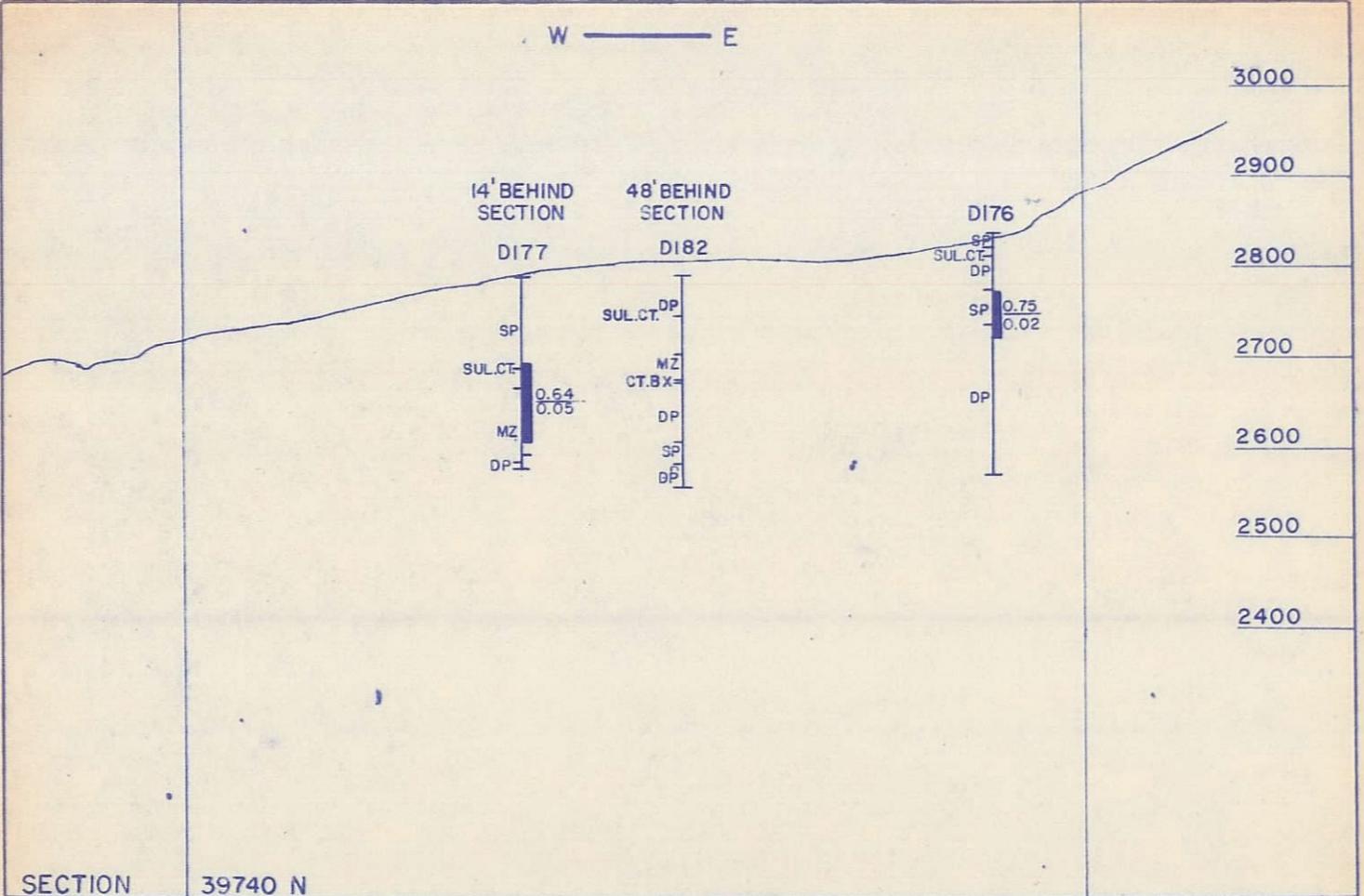
+ 0.4 % Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

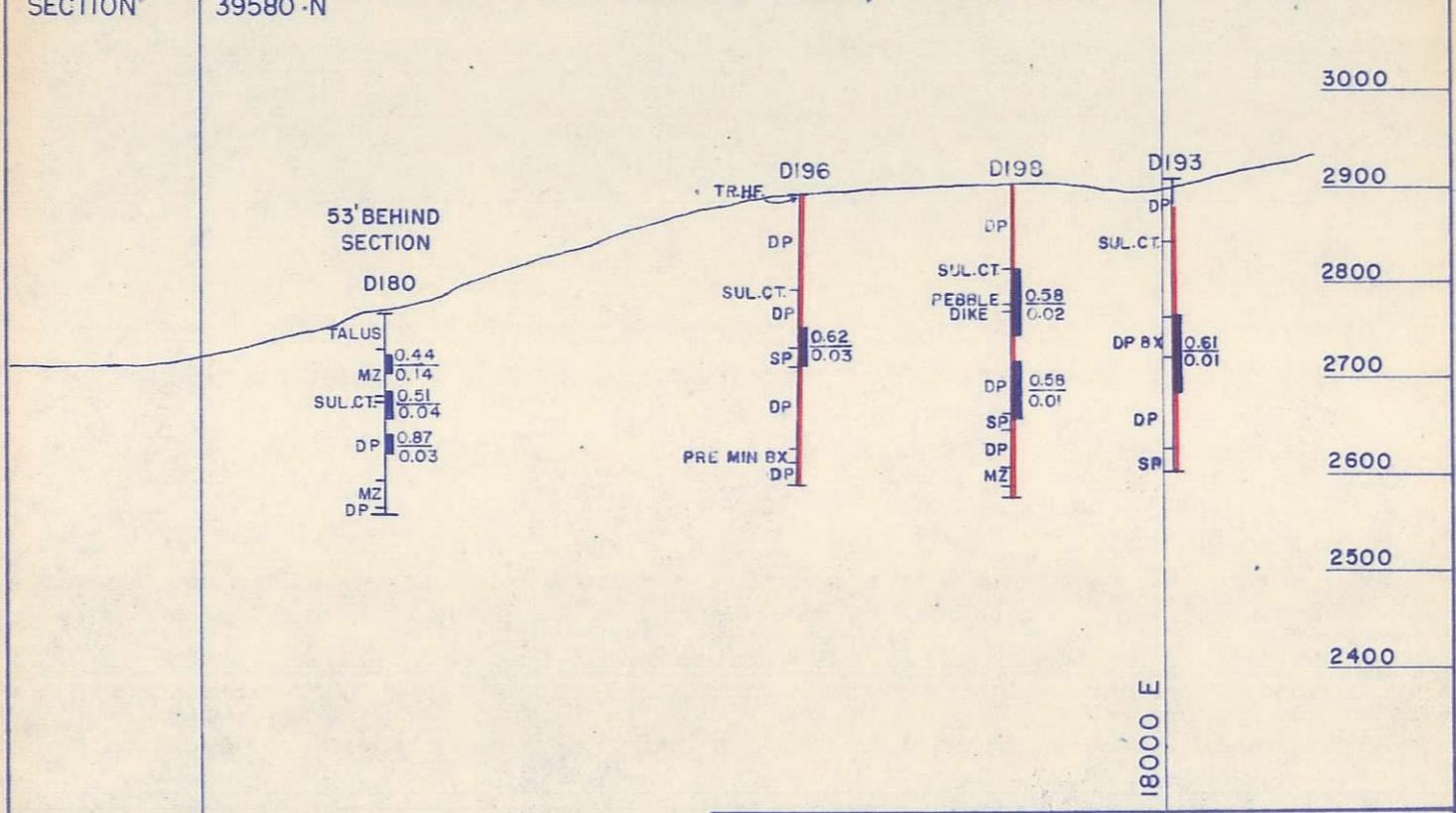
EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH		S-121- A

W ————— E



SECTION 39740 N
SECTION 39580 N

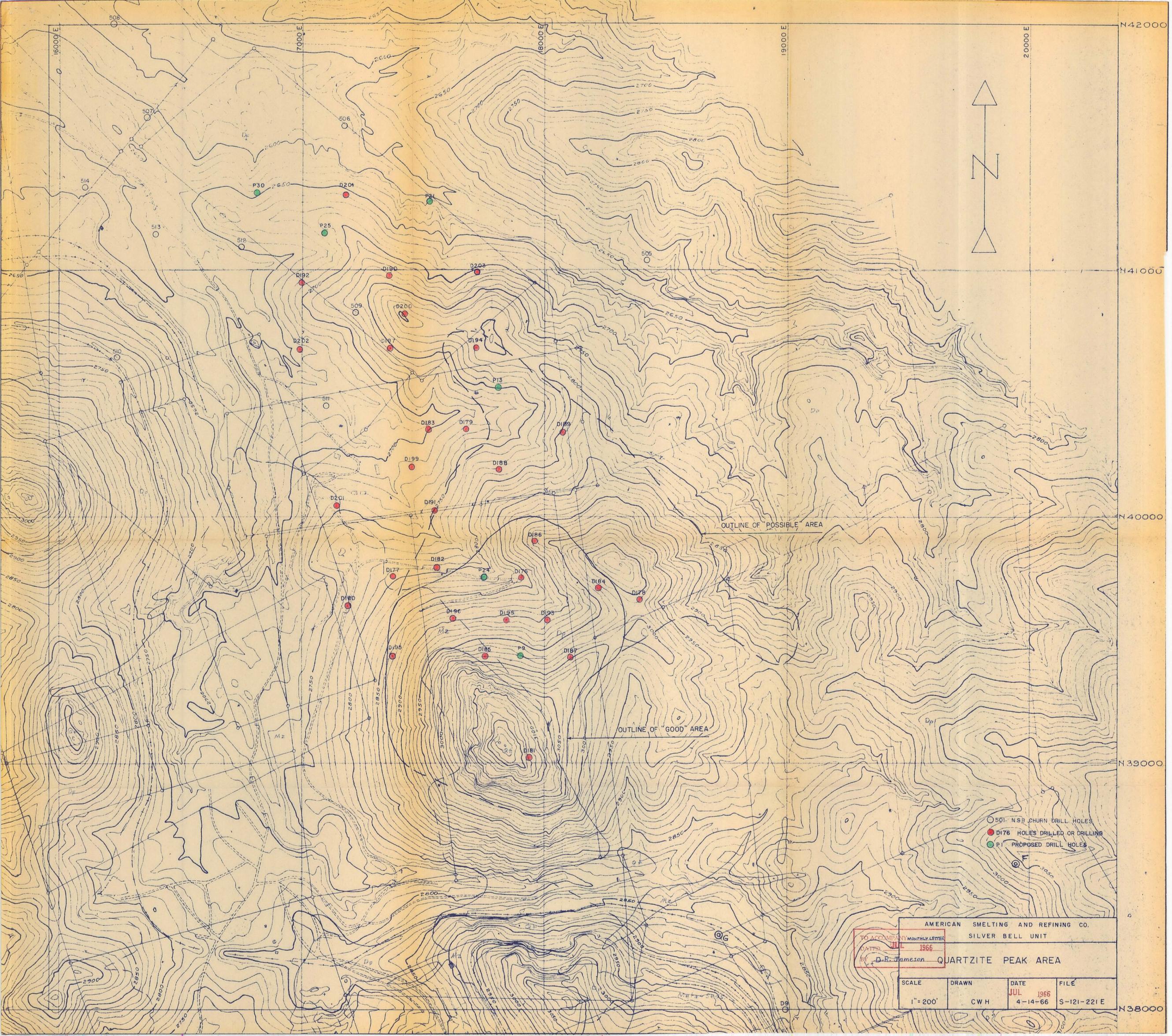


17000 E

+0.4% Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
EL TIRO AREA DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUL 1966	S-121- A

18000 E



OUTLINE OF "POSSIBLE" AREA

OUTLINE OF "GOOD" AREA

- NSB CHURN DRILL HOLES
- D176 HOLES DRILLED OR DRILLING
- P1 PROPOSED DRILL HOLES

AMERICAN SMELTING AND REFINING CO.			
SILVER BELL UNIT			
TO ACCOMPANY MONTHLY LETTER			
DATED JUL 1966			
BY D.R. Jamieson			
QUARTZITE PEAK AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUL 1966 4-14-66	S-121-221E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

June 10, 1966

J. H. C.

JUN 27 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: ASSESSMENT DIAMOND DRILLING ON CLAIMS WEST OF OXIDE PIT

During the month of May, 1966 two diamond drill holes were put down to satisfy location work for two sets of claims West of the Oxide Pit. The following is a brief geologic summary of the results of this drilling.

Hole F-147 was collared and bottomed, at 200.0 feet, in alaskite except for a thin monzonite dike from 185.7 to 186.4. The sulfide contact was about at 70 feet. The entire hole averaged around 0.20% Cu starting with malachite and chrysocolla and going down through chalcocite and chalcopyrite. Much of the mineralization was in mixed combinations of the above listed minerals. Alteration was generally weak, though sometimes moderate. Pyrite in the sulfide zone was quite sparse. No plus 0.40% Cu runs were measured. Although the assays were lower, everything else was very similar to what drilling has disclosed beneath Wild Hog and Copper Buttes west of Oxide pit.

Hole F-148 was drilled next for the northern group of claims. Marble and siltstone were cored to 158.1, monzonite to 165.6 and then alternating zones of marble, hornfels, tactite, and siltstone were encountered to the bottom at 455.7. Two intercepts were found that showed plus 0.40% Cu for approximately 19 feet each.

See accompanying sheet for coordinates, assays, etc., and plan map for locations. Detailed information can be found on the geologic and assay logs. No Sections were made for these holes. This can be done, if warranted, when further drilling is done in the North Butte - Danube area target.

C. W. Haynes
C. W. Haynes
Resident Geologist

CWH:jca

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

May 17, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AREA DIAMOND DRILLING

The following report briefly summarizes the results of the diamond drilling in the El Tiro area during the month of April, 1966.

Hole D-177 started the month at 195.2 feet and bottomed at 213.3. The advance was in monzonite to 207.1 and then finished in dacite porphyry. Mineralization was approximately three-tenths Cu as chalcopyrite.

Hole D-178 started the month at 83.4 and bottomed at 266.2. Dacite was the rock type encountered except for a breccia dike from 93.0 to 103.4. The enriched blanket was from 86 to 225. The underlying primary mineralization averaged about .04 Cu as chalcopyrite. Plus four-tenths Cu was found from 176 to 220.

Hole D-179 was collared and also drilled dacite to the bottom at 200.2 except for a breccia dike from 73.6 to 81.3. The enriched blanket was plus four-tenths Cu and was measured from 56 to 116. The underlying primary chalcopyrite averaged about two-tenths.

Hole D-180 rockbitted through talus to 36.8, and then cored dacite and monzonite to the bottom at 208.4. The chalcocite enrichment was found from 80 to 144 but was spotty. The primary chalcopyrite averaged about two-tenths.

Hole D-181 drilled Bolsa quartzite to 271.2 except for some syenodiorite porphyry dikes from 249.3 to 262.4. Dacite was found beneath the quartzite to the bottom at 382.8 except for syenodiorite from 352.4 to 376.7. Traces of sulfides, mainly pyrite, were found from 35 feet down. They were usually mixed with leached capping to 277 where leaching ceased. The quartzite averaged 0.02 Cu with no enrichment although the capping had appeared favorable. The assay run from 344 to the bottom was mixed chalcocite and chalcopyrite. The hole was stopped due to badly caving ground.

D-182 found dacite cut by monzonite and syenodiorite dikes to the bottom at 236.9. Low grade enrichment was seen from 44 to 122 but without consecutive plus four-tenths runs. Primary chalcopyrite was about 0.15% Cu.

D-183 drilled dacite cut by syenodiorite and monzonite to the bottom at 274.4. A hornfels (?) inclusion that was completely altered to chlorite was measured from 207.8 to 211.1. Chalcocite was found from 56 to 120, with plus 0.40% Cu from 56 to 78. Chalcopyrite was quite erratic but averaged 0.22% Cu.

D-184 cored dacite cut by three monzonite dikes from the collar to the bottom at 280.0. The chalcocite zone was from 70 to 229 with plus 0.40% Cu from 95 to 205. Primary chalcopyrite averaged about 0.05% Cu.

D-185 was started and penetrated hornfels to 24.8 and then dacite and monzonite to the end of the month at 252.1. The chalcocite zone was from 162 to 206

with plus 0.40% Cu from 162 to 196. The primary chalcopyrite was between one and two-tenths to the end of the month.

SUMMARY

Several dissappointments were noted during the month, the main ones being lack of continuity and lack of thickness of the possible ore column. The grade of the measured runs was about as expected, but the shortness of the runs and the depth to sulfides could preclude the possibility of an ore body.

The leached capping in the Bolsa quartzite appeared to have "live limonite" after chalcocite in meaningful amounts, but no enrichment was found. This was not unexpected, although enrichment was hoped for. The depth to the underlying dacite sill was deeper than projected, indicating a down-warping of the plane of contact. No further holes are planned in this quartzite.

More occurrences of monzonite and syenodiorite have been found than are exposed on the surface. Also the mineralization has shown a preference for the syenodiorite as was noted in the East Oxide drilling.

Although more drilling must be done to prove or disprove this area, there is an indication that the mineralized portion will be sub-marginal requiring a two-tenths percent copper cut-off before it could be commercial.

See attached sections and plan at end of report.


C. W. Haynes
Resident Geologist

CWH:jca

DIAMOND DRILLING IN THE EL TIRO AREA

Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses				Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
D-177	2792.6	39,754	17,377	No ore runs this interval				18.1	213.3	213.3
D-178	2987.6	39,657	18,385	176.3 - 220.1	43.8	0.53	0.02	183.8	267.2	267.2
D-179	2720.1	40,353	17,673	56.3 - 115.8	59.5	0.54	0.03	200.2	200.2	200.2
D-180	2766.8	39,633	17,191	43.5 - 61.2	17.7	0.46	0.14	208.4	208.4	208.4
				80.1 - 107.6	27.5	0.51	0.04			
				125.9 - 144.3	18.4	0.87	0.03			
D-181	3129.8	39,020	17,938	343.6 - 382.8	39.2	0.75	0.01	382.8	382.8	382.8
D-182	2793.9	39,788	17,556	No ore runs this interval.				236.9	236.9	236.9
D-183	2697.2	40,353	17,522	56.0 - 77.6	21.6	0.73	0.07	274.4	274.4	274.4
D-184	2973.7	39,706	18,219	* 94.6 - 162.0	67.4	0.57	0.02	280.0	280.0	280.0
				*188.6 - 204.7	16.1	0.69	0.02			
		*Combined		94.6 - 204.7	110.1	0.53	0.01			
D-185	2985.7	39,433	17,756	161.5 - 196.3	34.8	0.68	0.02	<u>252.1</u>	252.1	
TOTAL								<u>2,036.7</u>		

W ——— E

3000

2900

14' BEHIND SECTION

48' BEHIND SECTION

D176

D177

D182

SP
SUL.CT
DP

SP
SUL.CT 0.64
MZ 0.05
DP

SUL.CT DP
MZ
CT BX
DP
SP
DP

SP 0.75
SUL.CT 0.02
DP

2800

2700

2600

2500

2400

SECTION 39740 N
SECTION 39580 N

3000

2900

53' BEHIND SECTION

D180

TALUS
MZ 0.44
MZ 0.14
SUL.CT 0.51
SUL.CT 0.04
DP 0.87
DP 0.03
MZ
DP

2800

2700

2600

2500

2400

18000 E

17000 E

■ + 0.4 % Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

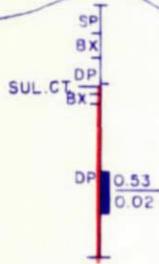
AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE APR 1966	FILE S-121- A
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W ————— E

77' BEHIND
SECTION
D178



3100

3000

2900

2800

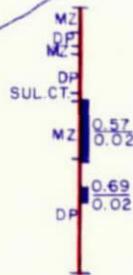
2700

2600

2500

SECTION 39580 N
SECTION 39740 N

34' BEFORE
SECTION
D184



3100

3000

2900

2800

2700

2600

2500

19000 E

18000 E

█ + 0.4 % Total Copper
█ Advance for month

Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE APR 1966	FILE S-121- A
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W ————— E

2900

2800

2700

2600

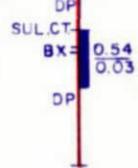
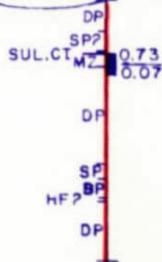
2500

2400

2300

D183

D179



SECTION 40360 N
SECTION 39430 N

3100

3000

2900

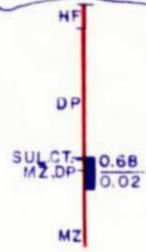
2800

2700

2600

2500

D185



18000 E

17000 E

+0.4 % Total Copper
 Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR 1966	S-121- A

W ——— E

SECTION 38960 N

60' BEHIND SECTION

D181

BOLSA QT

SP, QT -
EQL ST

DP

SP 0.75
DP 0.01

3200

3100

3000

2900

2800

2700

2600

18000 E

17000 E

■ + 0.4 % Total Copper
■ Advance for month

Note: Rock Types Generalized
Cu Assays Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE

1" = 200'

DRAWN

CWH

DATE

APR

1966

FILE

S-121-

A

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

Silver Bell, Arizona

April 22, 1966

W.E.S.

APR 26 1966

~~WRS~~
J. H. C.

APR 26 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING

The following report briefly summarizes the results of the diamond drilling in the western Oxide area during the month of March, 1966.

Hole F-139 started the month at 235.8 feet and bottomed at 271.0 feet. The advance was in monzonite with sparse chalcopyrite mineralization.

Hole F-140 started the month at 286.6 and bottomed at 411.1. The advance was in alaskite with sparse chalcopyrite and chalcocite mineralization.

Hole F-141 was started and rockbitted through mine waste dump to 42.7. Monzonite and alaskite were cored to the bottom at 250.4. The sulfide contact was at 170, but no consecutive ore runs were found.

Hole F-142 drilled a monzonite-dacite porphyry-hornfels breccia to 15 and then penetrated hornfels to 35.3, monzonite to 43, dacite to 52, syenodiorite porphyry to 60, monzonite to 107.9, hornfels to 173, syenodiorite to 205.6, hornfels to 236, and bottomed in quartzite at 265.0. The sulfide contact was at 59. Weak copper sulfides were measured from 5 to 25, 107 to 175, and 202 to 229.

Hole F-143 rockbitted through gravels to 11.8 and then cored alternating quartzite and syenodiorite to the bottom at 221.8. Sulfide began at 69, but the quartzite was leached from 161 to the bottom. Weak chalcocite and chalcopyrite were found from 60 to 151, in the syenodiorite.

Hole F-144 was drilled to check the north-south trending ridge west of the main drilling area, (see separate plan map). Alaskite was drilled from the top to the bottom at 302.7. Mixed capping and sulfides were found to 74 where leached capping ceased. Mineralization was sparse throughout the hole.

Hole F-145 rockbitted through gravels to 10.0 and then cored dacite to the bottom at 215.3. Sulfide contact was at 36, and mineralization was sparse.

Hole F-146 advanced through hornfels with patchy quartzite to 19.6, quartzite to 90.7, syenodiorite to 142, hornfels and quartzite to 170.2, monzonite to 195.7, and bottomed in quartzite at 209.0. The sulfide contact was at 90. Weak chalcocite, partly oxidized, was measured in the syenodiorite from 90 to 117.

This completed the drilling in the western Oxide area and the drill rigs were moved to the El Tiro area. See accompanying memorandum for summary of this area.

See accompanying maps at end of report.

CWH:jca


C. W. Haynes
Resident Geologist

DIAMOND DRILLING IN THE OXIDE AREA

Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses		Average % Cu		Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
F-139	2945.7	29,257	24,813	No ore runs in hole.				35.2	271.0	271.0
F-140	3005.3	29,065	25,002	No ore runs this interval.				124.5	411.1	411.1
F-141	2936.7	29,075	24,816	No consecutive ore runs.				250.4	250.4	250.4
F-142	2873.0	30,084	26,093	5.0 - 25.0	20.0	0.50	0.14			
				107.4 - 175.4	68.0	0.47	0.02			
				201.7 - 228.9	27.2	0.50	0.02	265.0	265.0	265.0
F-143	2937.2	30,520	25,444	60.4 - 151.4	91.0	0.59	0.05	221.8	221.8	221.8
F-144	3059.1	28,953	24,183	No ore runs.				302.7	302.7	302.7
F-145	2940.7	30,572	25,615	No ore runs.				215.3	215.3	2.513
F-146	2953.4	30,642	25,298	90.1 - 117.4	27.3	0.64	0.13	209.0	209.0	209.0
								TOTAL	1,623.9	

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

April 22, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: SUMMARY OF OXIDE AREA DIAMOND DRILLING

Drilling of the areas immediately adjacent to the Oxide pit has now been concluded. The program started in December, 1963 and finished in March, 1966. 146 diamond drill holes were put down for a total of 53,162.0 feet. Although considered as one program, the drilling can be broken down into three areas; East Oxide (including Portland Ridge), Oxide Pit, and West Oxide. The drilling was done by two rigs, operating two shifts a day, ~~six~~ days a week. Two skid rigs were used for the East Oxide drilling; one truck rig for the Oxide Pit; and one truck and one skid rig for most of the West Oxide drilling. When topography was too steep for truck rig sites, two skid rigs were used. A rock bit or starting barrel was used to collar the holes to bedrock, and then NX wire line was used to drill the holes to completion. Core recovery averaged 91% in East Oxide with the lowest overall average at 82% and the highest at 97%. In Oxide Pit core recovery averaged 94%. In West Oxide core recovery averaged 92% with the lowest at 76% and the highest at 96%. This compares to the overall average in the El Tiro-Imperial area drilling which was 86% recovery for 91,106.5 feet of hole.

EAST OXIDE

Upon completion of the El Tiro-Imperial drilling, the drill rigs were moved to this area to see if further expansion of the Oxide pit would be possible. The target was the continuation of the chalcocite enriched blanket outside of the present pit perimeter. The present pit had been outlined from holes drilled from 1909-1912 and check-drilling begun in 1948. Due to economic and technological improvements since the pit was first opened, it was possible that lower grade material could be found that would be ore today. Although wide-spaced holes were tried early in the program, a roughly triangular pattern on approximately 180 foot centers was ultimately established. The closeness of the spacing was due to the irregular distribution of the chalcocite, both vertically and horizontally. Also these holes were to be used to devise a mining schedule if sufficient tonnage and grade were developed, and this required additional information. In a few cases, inter-spaced holes were put down inside holes previously drilled on the 180 foot centers, due to the erratic distribution of the chalcocite. A total of 78 holes were drilled.

The ore was found to cut off sharply to the north, possibly due to control from the Oxide Fault zone. On the east the grade dropped sharply but erratically. To the south under Portland Ridge, the chalcocite appeared to finger out more gradually. A number of angle holes were drilled on Due South bearings from the northern crest of Portland Ridge, but the mineralization was not completely outlined. If, or when, Portland Ridge is mined a few more holes should be planned to be drilled to find the definite edges.

Perhaps the most important geological factor found by the drilling was the preference of the syenodiorite porphyry for mineralization. Prior to the program mapping inside the pit areas showed no overall favorability of one rock type over another. However outside the higher grade, more strongly altered pit areas, this

preference was found. Due East of the present pit syenodiorite is the main rock type. It is cut by several monzonite dikes. Dacite porphyry is found to the north, but it is mainly outside of the ore zone. Monzonite with a few minor syenodiorite bodies occupies most of the southern, or Portland Ridge area.

Although final ore reserves data must wait until the area is approved for mining, approximately six million tons at about a seven-tenths grade and 1-1/2:1 waste to ore ratio is indicated. Also another four million tons of unknown grade and stripping ratio was found under Portland Ridge, but this may not be mineable.

OXIDE PIT

Information derived from pit mapping and East Oxide drilling made testing of the primary zone desirable. Four holes were therefore drilled from the bottom two benches inside the pit. The holes were not intended to extend ore reserves, but to gain more information on types and changes in mineralization and alteration in the primary zone below the effects of the chalcocite blanket and supergene alteration. The results of this program is given in my memorandum to you, Diamond Drilling From Bottom of Oxide Pit, dated August 30, 1965. In brief summary the main effects of hydrothermal alteration were sericite and silicification, with smaller amounts of secondary orthoclase, chlorite-secondary biotite, epidote, quartz veining, and minor clay. Rock type changes often resulted in changes in chalcopyrite content, generally better in the syenodiorite, but this could not be definitely established. Average grades of the primary zone indicated by the few holes was 0.24% Cu as chalcopyrite, 0.022% MoS₂, and 0.02 oz. Ag.

WEST OXIDE

This area was a very interesting one to test. It both concurred and conflicted with accepted exploration theories, thereby forcing the area to be broken down and delt with as separate units, but yet keeping the overall picture in mind. As with the East Oxide area, the main idea was to check for an extension of the chalcocite blanket that could now be ore due to present economic conditions. There was also a chance of developing chalcopyrite in altered sediments (Imperial type ore) northwest of the present pit.

A total of 64 holes were drilled in this area. Spacing was again roughly triangular on approximately 180 foot centers. Two angle holes were drilled under Wild Hog Butte since locations for vertical holes could not be made there.

In the area immediately west of Oxide pit alaskite was found to be preferentially mineralized over the monzonite. This was shown to be true both in the chalcocite zone and by primary chalcopyrite. In the northwestern part, the altered sediments (hornfels and minor tactite) and syenodiorite showed preference over monzonite and dacite. The quartzite was generally unmineralized. The area including Copper and Wild Hog buttes and to the south was relatively simple, being mainly alaskite cut by monzonite and post-mineral andesite dikes. A dike that cuts through Wild Hog Butte was originally thought to be post-mineral andesite. However, drilling showed it to be mineralized and possibly post-monzonite. It was called younger syenodiorite. North of the two buttes the geology becomes quite complex and is composed of altered sediments that were presumably trapped between the alaskite intrusion to the south and the dacite intrusion to the north. Syenodiorite and monzonite bodies then cut everything. With faulting of unknown quantity, plus large amounts of soil and gravels covering the bedrock, the picture could not be defined clearly except in a general way. Drilling in the sediments generally found all original lime leached away in the upper regions and secondary chalcocite as the ore mineral.

With depth calcite could generally be found, and the ore mineral was then primary chalcopryrite. In several cases native copper in a fine-grained "sludge" similar to the precipitate from the dump leaching operations was found.

Holes in the sediments north and northwest of the pit were often bottomed in a quartzite. It is now believed that this is the upper quartzite member of the Scherrer formation of Permian age. This then means that the overlying mineralized altered sediments were originally the Concha Limestone formation, also of Permian age. One attempt to penetrate the Scherrer, which is 422 feet thick in the Western Mountains, to check for mineralization in the underlying Colina limestone, failed due to caving of the hole. No further attempt was made as not enough ore could be found in this area to warrant doing to the necessary depth with an open pit.

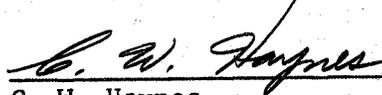
Ore reserves for this area have not been completed, but it appears to have approximately eleven million tons of six to seven-tenths copper with a 1-1/2:1 to a 2:1 waste to ore ratio.

CONCLUSION

If the East and West Oxide areas are approved for mining the drilling program can be concluded as being successful. A total of 17 million tons or more could then be added to the ore reserves, which would be a substantial increase to the life of Oxide pit. Although 146 holes and 53,162.0 feet of hole were drilled at considerable expense, the factor of 320 tons of ore per foot of hole is a very favorable one.

Although inconsistencies or apparent conflicts were found in several areas, the general idea of outcrop study for "live limonite" was still the main tool for developing the areas. It did have to be supplemented with sound basic geologic interpretation of rock types, alteration, structure, etc., as would be the case in practically any situation. Some mistakes were made and a few hopeful theories had to be discarded. Less actual field mapping was needed than would normally be required due to the excellent work done in earlier years.

The discovery of information of what happens on the fringes of a secondary chalcocite deposit was of vital importance. Much information has been passed on to the people in the Exploration Department, and more will continue. The syeniorite porphyry now appears to be our best mineralized rock, both in secondary and primary mineralization. Unfortunately no large body of this rock is known elsewhere in the alteration zone. It is generally found as dikes. The apparent finding of the Scherrer formation with ore grade mineralization in the overlying Concha limestone (now hornfels and tactite) was important. The Imperial body in the El Tiro area appears to be in the Abrigo formation of Cambrian age. This could mean that the north-trending faults that cut across the main northwest trending alteration zone reflects a series of uplifted blocks proceeding from the Oxide to the El Tiro area. This could open the door for a flood of ideas concerning possible mineralized formations in the sedimentary blocks between the pits. Possibly the B. S. & K. Mine is in Mescal limestone of Pre-Cambrian age. In any case a few more unknown facts have been learned and more ore has been found, and those really were the main purposes for this drilling program.


C. W. Haynes
Resident Geologist

CWH:jca

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

W.E.S.

APR 25 1966

April 22, 1966

J. H. C.

APR 26 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON EL TIRO AREA DIAMOND DRILLING

The month of March saw the diamond drilling completed in the Oxide area and the drill rigs were moved to the El Tiro area to resume testing of target areas for possible expansion. The following report briefly summarizes the results of this drilling for the month of March, 1966. The "D" series is continued from the El Tiro-Imperial drilling for hole designations.

Hole D-176 cored syenodiorite porphyry from the collar to 15.2 feet, dacite porphyry to 62.8, syenodiorite again to 101.1, and again dacite to the bottom at 267.7. The sulfide contact was at 26. Moderate chalcocite was measured from 64 to 116. The actual enriched blanket extended from 55 to 186. The underlying primary chalcopyrite averaged less than 0.10% Cu.

Hole D-177 was started and penetrated dacite to 122.0, and monzonite to the end of the month at 195.2. The sulfide contact was at 100. Moderate chalcocite and chalcopyrite were measured from 95 to 183.

Hole D-178 was started and drilled syenodiorite to 29.7, a breccia dike to 54.3, and dacite to the end of the month at 83.4. The advance was through leached capping.

See attached summary for geology and assessment of area.

See attached maps at end of report.


C. W. Haynes,
Resident Geologist

CWH:jca

DIAMOND DRILLING IN THE EL TIRO AREA

<u>Hole No.</u>	<u>Ground Elevation</u>	<u>Coordinates</u>		<u>+0.40% Copper Lenses</u>		<u>Avg. % Cu</u>		<u>Feet Drilled During Month</u>	<u>Depth End of Month</u>	<u>Final Depth</u>
		<u>North</u>	<u>East</u>	<u>Interval</u>	<u>Thickness</u>	<u>Total</u>	<u>N.S.</u>			
D-176	2838.3	39,749	17,900	63.8 - 115.9	52.1	0.75	0.02	267.7	267.7	267.7
D-177	2792.6	39,754	17,377	94.7 - 183.1	88.4	0.64	0.05	195.2	195.2	
D-178	2987.6	39,657	18,385	No ore runs this interval.				83.4	83.4	
Total								2,170.2		

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

April 22, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: PRELIMINARY GEOLOGIC REPORT OF THE EL TIRO-QUARTZITE PEAK AREA

During the month of March, 1966 development drilling in the areas immediately next to the Oxide pit was completed and both drill rigs were moved to the El Tiro area. The proposed plan is to use a skid rig for the more difficult sites and a truck mounted rig where a dozer can build roads and drill sites.

On the plan map accompanying the monthly letter report can be seen the rock types in this general area. Bolsa quartzite caps the mountain called Quartzite Peak, with bedding dipping at 30-35 degrees to the south. This is underlain by the dacite porphyry which occupies most of the overall area. A monzonite stock was intruded to the west of Quartzite Peak, and a dike is shown coming from the stock and intruding between the apparent dacite porphyry-quartzite contact. Actually the afore-mentioned contact dips to the south at a much more shallow angle than the dip of the monzonite dike. Not yet shown on the map are other dikes of monzonite, syenodiorite porphyry, and breccia. These will be added as their limits can be more closely defined. To the south and extending southeast of Quartzite Peak is Union Ridge of the El Tiro-Imperial ore body (El Tiro East Extension No. 2).

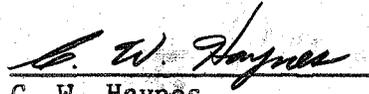
The original plan in this area was to drill about two holes to check apparent mineralization reported from several churn drill holes drilled from 1909 to 1912. If these were encouraging a third hole would be drilled to check for continuity between these two holes and churn drill hole NSB 509. (Note: It was found that the original survey of this hole was wrong. Its correct position is shown on the map, and the true coordinates are 40,825.37N, 17,218.71E, 2727.44 elevation). The North Silver Bell drilling done in the mid 1950's had shown the presence of a thin enriched chalcocite blanket of low grade, and apparently erratic in distribution. NSB 509 was the best hole drilled in that program and there was a possibility of developing some ore in this area.

The decision was made to make a geochemical sampling of the area to see if drilling targets could be more closely pin-pointed. The assay results of this program had not been received by the first of the month, so two areas were delineated from outcrop study made in conjunction with the survey. The map shows a solid line outline of the "good" area, and a dashed line outline of the "possible" area. These two areas plus an extension to NSB 509 showed a target area about 2000 feet long in a North-South direction, and about 1,000 feet long in an East-West direction.

We therefore have a target area of large enough dimensions to warrant more drilling than originally planned. The ore target hoped to be developed would be relatively thin in vertical dimensions and probably low grade, possibly in the five to six-tenths range. If the distribution on the chalcocite blanket is not too erratic, too thin, or too deep, a body of sufficient size, though low in tonnage could be developed.

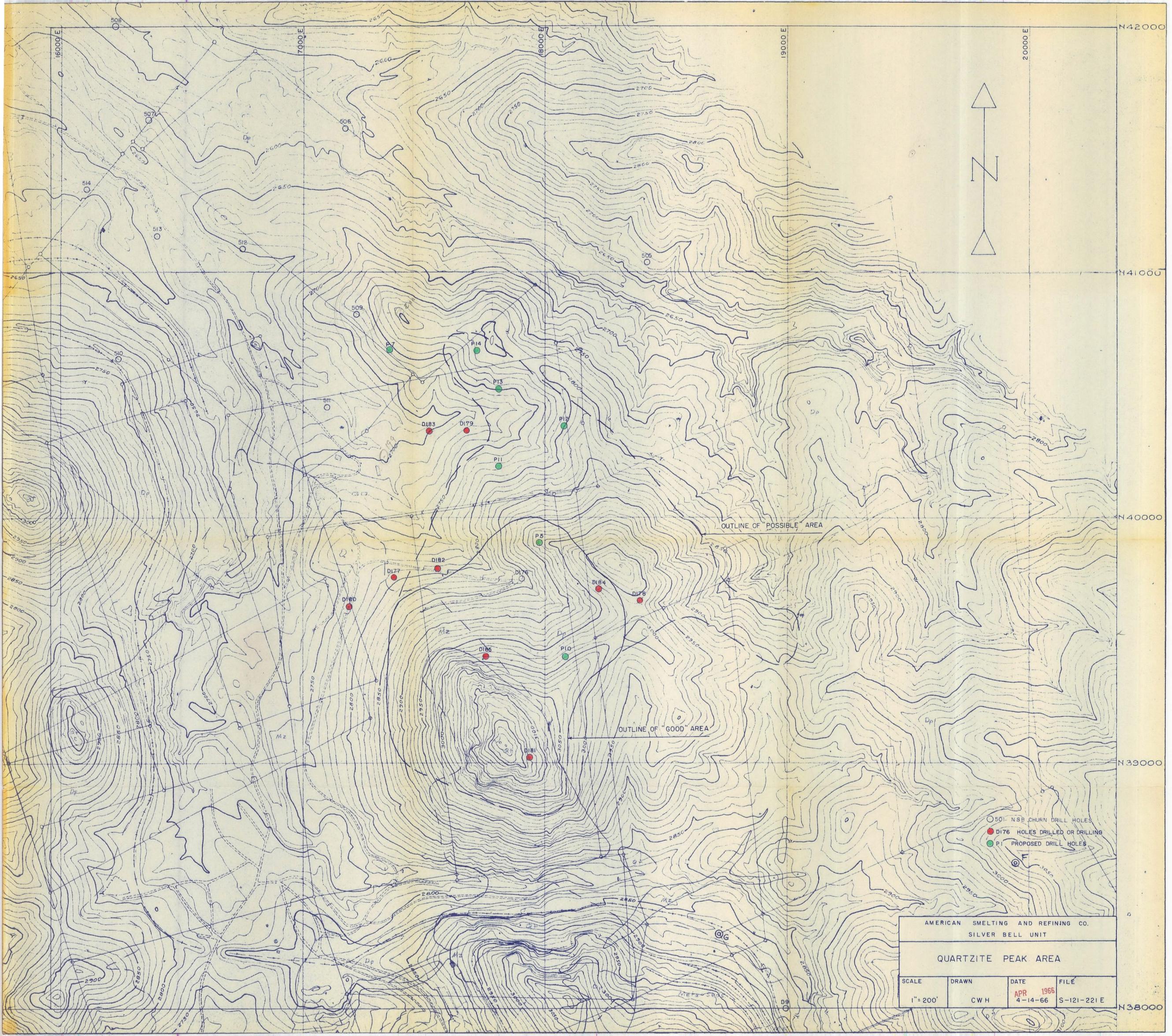
With so many variables entering the picture, drilling results may well change the position described above. A triangular drilling pattern on 180 foot centers has been laid out, but will not be strictly followed. In such a program as this flexibility is needed and the pattern will serve as a guide.

It should be noted that no name has been assigned to this area, and monthly reports will come under the heading of El Tiro drilling. If later a name is desirable one can be given to it then. Quartzite Peak Area is the title of the map, as this is the predominant land form.



C. W. Haynes
Resident Geologist

CWH:jca



OUTLINE OF "POSSIBLE" AREA

OUTLINE OF "GOOD" AREA

- 501 NSB CHURN DRILL HOLES
- D176 HOLES DRILLED OR DRILLING
- P1 PROPOSED DRILL HOLES

AMERICAN SMELTING AND REFINING CO.
SILVER BELL UNIT

QUARTZITE PEAK AREA

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR 1966 4-14-66	S-121-221 E

N42000
N41000
N40000
N39000
N38000

16000 E 7000 E 18000 E 19000 E 20000 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

April 22, 1966

J. H. C.

APR 26 1966

W.E.S.
APR 26 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: QUARTERLY GEOLOGIC REPORT AND ORE RESERVE MAPS.

OXIDE PIT

During the first quarter of 1966 mining was done on the north and west faces of the 2700 level, Oxide pit. Monzonite containing ore grade chalcocite, and high oxide values was encountered in the south western part of the advance (near 29500N, 2700E). Further to the north, leach and ore grade syenodiorite, with a low oxide copper content was mined. The ore mineral in this area was mainly chalcopyrite and some molybdenite.

The advance to the north cut strongly sheared, brecciated and silicified monzonite and syenodiorite and some meta-sediments. This zone is part of the northeast trending oxide fault. The central part of the advance was in high pyrite leach and waste grade material. On both the east and west sides of this low grade material, ore grade chalcocite bearing monzonite was mined.

The cracks in the southeast corner of oxide pit, noted in the last quarterly report (on the 3050 and 3100 levels, at C, Plate 2) have shown one to three inches of expansion during the last quarter. This area should be watched closely for signs of continuing movement. No other important sloughing was noted during the quarter in Oxide pit.

EL TIRO PIT

The 2630 level was pushed toward the west through chalcocite-chalcopyrite bearing ore grade alaskite during the first part of the first quarter. A small pod of high oxide copper material was mined in the north west corner and a small pod of leach and waste grade material showed up in the southwest corner of the advance.

The 2670 level was advanced to the north, with waste grade fill and gravel being encountered in the western part of the advance. In the central part of the advance ore grade alaskite was mined, the main ore mineral being chalcocite with lesser amounts of chalcopyrite. In the eastern part of the advance leach and waste grade material was encountered.

The 2870 level in the east extension was mined intensively during five shovel shifts per day and was pushed eastward to trim out at the last part of the quarter. Hornfels and taconite were encountered in southern part of the advance in the Page Hill area, (36,000N, 18,500E). A small amount of primary chalcopyrite ore was taken from this area. In the north part of Page Hill dacite porphyry was encountered for the most part with a small northeast trending body of syenodiorite porphyry being exposed around 36,300N, 18,700E (Plate 4). Beyond latitude 36,500N, large monzonite intrusions were seen to be cutting dacite. All the above rock types were cut by post-mineral andesite intruding the northwest trending Mammoth Fault zone.

During the latter part of the quarter, the 2830 level was pushed eastward through leach and waste grade dacite, monzonite, hornfels, tactite, and post-mineral andesite, (36,000N,18,000E Plate 4).

No important sloughing was noted during the quarter in El Tiro pit.

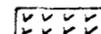

James A. Briscoe
Geologist

JAB:jca

LEGEND

CREST ———

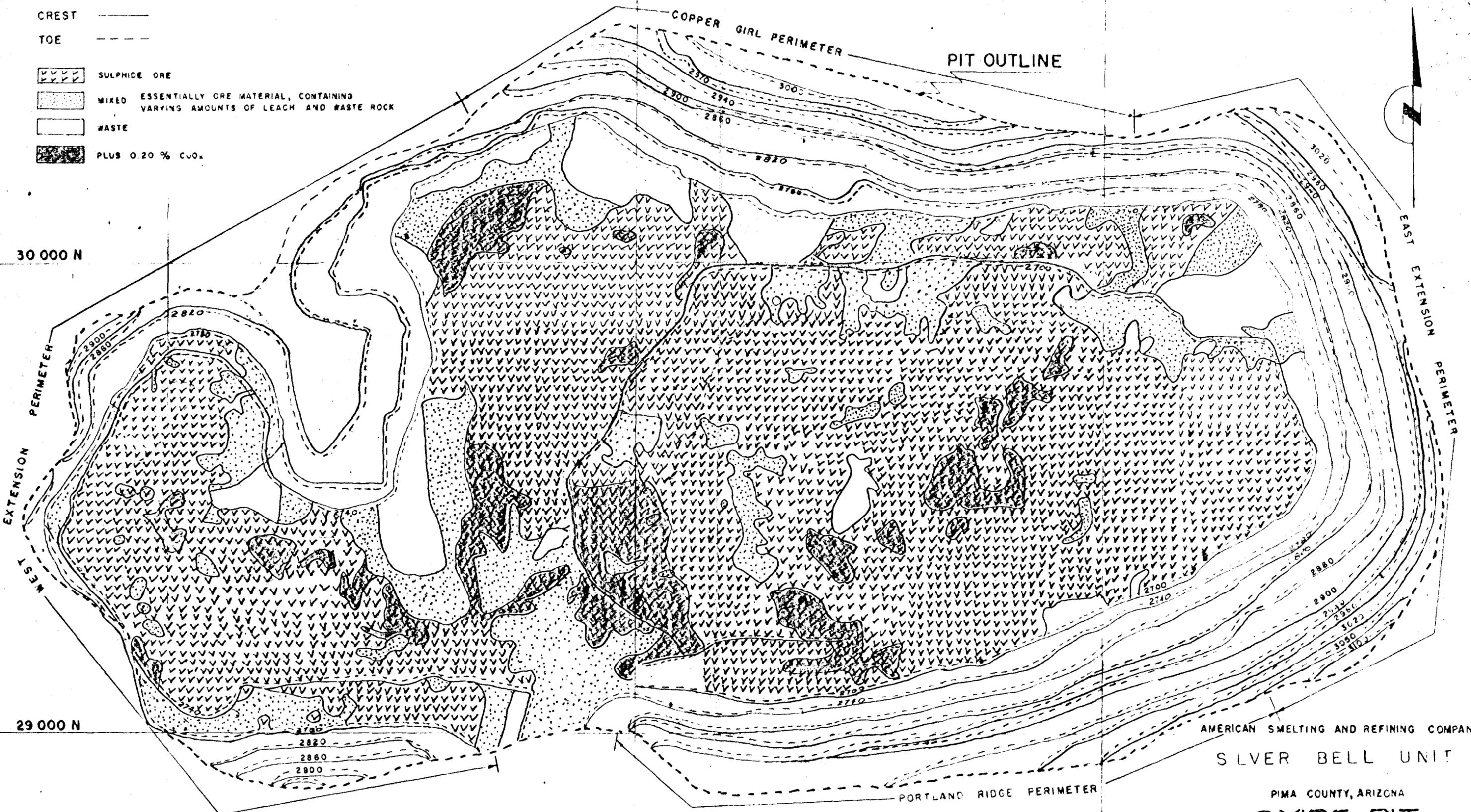
TOE - - - - -

 SULPHIDE ORE

 MIXED ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK

 WASTE

 PLUS 0.20 % CO₂



AMERICAN SMELTING AND REFINING COMPANY

SILVER BELL UNIT

PIMA COUNTY, ARIZONA

OXIDE PIT

SCALE 1" = 200'

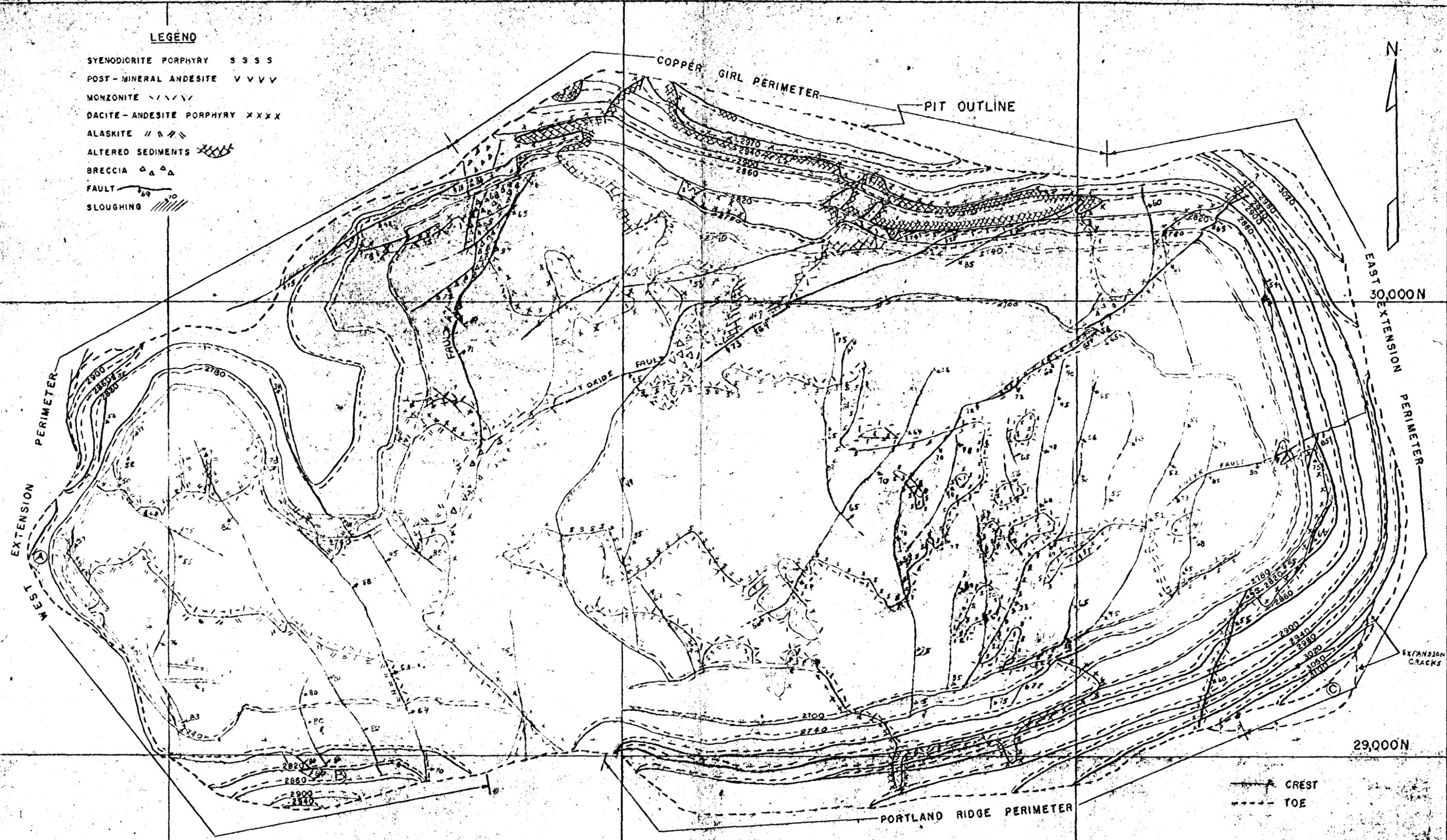
GEOLOGIC MAP MAR 1966

1966

Revised 1966

LEGEND

- SYENODIORITE PORPHYRY S S S S
- POST-MINERAL ANDESITE V V V V
- MONZONITE \ \ \ \
- DACITE-ANDESITE PORPHYRY X X X X
- ALASKITE // // //
- ALTERED SEDIMENTS [X] [X] [X]
- BRECCIA ▲ ▲ ▲
- FAULT ———
- SLOUGHING [//] [//] [//]



— CREST
 - - - TOE

AMERICAN SMELTING AND REFINING COMPANY SILVER BELL UNIT.			
PLAN OF OXIDE PIT GENERAL GEOLOGY AS OF MAR 1968			
SCALE 1" = 200'	DRAWN BY CWH	DATE 7/28/59	FILE S-21-1988

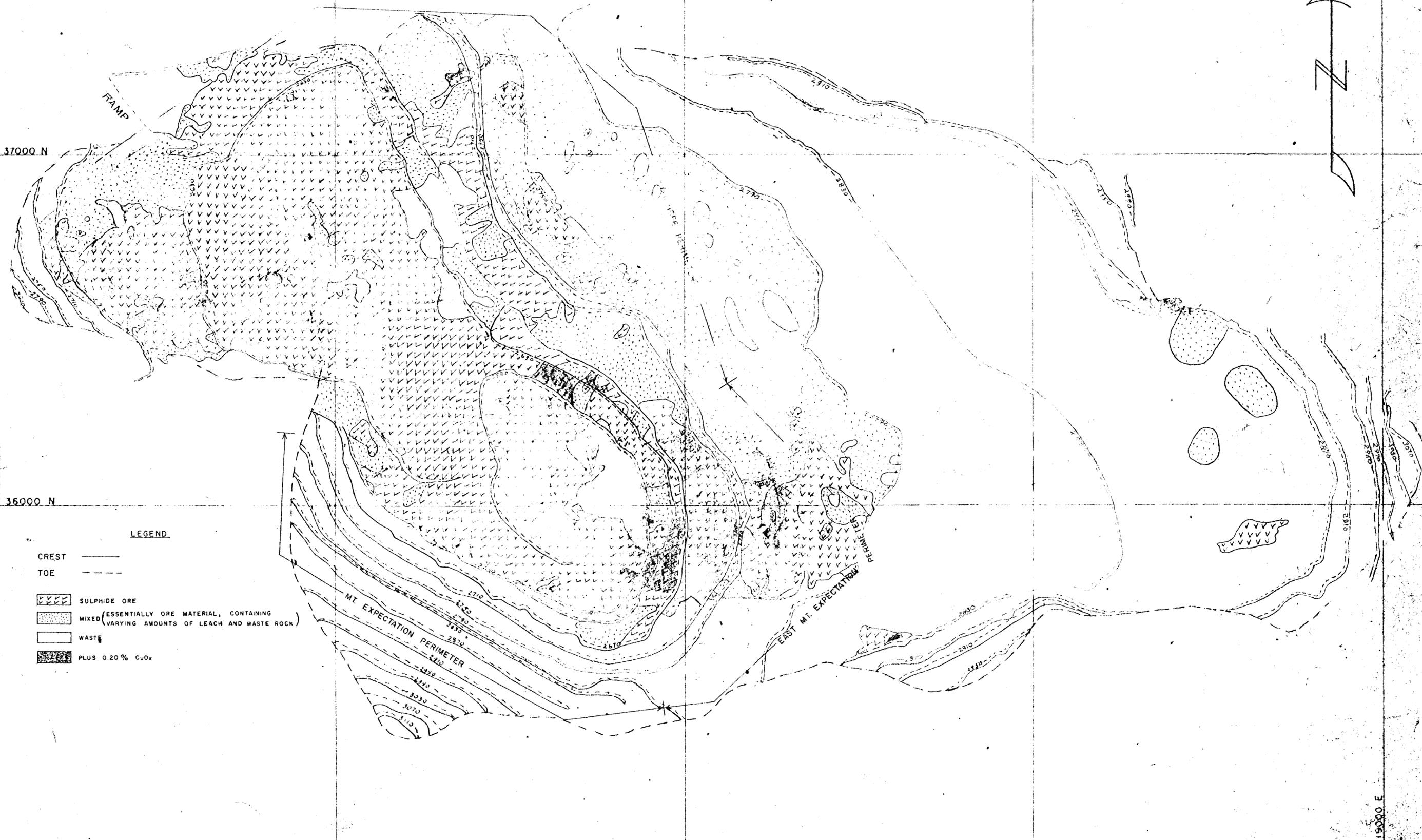
26,000 E

27,000 E

28,000 E

29,000 N

30,000 N



LEGEND

- CREST ———
- TOE - - - - -
-  SULPHIDE ORE
-  MIXED (ESSENTIALLY ORE MATERIAL, CONTAINING VARYING AMOUNTS OF LEACH AND WASTE ROCK)
-  WASTE
-  PLUS 0.20% CuO_x

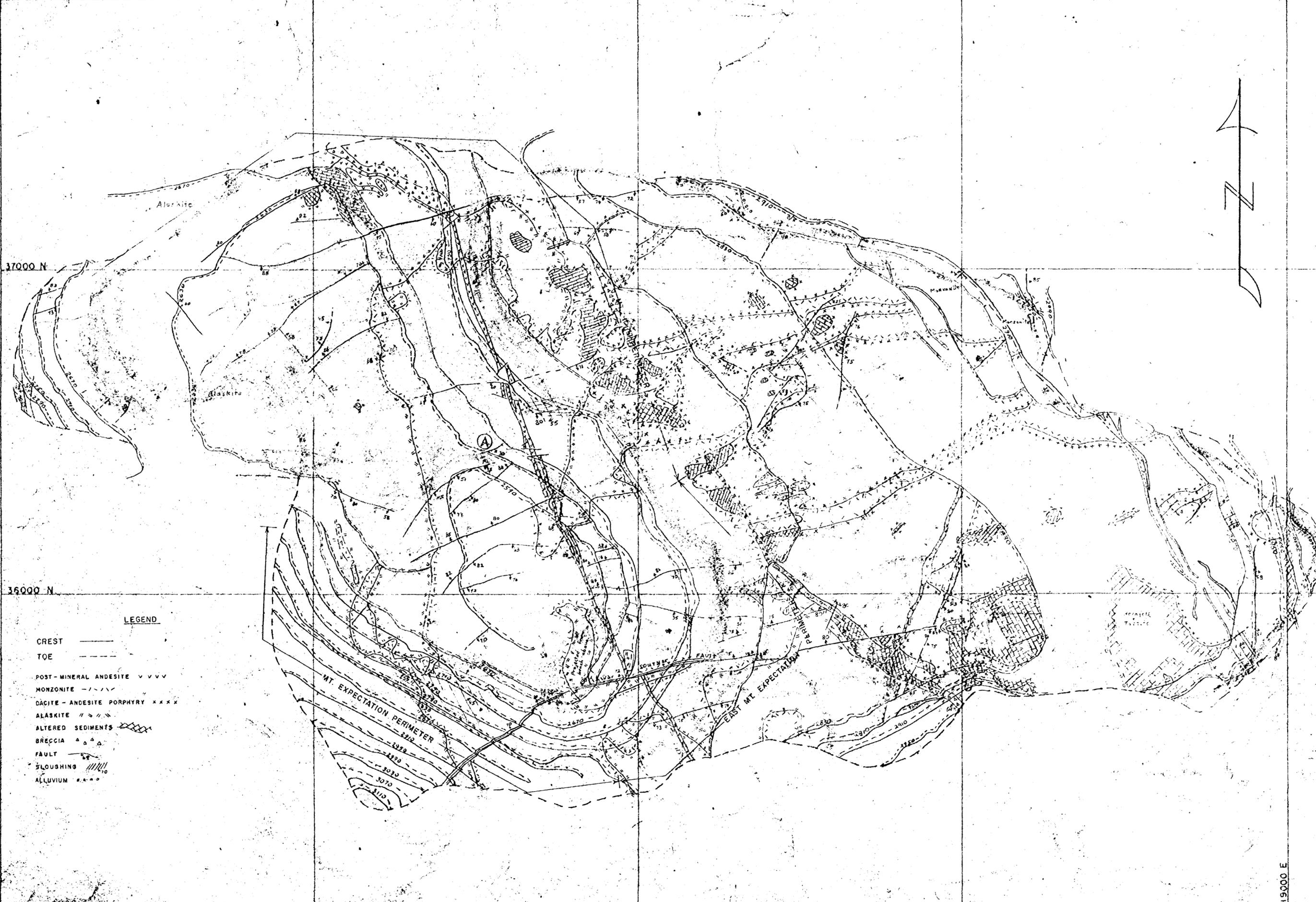
AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
PLAN OF EL TIRO PIT PROGRESS FOR <i>El Tiro Pit</i>			
SCALE 1" = 200'	DRAWN DRC	DATE 1-9-62	FILE S-121-2080

19000 E

16000 E

17000 E

18000 E



LEGEND

- CREST ———
- TOE - - - - -
- POST-MINERAL ANDESITE v v v v
- MONZONITE - / - / - /
- DACITE - ANDESITE PORPHYRY x x x x
- ALASKITE // // // //
- ALTERED SEDIMENTS
- BRECCIA
- FAULT
- SLOUSHING
- ALLUVIUM

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
PLAN OF EL TIRO PIT PROGRESS FOR MAR 1966			
SCALE 1" = 200'	DRAWN DRC	DATE 1-9-62	FILE S-121-2080

19000 E

16000 E

17000 E

18000 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

March 10, 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING.

The following report briefly summarizes the results of the diamond drilling in the Western Oxide area during the month of February, 1966.

Hole F-132 started the month at 222.1 feet in monzonite, went into dacite porphyry at 226.0, hornfels at 244.6, and monzonite at 265.3. The hole was bottomed at 287.9. Mineralization was sparse.

Hole F-133 started the month at 176.4 in hornfels, then drilled dacite to 190.5, hornfels to 199.0, syenodiorite porphyry to 232.1, and hornfels to the bottom at 269.6. Brecciation was noted from 232 to 249. Chalcopyrite was weak from 176 to 208 and moderate from 235 to 253.

Hole F-134 cored alaskite and monzonite from the collar to the bottom at 332.7, except for post-mineral andesite dikes from 239.5 to 265.9, and 275.5 to 282.5. The sulfide contact was at 93. Moderate chalcocite was measured from 205 to 239.

Hole F-135 drilled alaskite to 80 and then monzonite to the bottom at 387.1. The sulfide contact was at 87 and moderate chalcocite was found from there to 251.

Hole F-136 rockbitted through dump to 27.0 and then cored alaskite to 302.4 and monzonite to the bottom at 328.2. The sulfide contact was at 45, but mineralization was sparse throughout the hole.

Hole F-137 also penetrated alaskite and monzonite from the top to the bottom, at 350.6. The sulfide contact was at 117. Strong chalcocite was measured from 143 to 279.

Hole F-138 penetrated monzonite from the collar to the bottom at 247.1, except for post-mineral andesite from 8.3 to 13.7. The sulfide contact was at 71. Weak chalcocite was found from 62 to 86.

Hole F-139 rockbitted through dump to 30.0 and then cored alaskite to 52.0 and monzonite to the end of the month at 235.8. The sulfide contact was at 175, mineralization was sparse throughout.

Hole F-140 drilled alaskite to 173.3, monzonite to 206, and alaskite again to the end of the month at 286.6. The sulfide contact was at 140. Chalcocite was weak from 146 to 183 and moderate from 203 to 236.

Drilling in the western Oxide area is rapidly nearing the end. Holes F-134 and F-136 showed that ore grade mineralization does not continue to the south, so no further work will be done in that direction. Holes around F-137 show a narrow zone of chalcocite with cut-off holes on the east and west. March should be the final month of drilling on this area.

See accompanying maps at end of report.

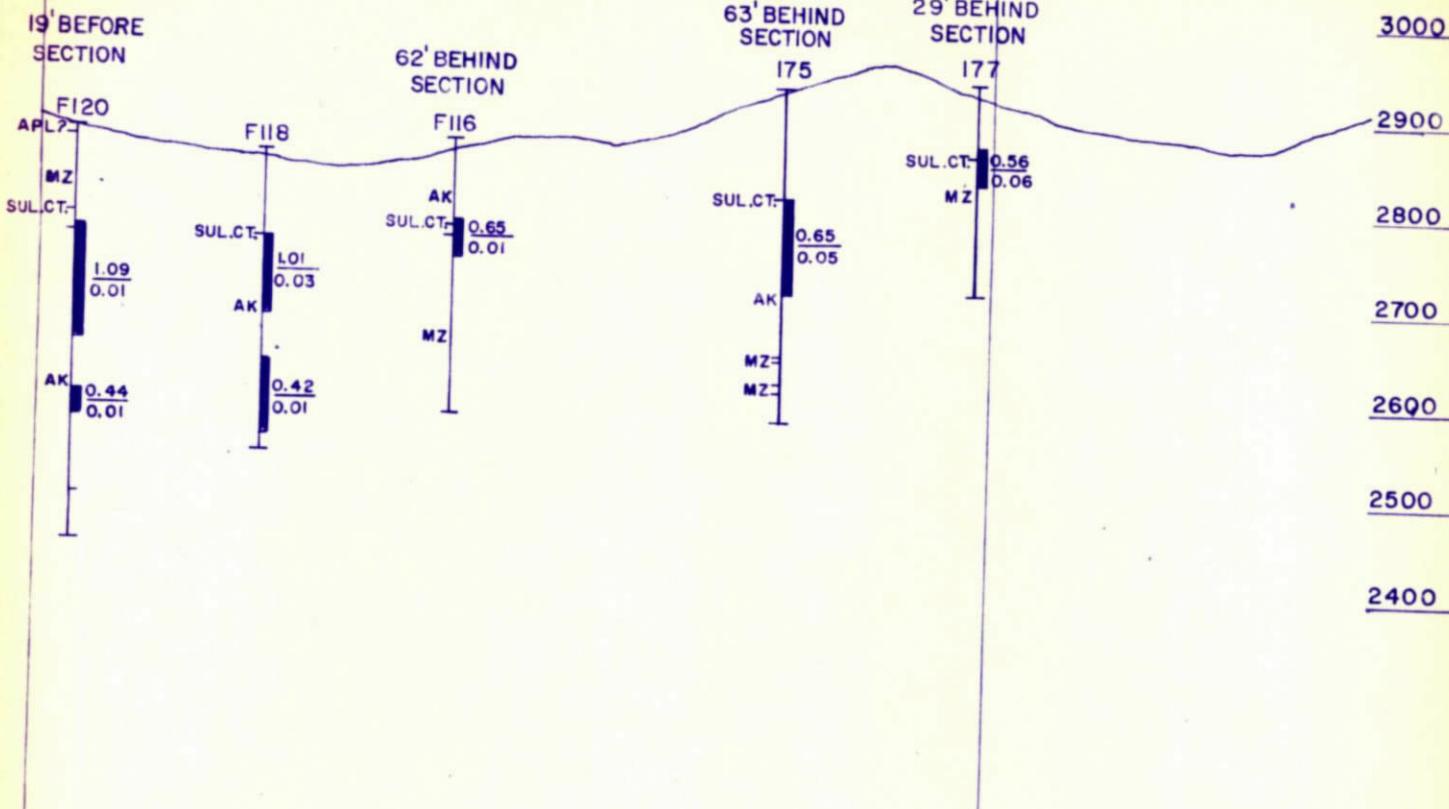

C. W. Haynes
Resident Geologist

CWH:jca

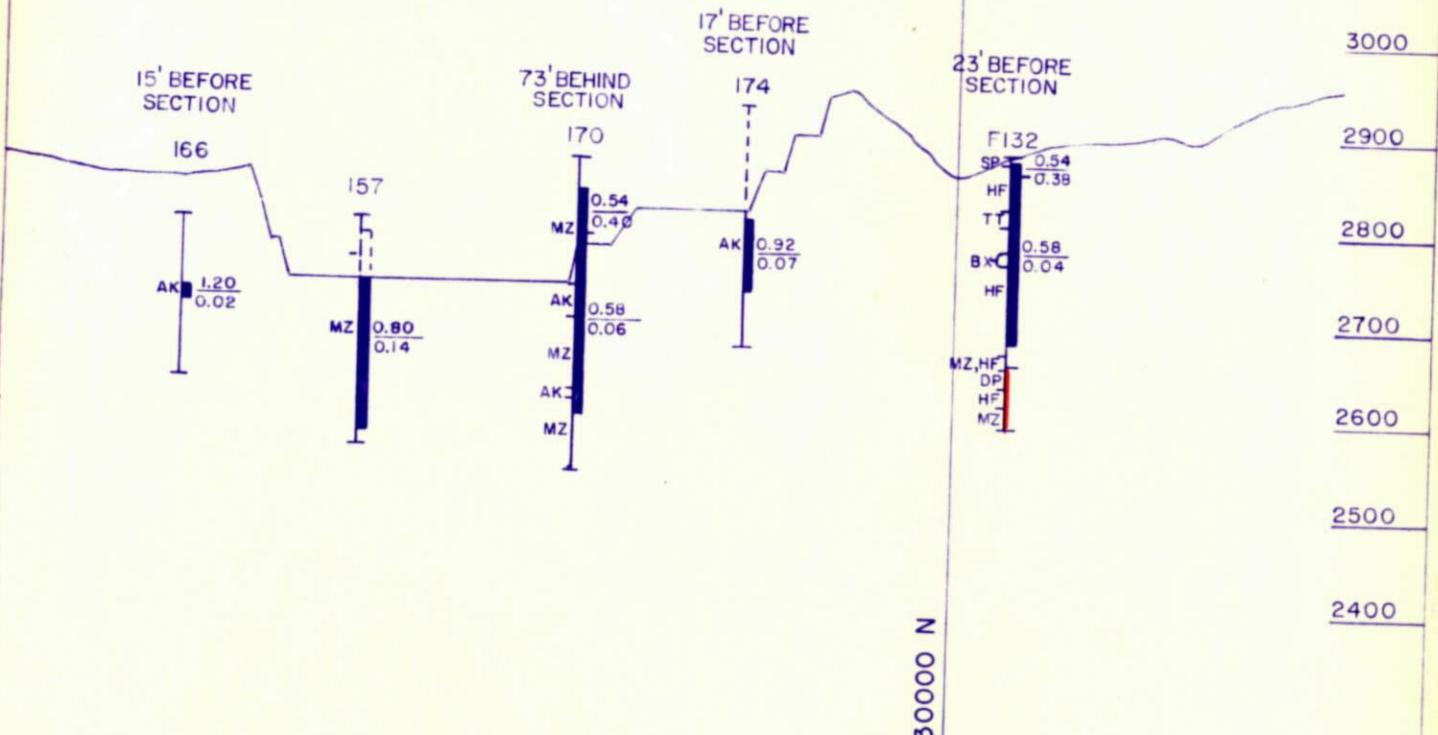
DIAMOND DRILLING IN THE OXIDE AREA

<u>Hole No.</u>	<u>Ground Elevation</u>	<u>Coordinates</u>		<u>+0.40% Copper Lenses</u>		<u>Avg. % Cu</u>		<u>Feet Drilled During Mo.</u>	<u>Depth End of Month</u>	<u>Final Depth</u>
		<u>North</u>	<u>East</u>	<u>Interval</u>	<u>Thickness</u>	<u>Total</u>	<u>N.S.</u>			
F-132	2878.5	30,054	25,873	No ore runs this interval.				65.8	287.9	287.9
F-133	2918.6	30,395	25,364	176.4 - 208.2 235.0 - 253.4	31.8 18.4	0.57 0.73	0.02 0.02	93.2	269.6	269.6
F-134	2884.2	28,860	25,780	205.3 - 239.5	34.2	0.69	0.02	332.7	332.7	332.7
F-135	3001.1	29,377	24,930	87.2 - 251.0	163.8	0.67	0.07	387.1	387.1	387.1
F-136	2888.2	28,772	26,157	No ore runs				328.2	328.2	328.2
F-137	3010.7	29,241	24,985	143.0 - 278.5	135.5	0.85	0.03	350.6	350.6	350.6
F-138	2952.8	29,410	24,755	61.7 - 86.1	24.4	0.47	0.04	247.1	247.1	247.1
F-139	2945.7	29,257	24,813	No ore runs this interval.				235.8	235.8	
F-140	3005.3	29,065	25,002	146.5 - 183.0 202.7 - 236.3	36.5 33.6	0.43 0.65	Nil 0.02	286.6	286.6	
TOTAL								<u>2,327.1</u>		

S ————— N



SECTION 25700 E
SECTION 25850 E

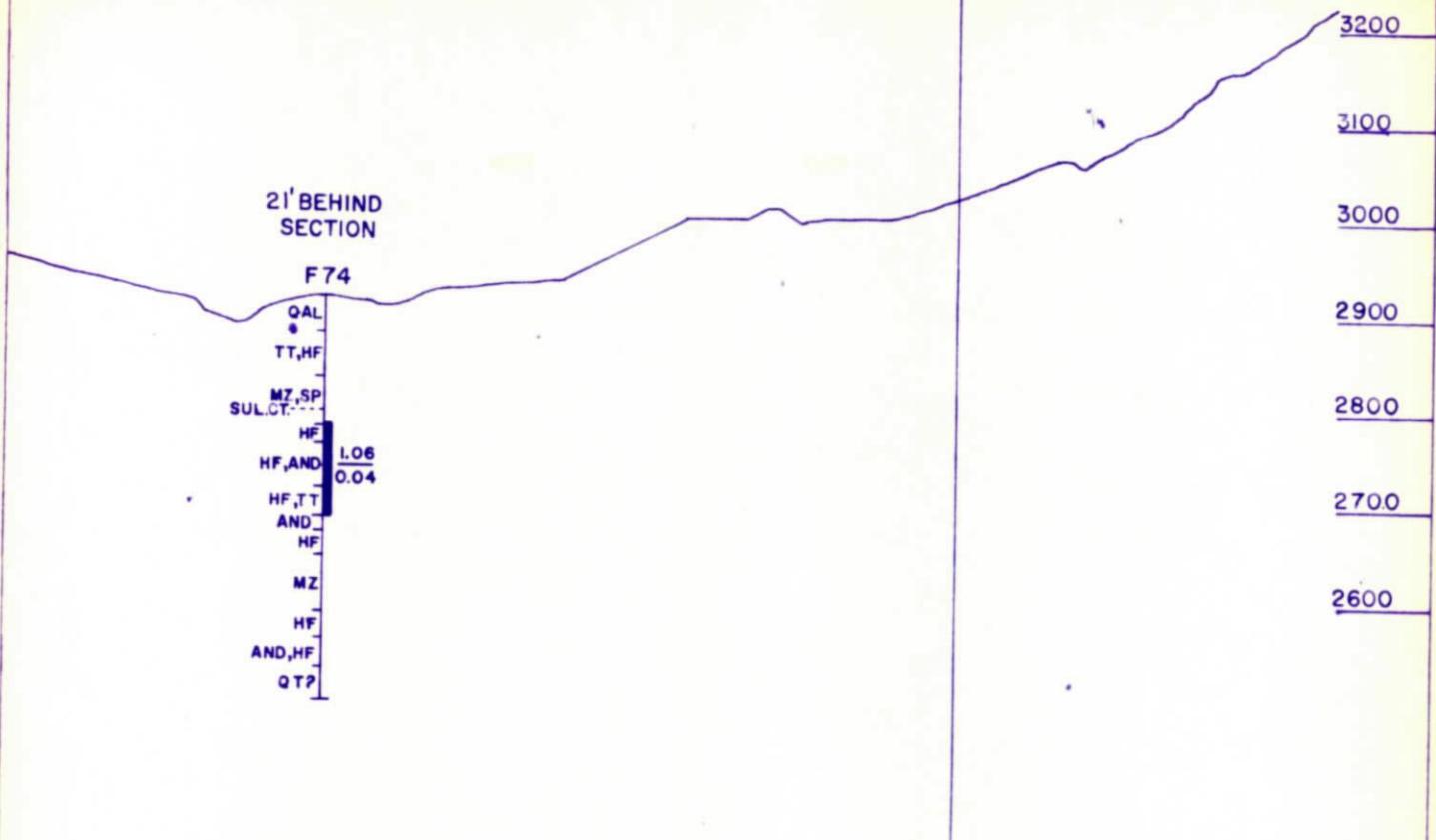


30000 N

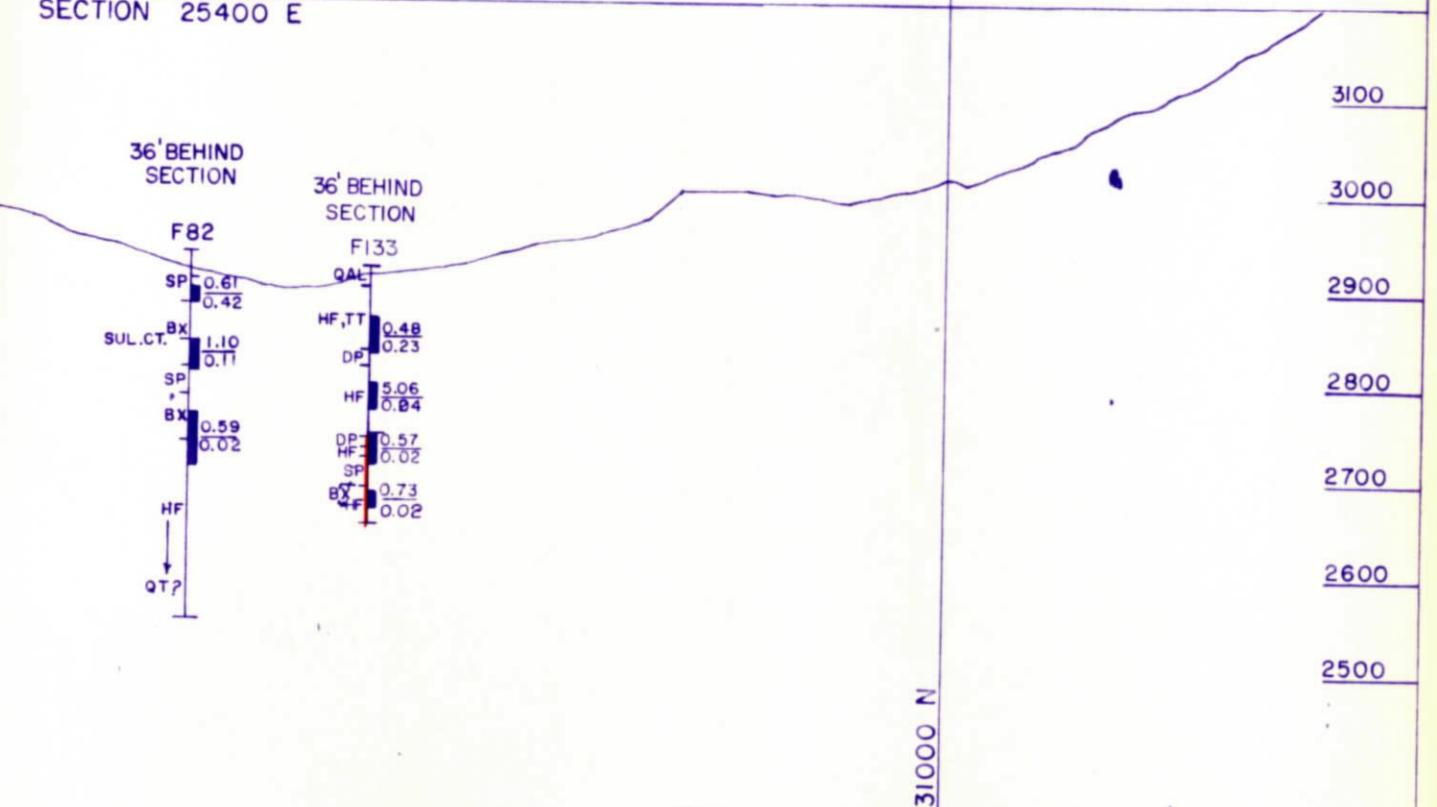
■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966	FILE S-121-A

S ————— N



SECTION 25550 E
SECTION 25400 E



■ +0.4 % Total Copper Advance for month
* Note : Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

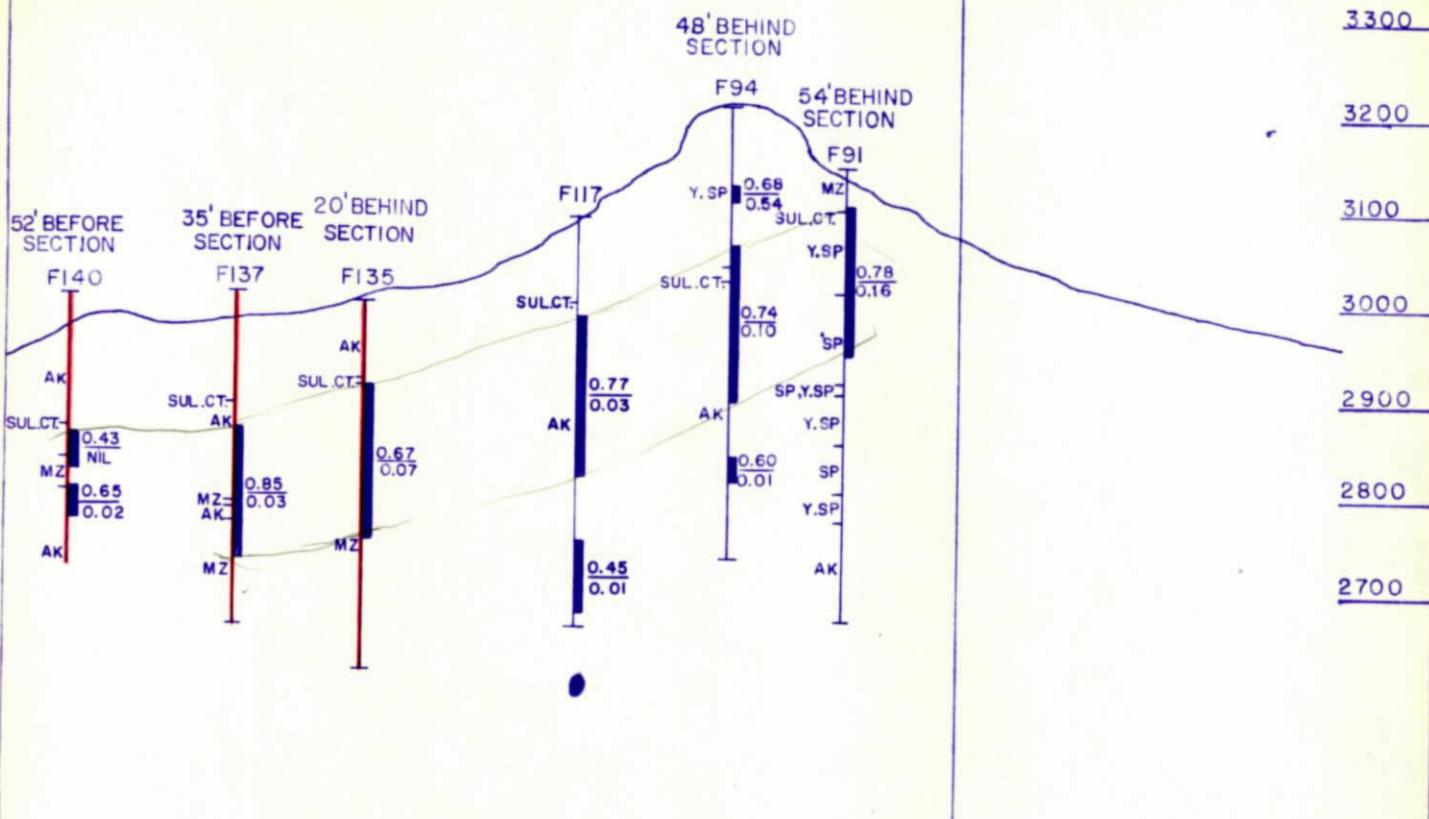
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966	FILE S-121- A
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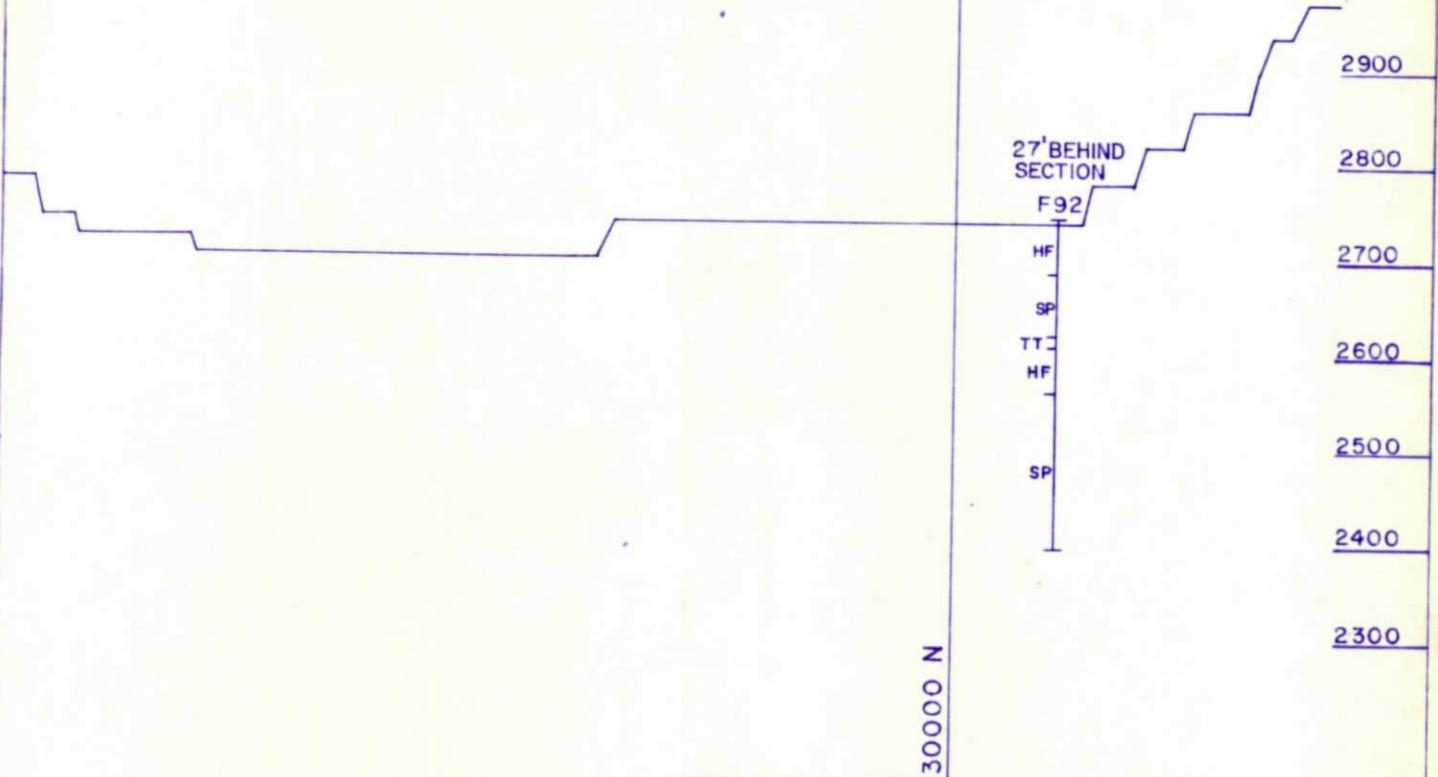
Cu Assay is Total Cu / Non Sul. Cu

1" = 200'	CWH	FEB 1966	S-121- A
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S ————— N



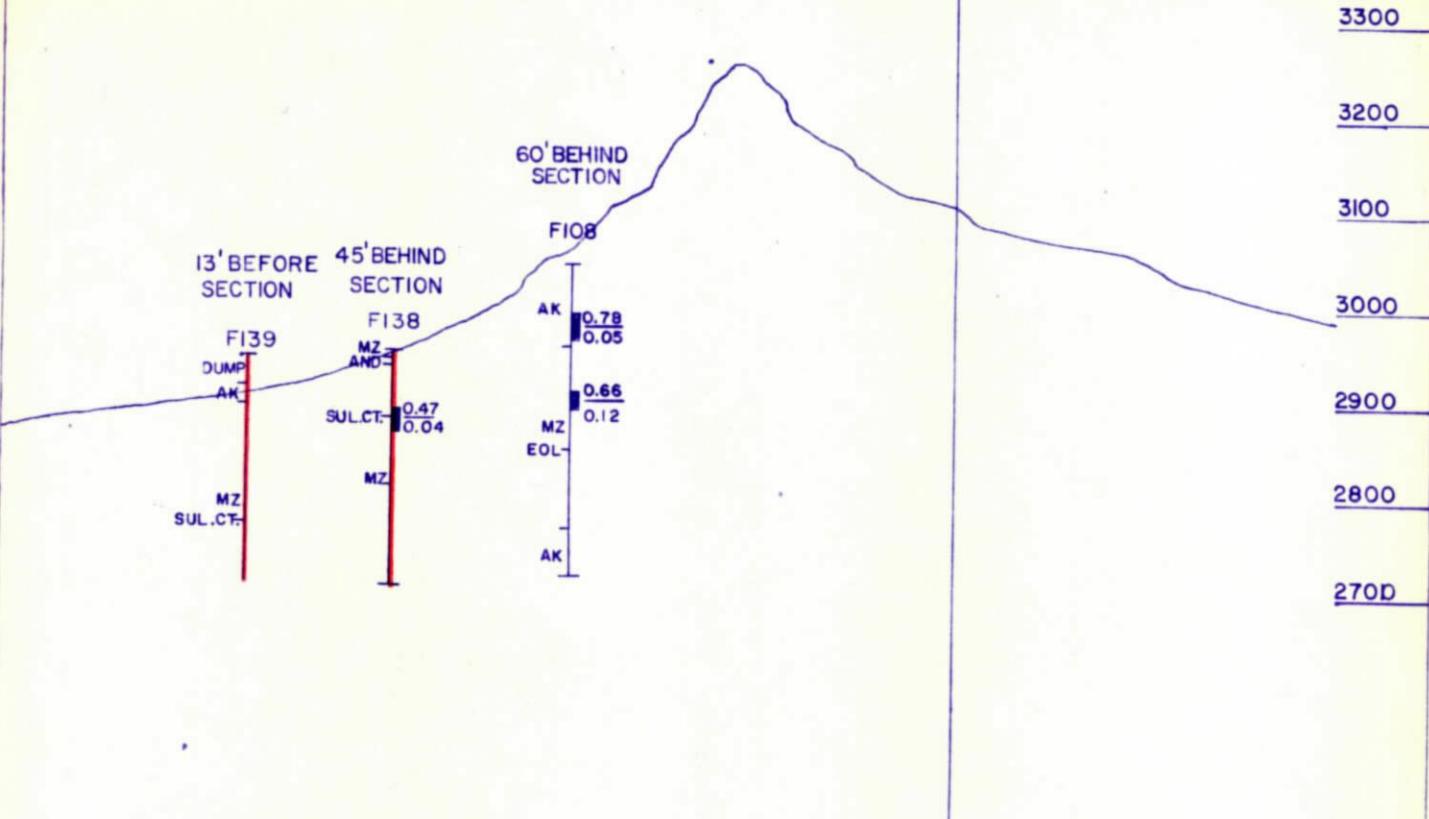
SECTION 24950 E
SECTION 27200 E



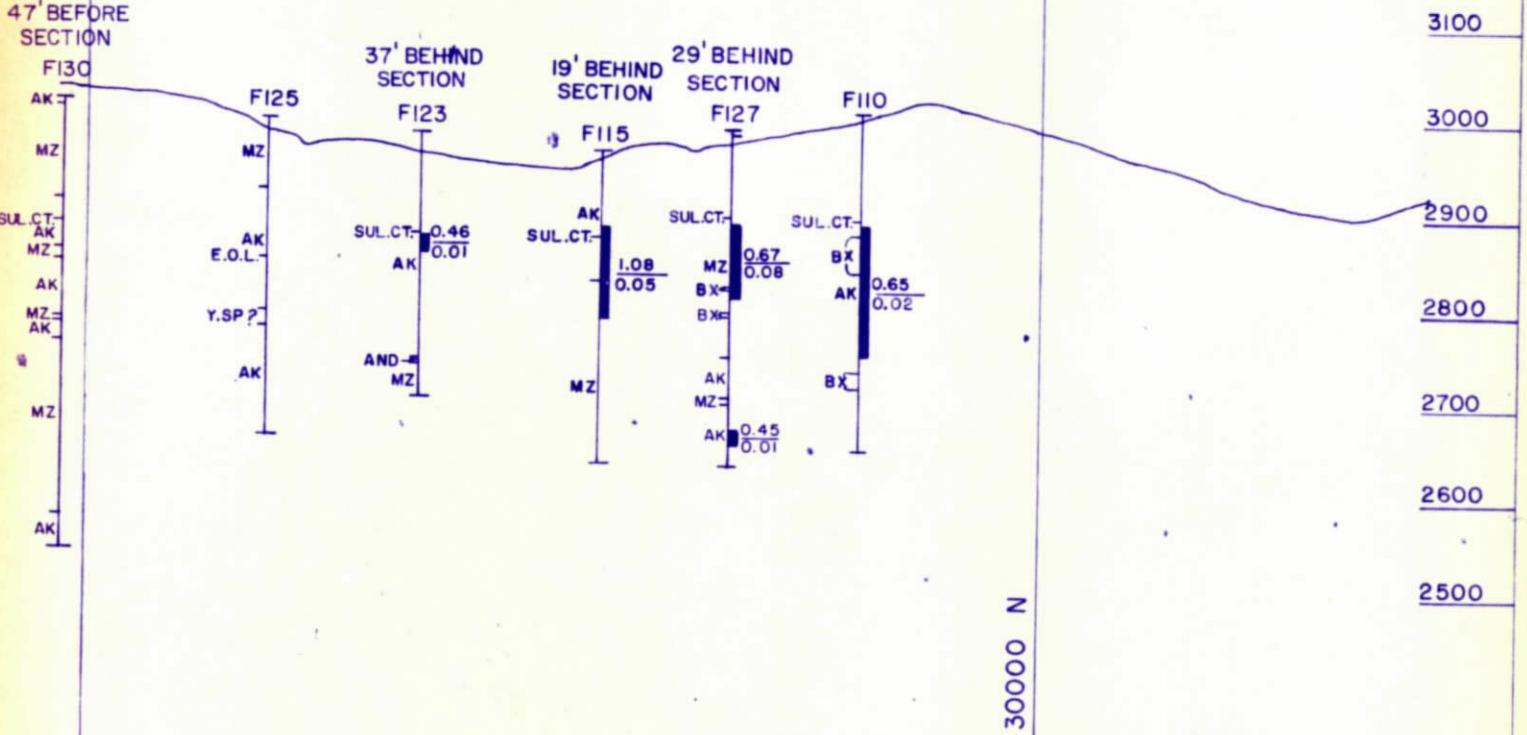
■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966	FILE S-121-A

S ————— N



SECTION 24800 E
SECTION 25400 E



30000 N

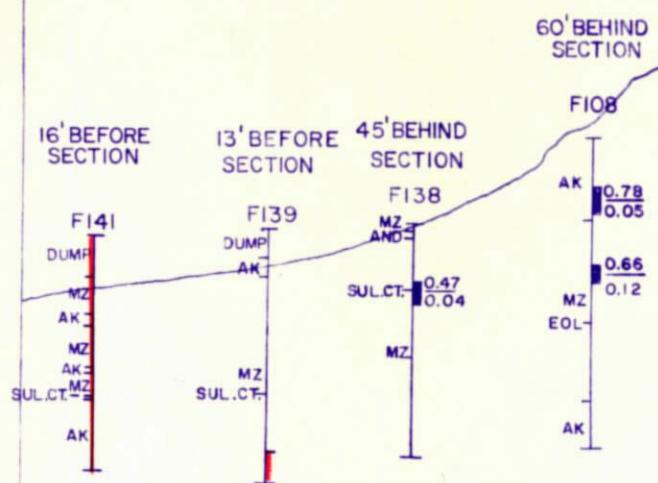
█ +0.4% Total Copper
█ Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966	FILE S-121-A

S ————— N

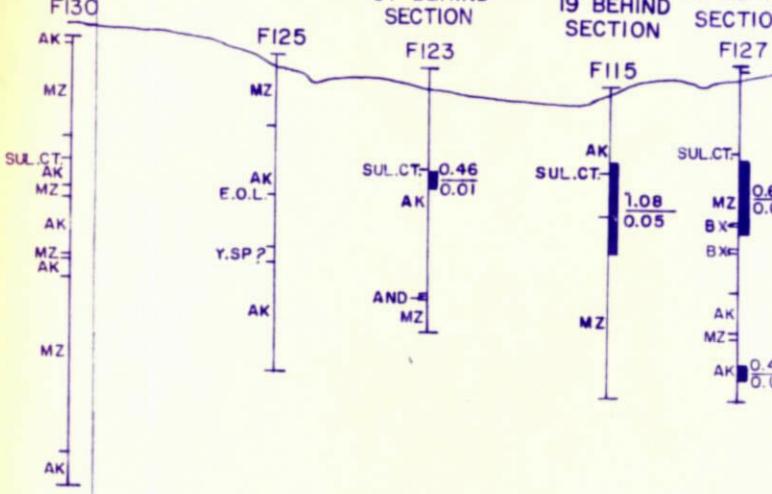
3300
3200
3100
3000
2900
2800
2700

3100
3000
2900
2800
2700
2600
2500



SECTION 24800 E
SECTION 25400 E

47' BEFORE SECTION



30000 N

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE MAR 1966	FILE S-121-A

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

S ————— N

3100

3000

2900

2800

2700

2600

2500

59' BEHIND SECTION

21' BEFORE SECTION

F59

F57

SUL.CT. 0.56
MZ 0.06

MZ 0.58
SUL.CT. 0.06
SP
MZ
SP

SECTION 29000 E
SECTION 26150 E

3000

2900

2800

2700

2600

2500

2400

57' BEHIND SECTION

F142

BX
HF
MZ
SUL.CT.
SP

MZ

HF 0.47
0.02

SP

HF 0.50
0.02

QT

30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

█ +0.4% Total Copper
█ Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

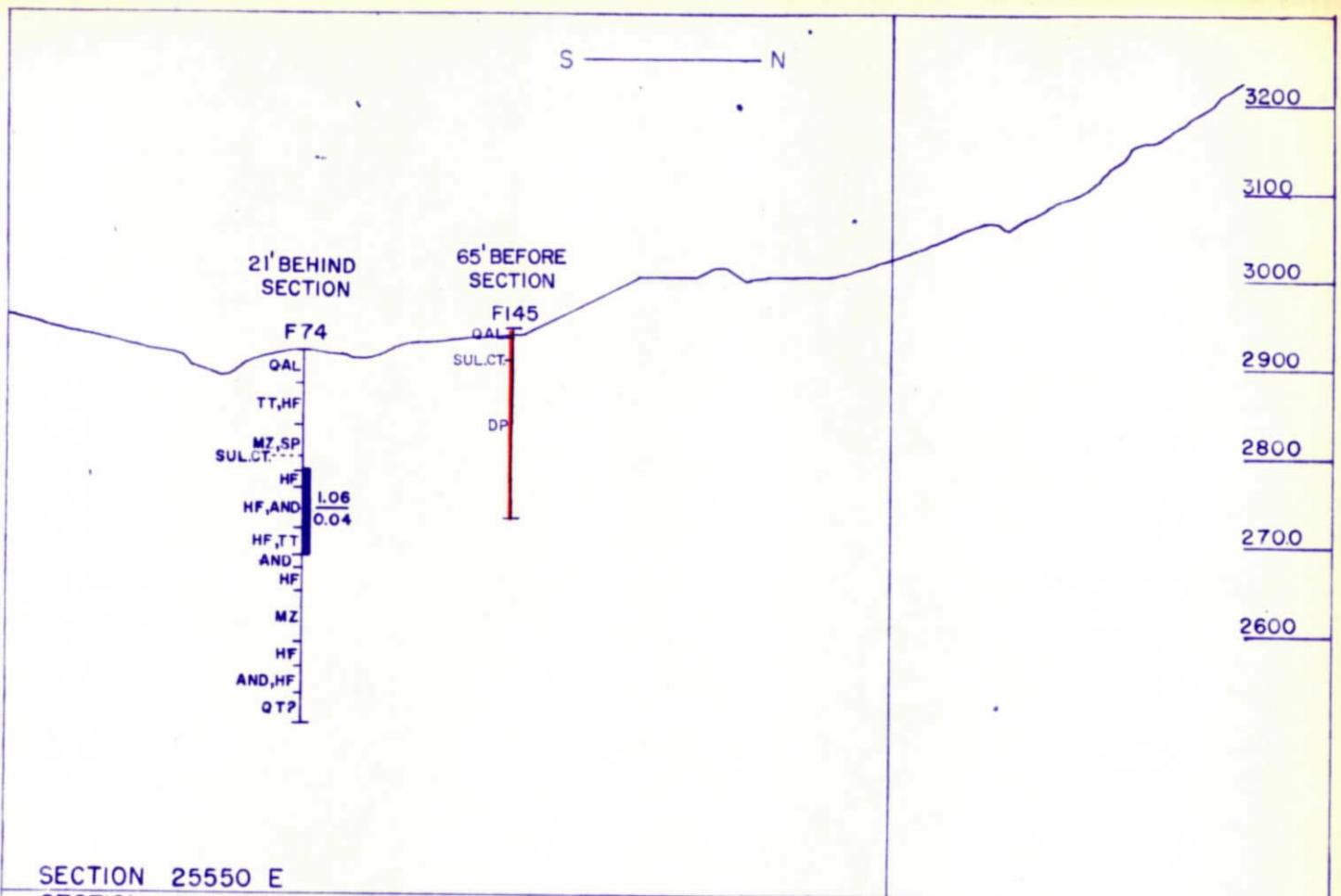
SCALE
1" = 200'

DRAWN
CWH

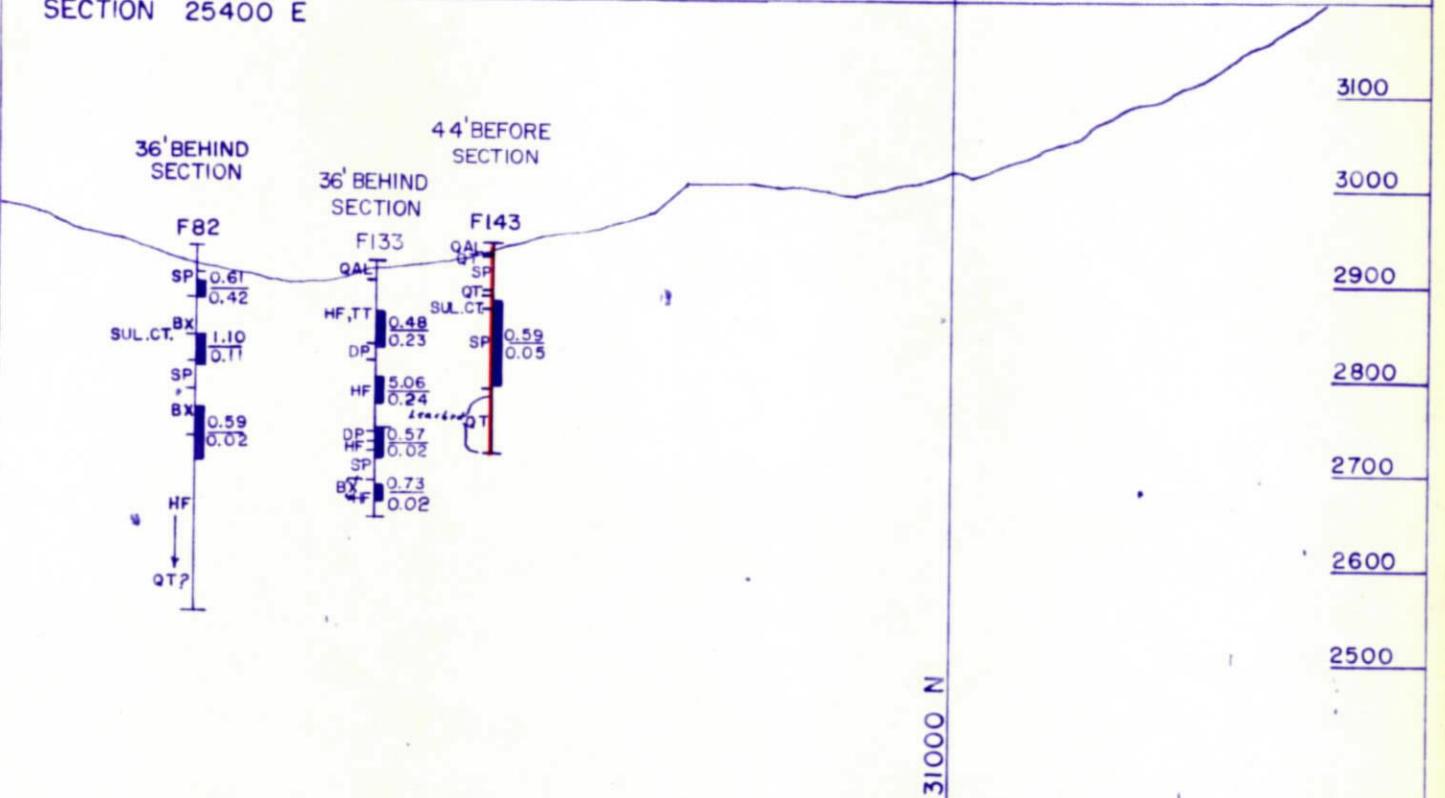
DATE
MAR 1966

FILE
S-121-A

S ————— N

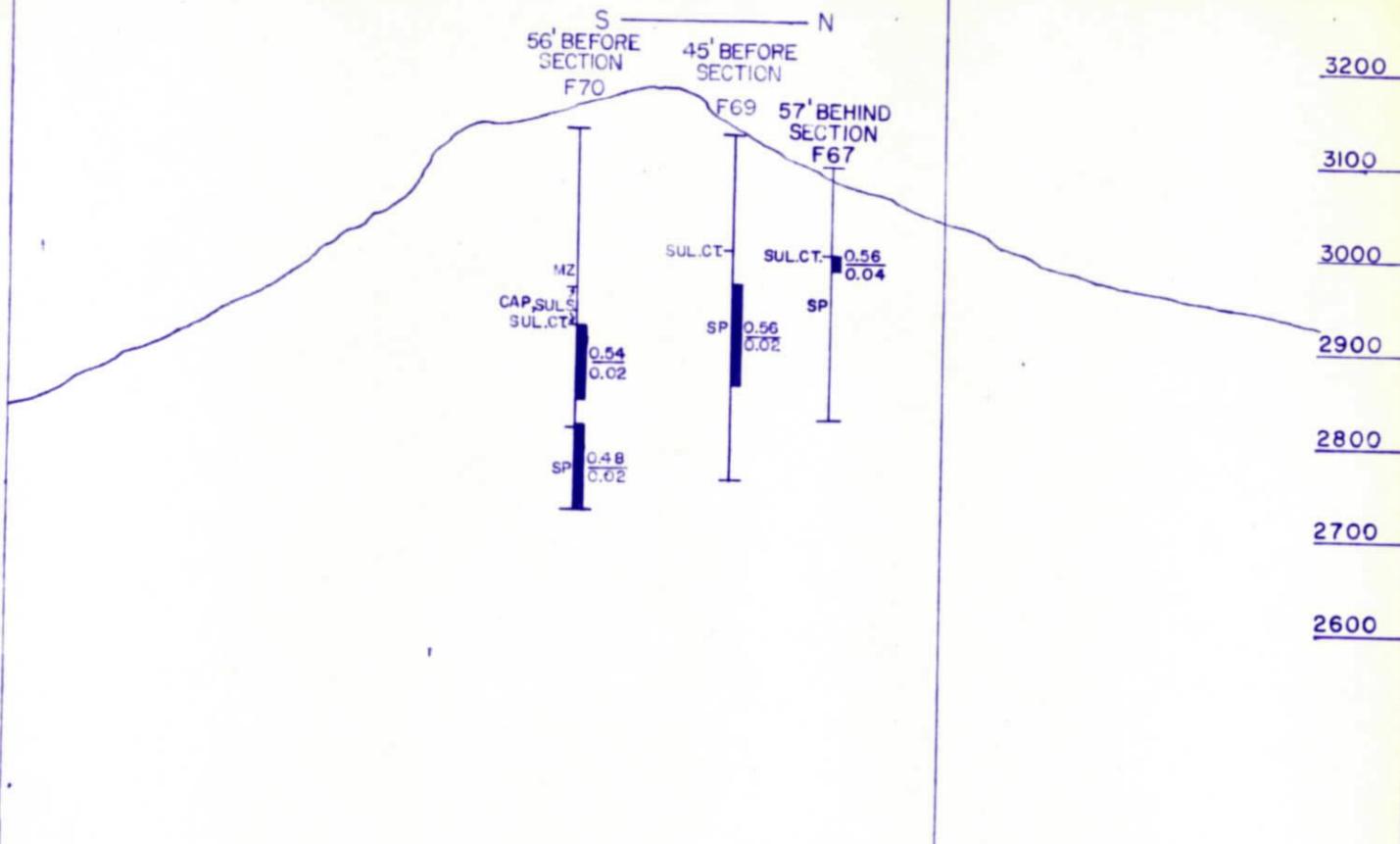


SECTION 25550 E
SECTION 25400 E



■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE MAR 1966	FILE S-121- A



SECTION 29150 E
SECTION 24200 E



■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE MAR 1966	FILE S-121-A

S ————— N

3200

3100

3000

2900

2800

2700

2600

16' BEFORE SECTION

F102

SUL.CT- 0.41
0.14
MZ 0.56
0.10

40' BEHIND SECTION

F87

QAL
SLTST
SP 0.92
HF 0.65
SP, HF
HF 0.53
0.40
SP 0.50
0.03

BX. SEDS

HF
SP
HF

48' BEFORE SECTION

F146

HF, QT
QT
SUL.CT- 0.64
SP 0.13
HF, QT
MZ
QT

SECTION 25250 E
SECTION 24950 E

3100

3000

2900

2800

2700

2600

2500

72' BEHIND SECTION

F89

QT 0.49
HF 0.16
MB, SP
HF
SUL.CT- 0.44
0.05
SLTST
HF

65' BEHIND SECTION

F90

QAL
HF
QT
HF
SUL.CT-
TT
HF
TT
QT

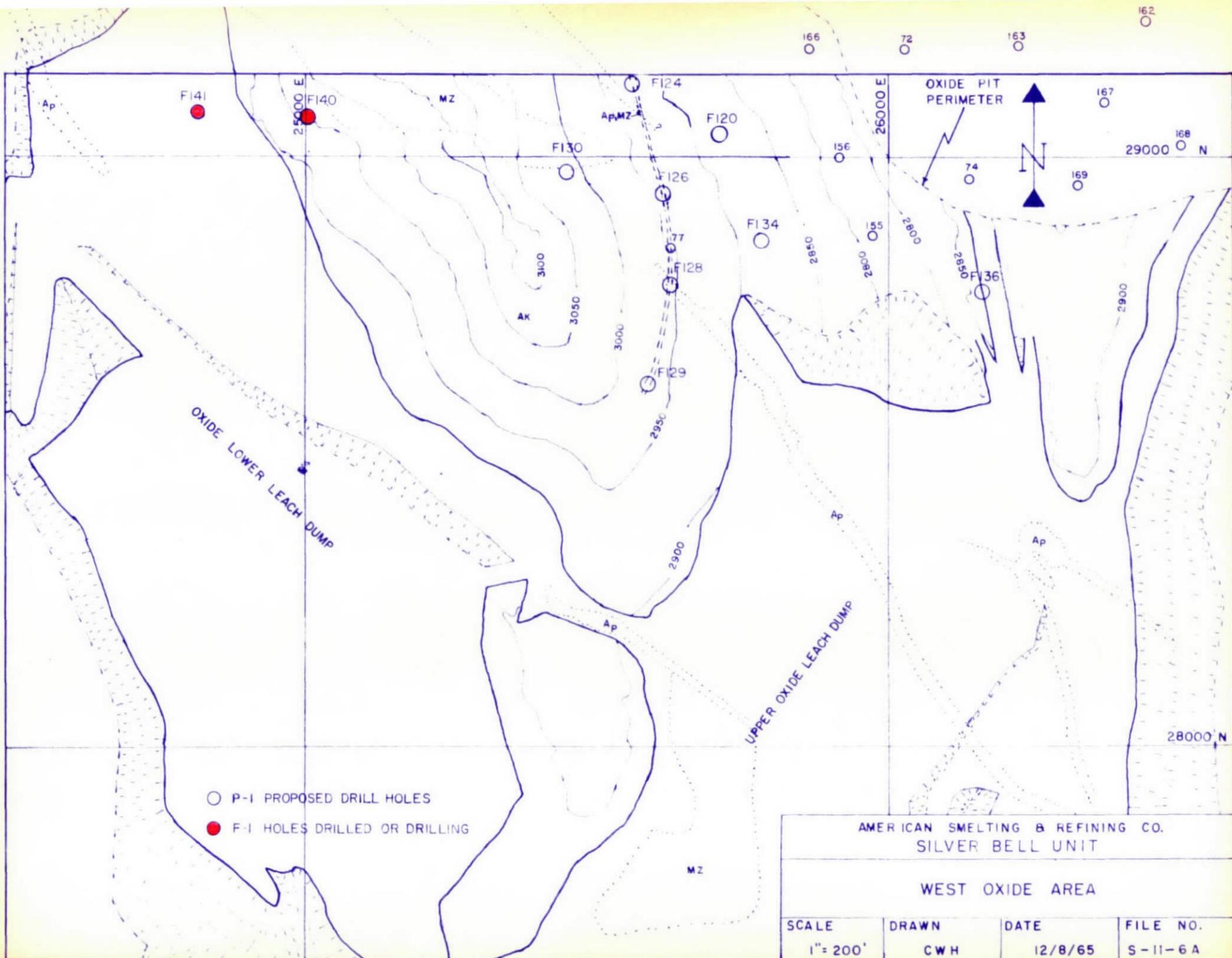
31000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4 % Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

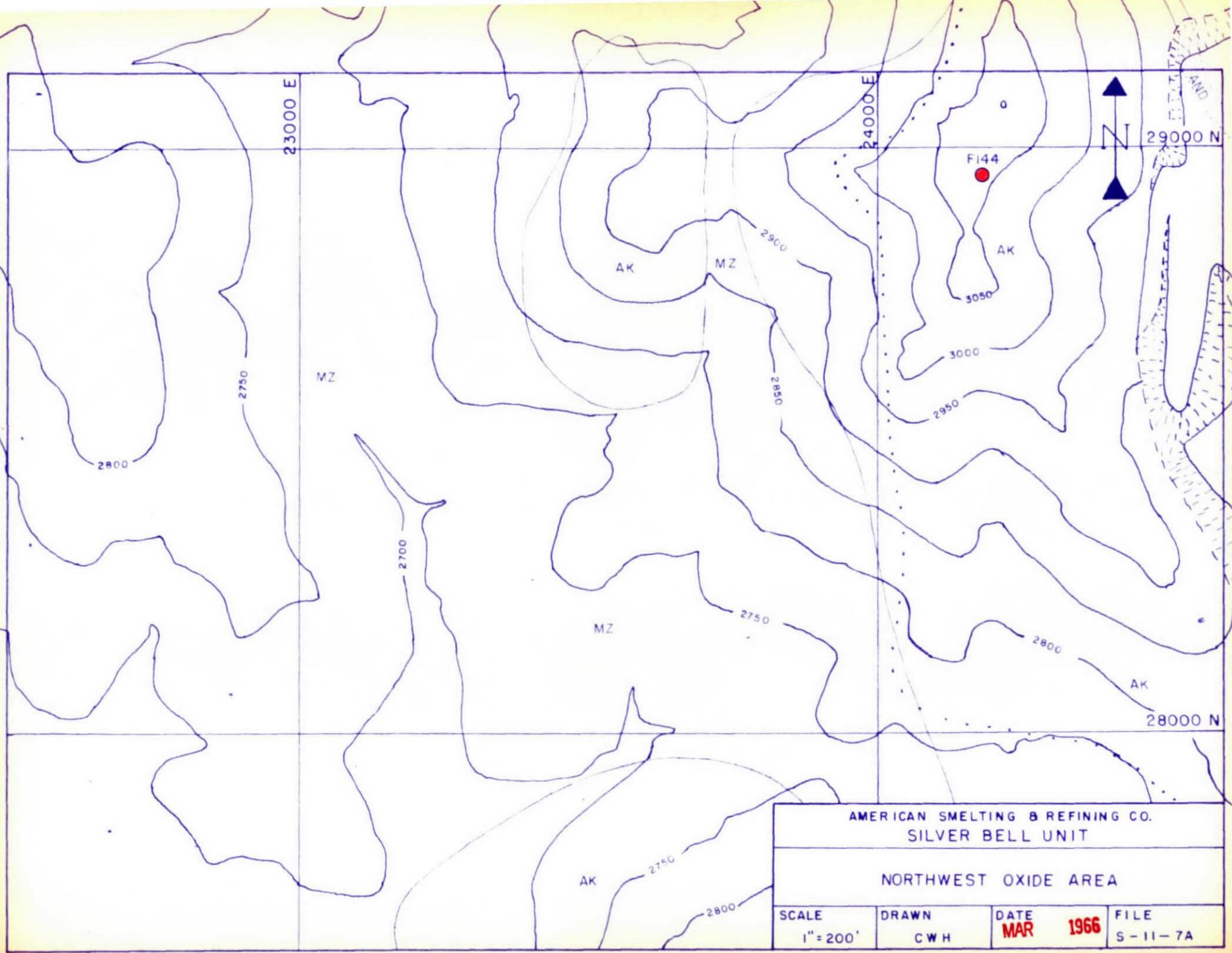
SCALE 1" = 200'	DRAWN CWH	DATE MAR 1966	FILE S-121- A
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- P-I PROPOSED DRILL HOLES
- F-I HOLES DRILLED OR DRILLING

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
WEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE NO.
1" = 200'	CWH	12/8/65	S-11-6A

MAD 1965

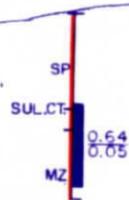


W ————— E

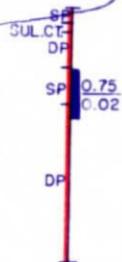
3000
2900
2800
2700
2600
2500
2400

14' BEHIND SECTION

D177



D176



SECTION 39740 N

18000 E

17000 E

+0.4 % Total Copper
 Advance_z for month
 Note : Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
EL TIRO AREA			
DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	MAR 1966	S-121- A

W ————— E

77' BEHIND
SECTION
D178

SP
BX
DP

3100

3000

2900

2800

2700

2600

2500

SECTION 39580 N

19000 E

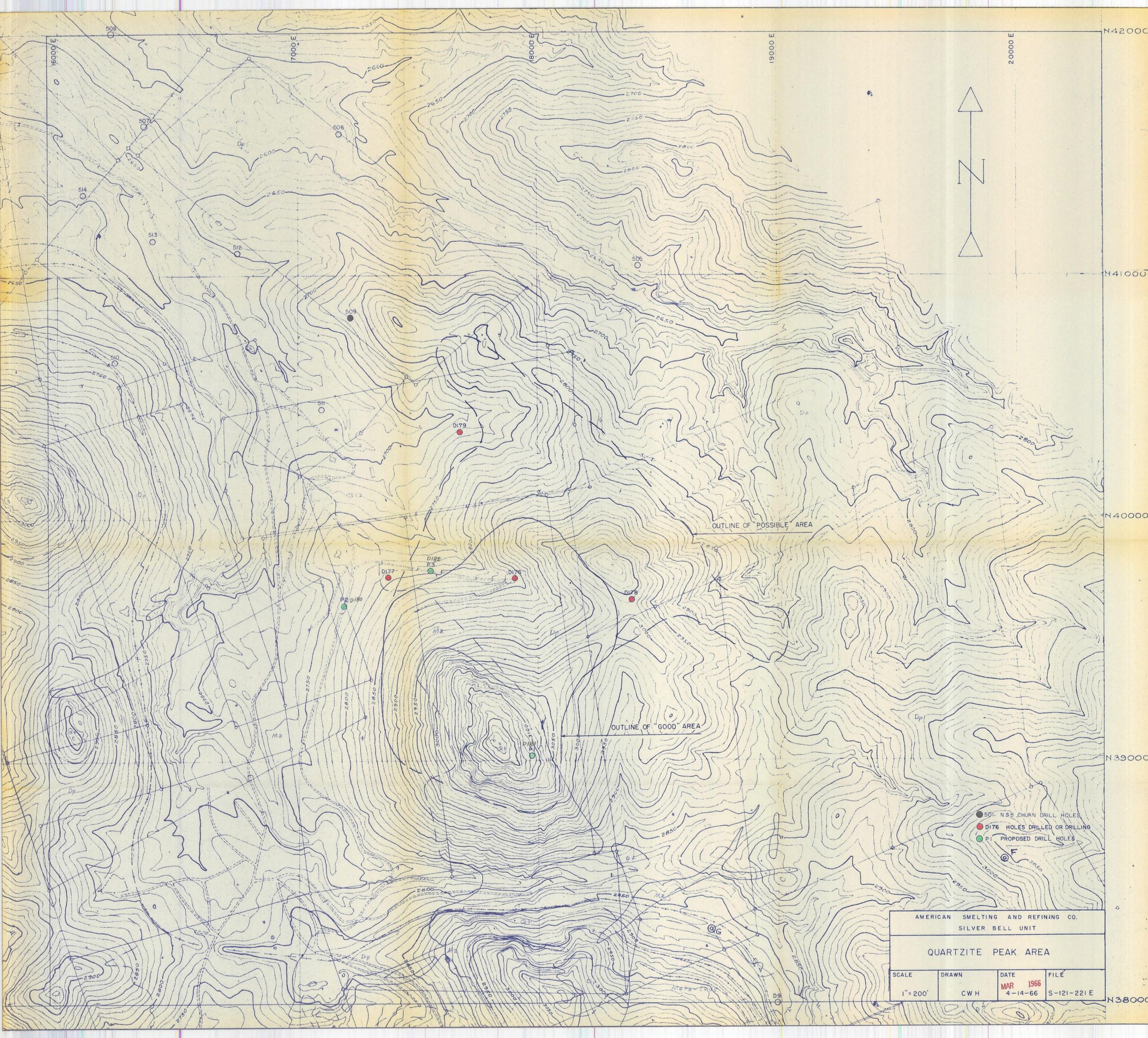
■ + 0.4 % Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

18000 E

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

EL TIRO AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE MAR 1966	FILE S-121- A
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OUTLINE OF "POSSIBLE" AREA

OUTLINE OF "GOOD" AREA

- 501 NSB CHURN DRILL HOLES
- D176 HOLES DRILLED OR DRILLING
- P1 PROPOSED DRILL HOLES

AMERICAN SMELTING AND REFINING CO. SILVER BELL UNIT			
QUARTZITE PEAK AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	MAR 1966 4-14-66	S-121-221 E

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

J. H. C.

February 15, 1966

FEB 28 1966

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING.

The following report briefly summarizes the results of the diamond drilling in the western Oxide area during the month of January, 1966.

Hole F-127 started the month at 5.0 feet and drilled monzonite to 239.1 feet and alaskite to the bottom at 356.1 feet. Post-mineral brecciation was found from 166 to 169, 192 to 198, and 301 to 305. The sulfide contact was at 92. Sulfides were moderate from 100 to 178, and weak from 317 to 333.

Hole F-128 was collared and cored alaskite to the bottom at 410.0, except for the two thin monzonite dikes from 251.1 to 259.4 and from 261.1 to 274.4. The sulfide contact was at 96 but mineralization was sparse throughout the hole.

Hole F-129 penetrated alaskite and monzonite to 313.6 and then younger syenodiorite (?) to the bottom at 354.0. The sulfide contact was at 156, but mineralization was sparse throughout.

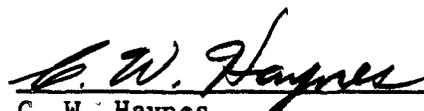
Hole F-130 went through numerous monzonite and alaskite intercepts from the collar to the bottom at 475.0. The sulfide contact was at 129, but mineralization was sparse in this hole also.

Hole F-131 rock bitted to 18.0 in stream gravels and then cored hornfels to 84.2, quartzite to 192.2, tactite to 245.4, and quartzite again to the bottom at 270.3. Leaching was found almost throughout the hole, but weak mixed chalcocite, malachite, and tenorite was measured from 18 to 92.

Hole F-132 collared in syenodiorite to 8.1, then drilled hornfels and tactite to the end of the month at 222.1 except for monzonite from 209.5 to 217.4. Post-mineral brecciation was found from 100 to 114. Chalcocite was the main copper mineral to 56, then chalcopyrite the rest of the way, except for fine-grained native copper from 100 to 141. Trace to sparse amounts of native copper continued to 209. Weak mixed sulfide and non-sulfide values were measured from 5 to 20. Weak sulfide and native copper were measured from 20 to 200.

Hole F-133 rockbitted through stream gravels to 20.7 and then cored hornfels and tactite to 87.7, dacite porphyry to 105, and hornfels to the end of the month at 176.4. Chalcocite constitutes more than one-half the sulfide copper mineralization to 188, then chalcopyrite predominates the rest of the way. Weak mixed sulfide and non-sulfide values were found from 54 to 91. Very strong sulfides, two-thirds as chalcocite, was found from 122 to 151.

January was not very productive of ore holes in the igneous rocks and margins of the ore body are being delineated. The holes in the sediments showed rather unusual mineralization and will require at least 2 more holes to find the limits of mineable ore in the northern part of the ore zone. Another month or two will probably be needed to complete the drilling needed for the development of this probable western extension to Oxide pit. The drills will then be moved to the North Butte-Danube area to the northwest of this area.



C. W. Haynes
Resident Geologist

CWH :jca

DIAMOND DRILLING IN THE OXIDE AREA

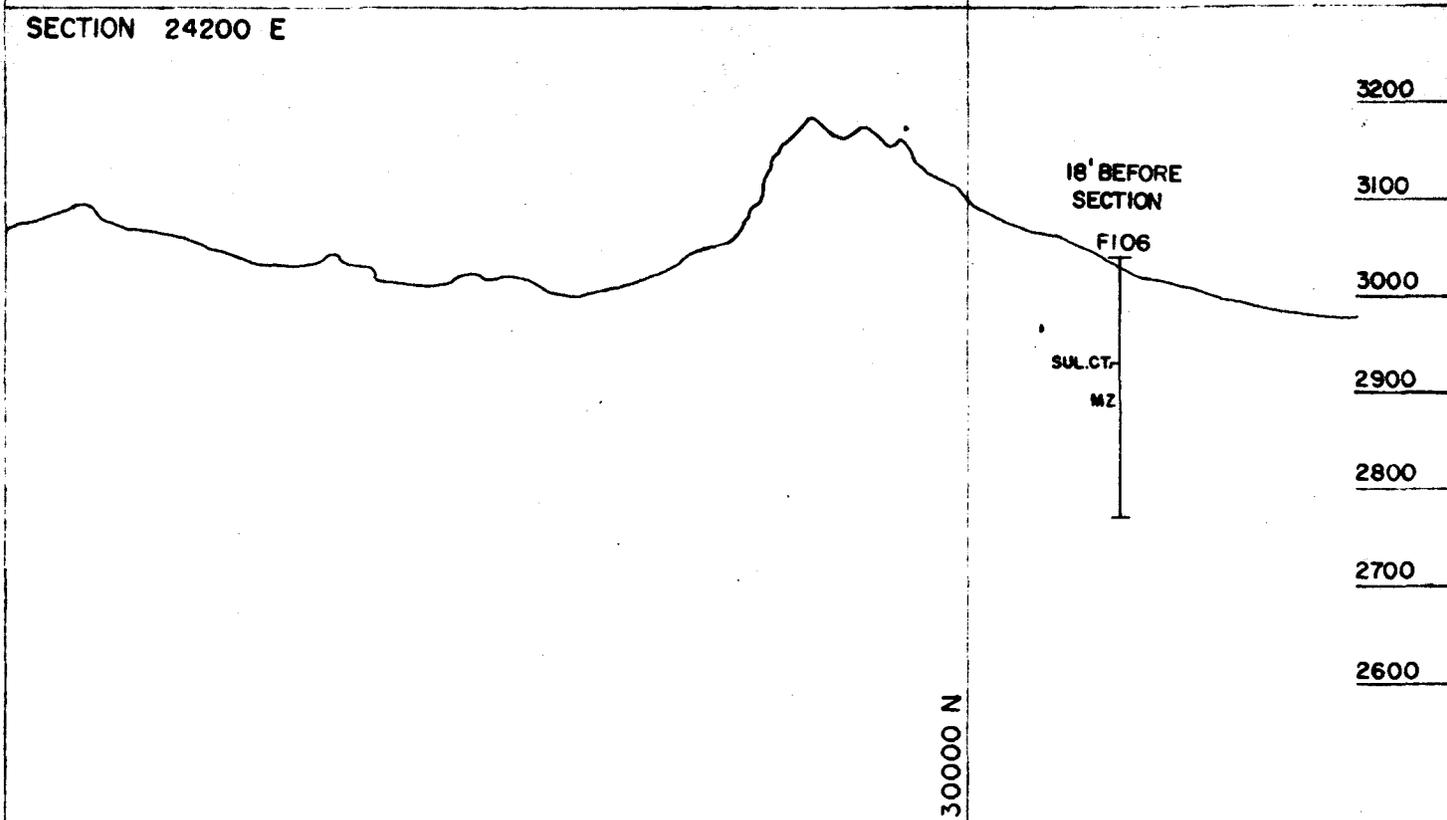
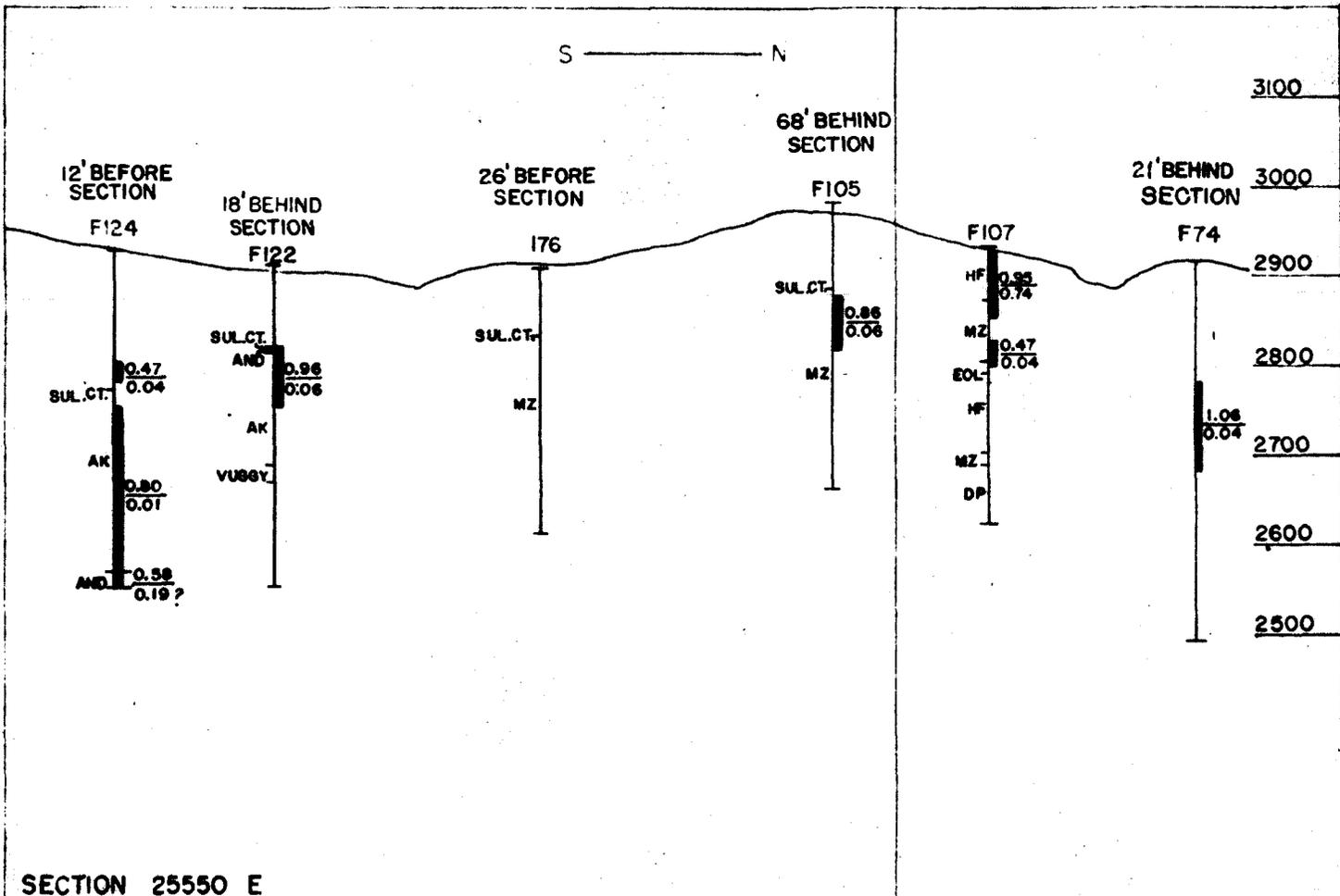
Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses		Avg. % Cu		Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
F-127	2990.9	29,676	25,371	99.5 - 178.2 317.4 - 333.2	78.7 15.8	0.67 0.45	0.08 0.01	351.1	356.1	356.1
F-128	2960.3	28,783	25,626	No ore runs				410.0	410.0	410.0
F-129	2969.5	28,616	25,589	No ore runs				354.0	354.0	354.0
F-130	3016.5	28,975	25,447	No ore runs				475.0	475.0	475.0
F-131	2881.4	30,283	25,679	18.0 - 91.8	73.8	0.57	0.21	270.3	270.3	270.3
F-132	2878.5	30,054	25,873	5.0 - 20.2 20.2 - 200.2	15.2 180.0	0.54 0.38	0.38 0.04	222.1	222.1	
F-133	2918.6	30,395	25,364	53.6 - 90.8 122.0 - 150.9	37.2 28.9	0.48 5.06	0.23 0.24	<u>176.4</u>	176.4	
TOTAL								<u>2,258.9</u>		

NOTE: An error was found in the coordinates of three holes reported on last month's report. The corrected coordinates are shown below. The corrected cross sections are attached.

	<u>Elevation</u>	<u>North</u>	<u>East</u>
F-122	2915.5	29,301	25,532
F-124	2927.5	29,122	25,562
F-126	2945.8	28,938	25,613

- - - - -

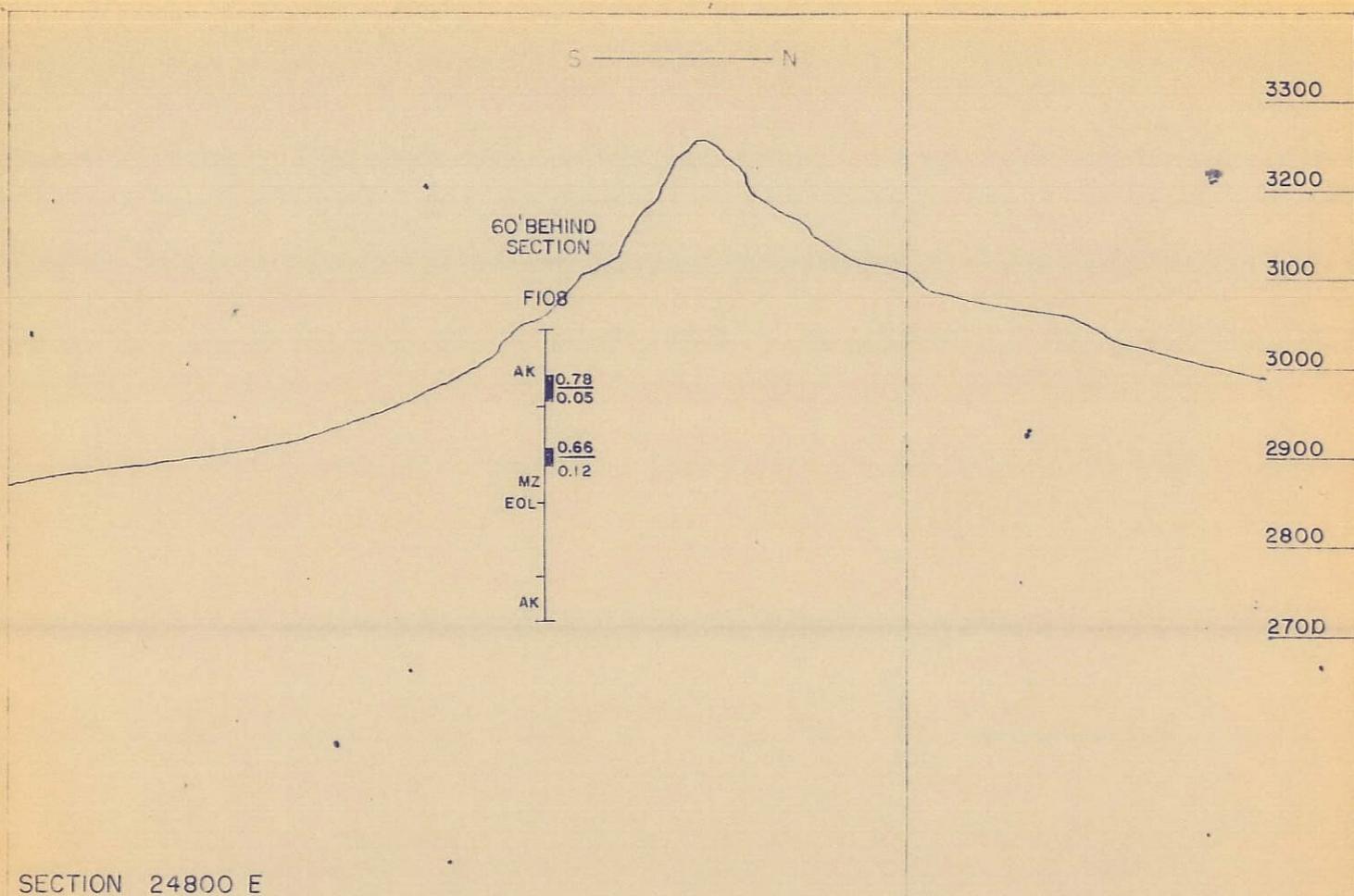
S ————— N



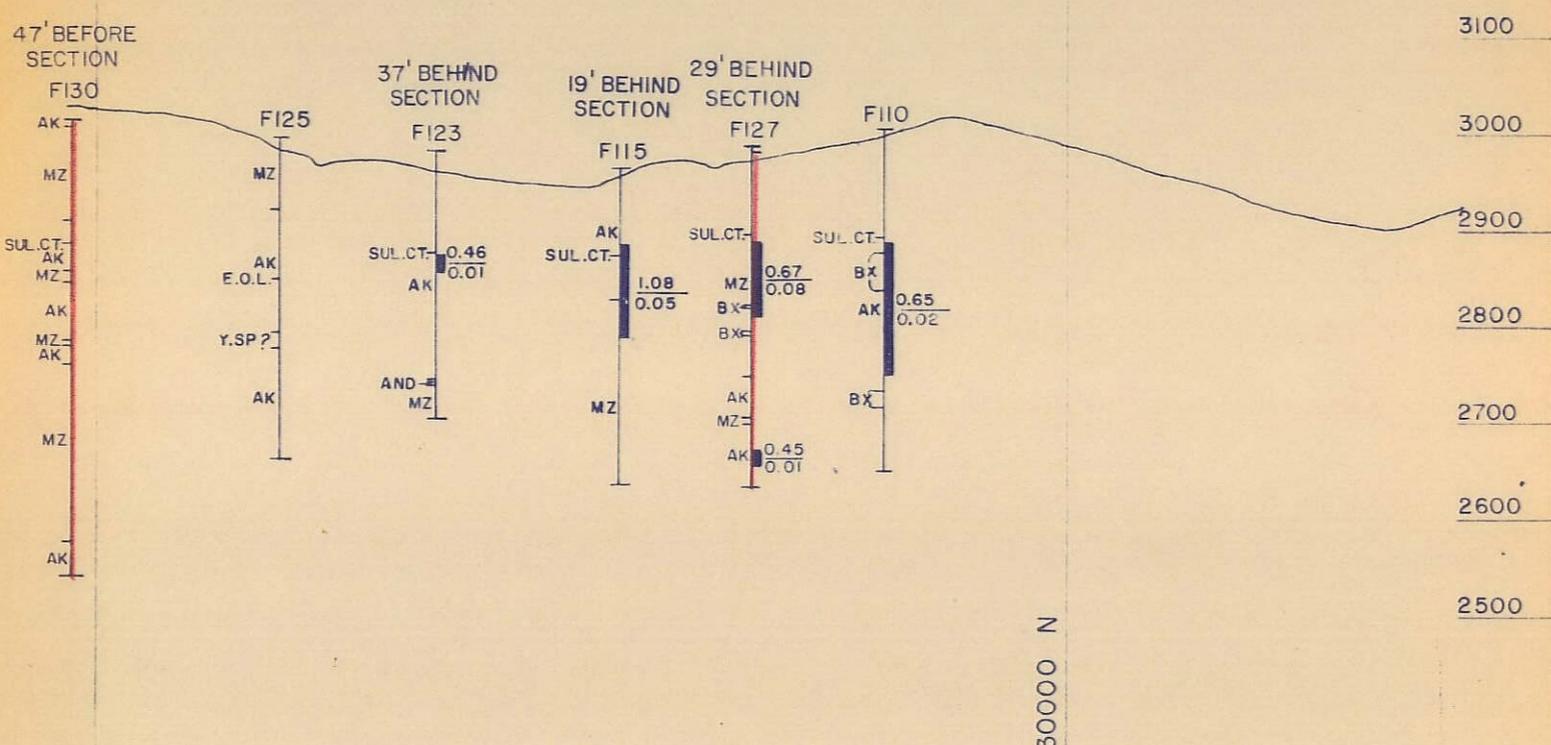
30000 N

■ +0.4% Total Copper Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966 JAN 1966	FILE S-121-A



SECTION 24800 E
SECTION 25400 E

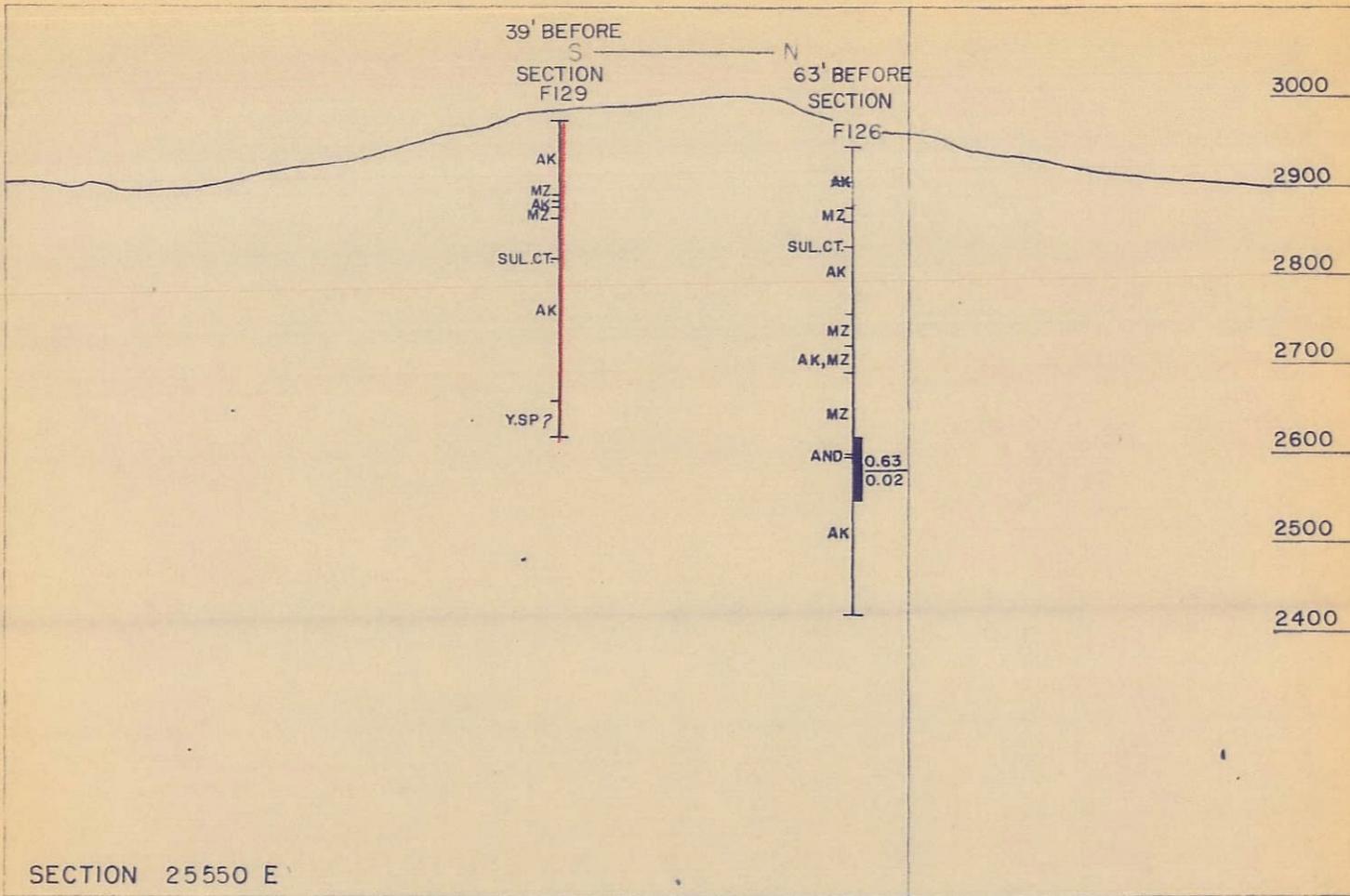


█ +0.4% Total Copper
Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu/Non Sul. Cu

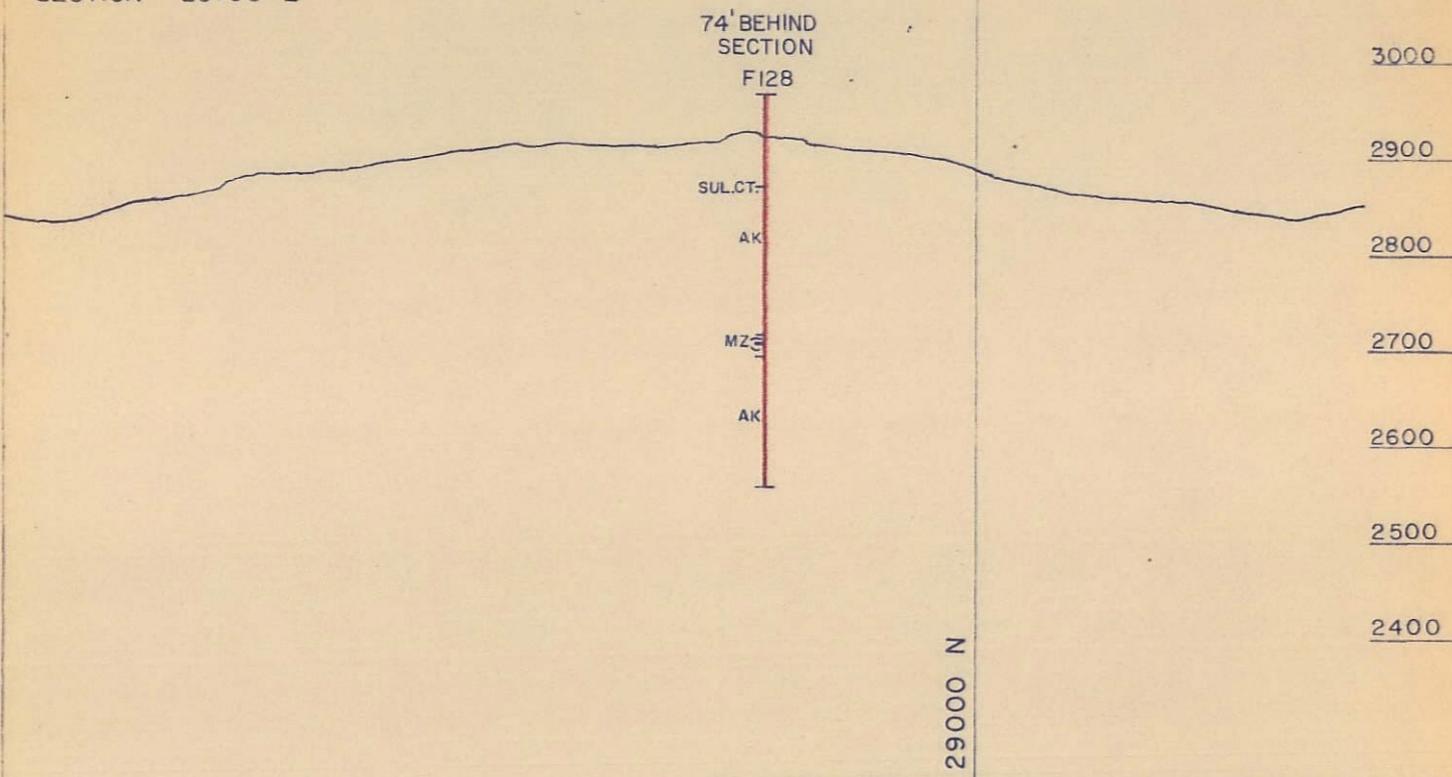
AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE FEB 1966 JAN 1966	FILE S-121-A
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SECTION 25550 E
SECTION 25700 E



█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

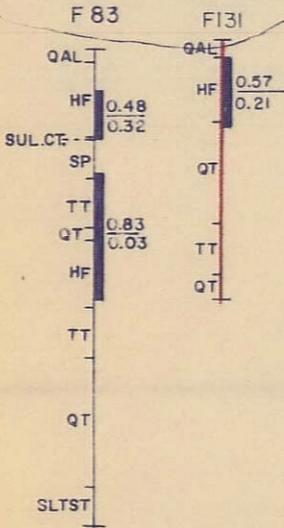
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JAN 1966	FILE S-121-A
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S ————— N

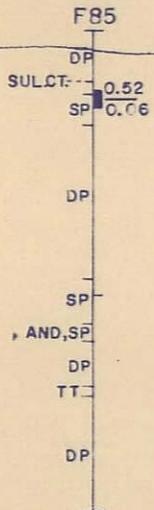
21' BEHIND SECTION

52' BEFORE SECTION



SECTION 25700 E
SECTION 26000 E

70' BEHIND SECTION



31000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu/Non Sul. Cu

SCALE

DRAWN

DATE

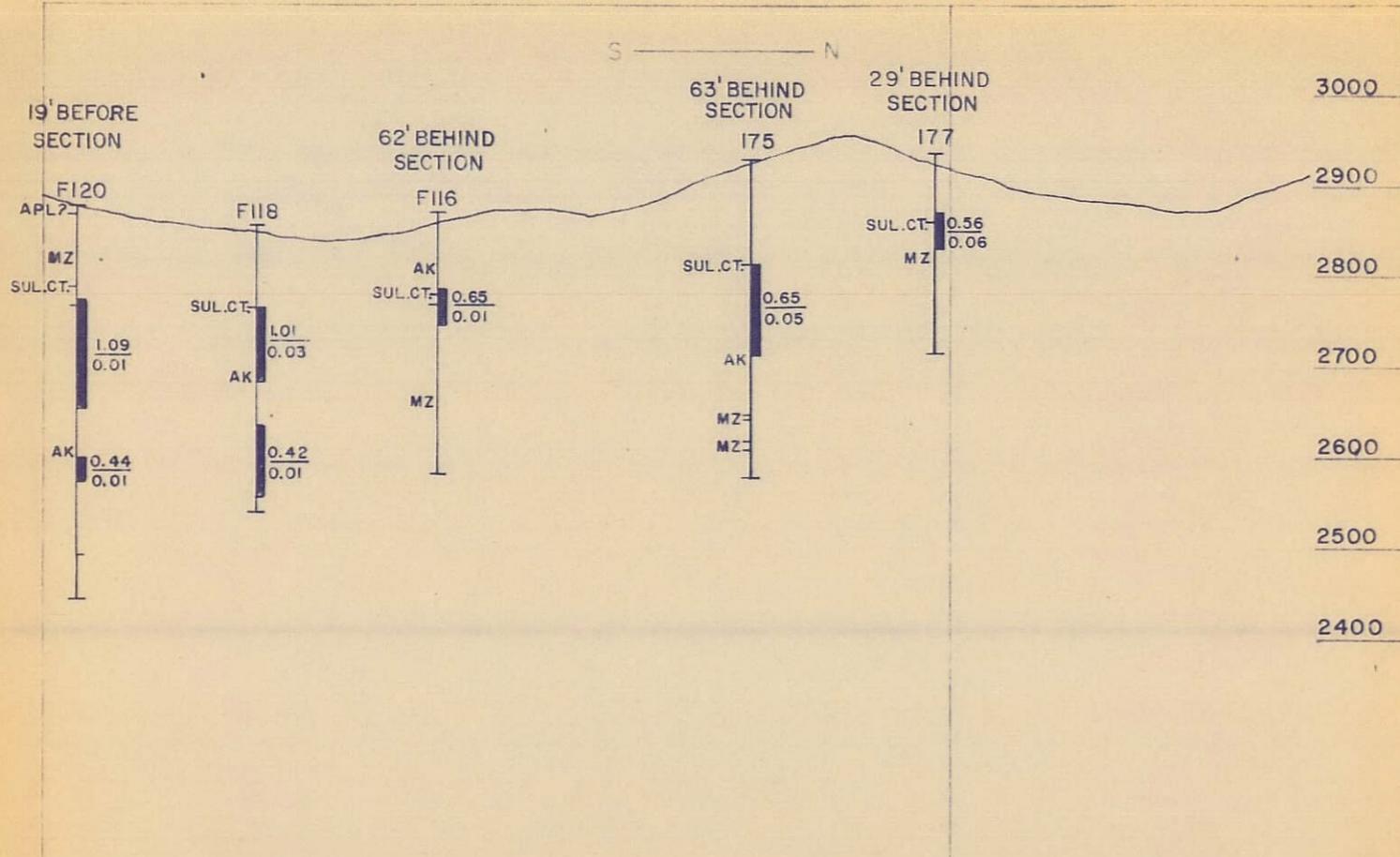
FILE

1" = 200'

CWH

JAN 1966

S-121- A



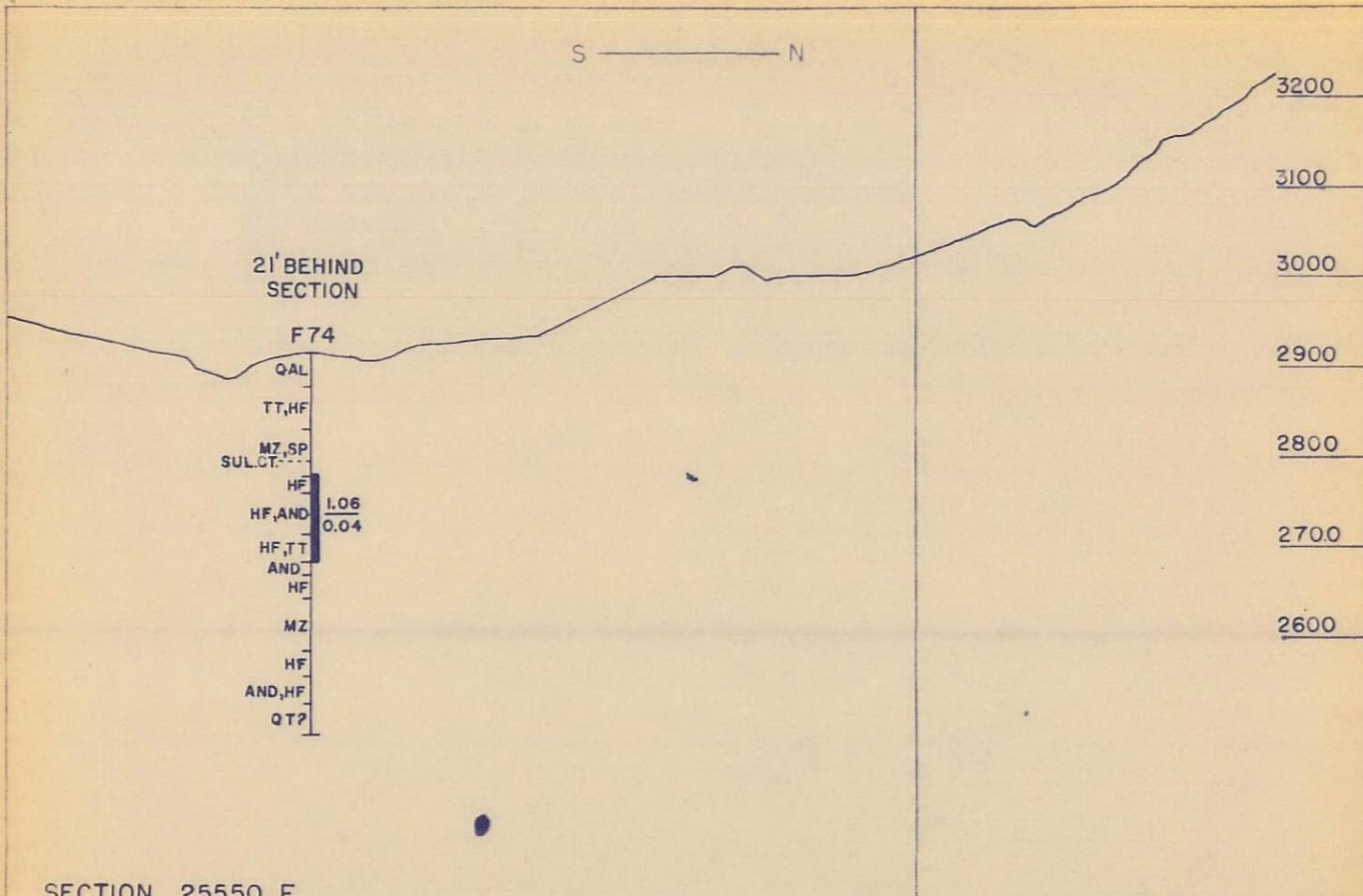
█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

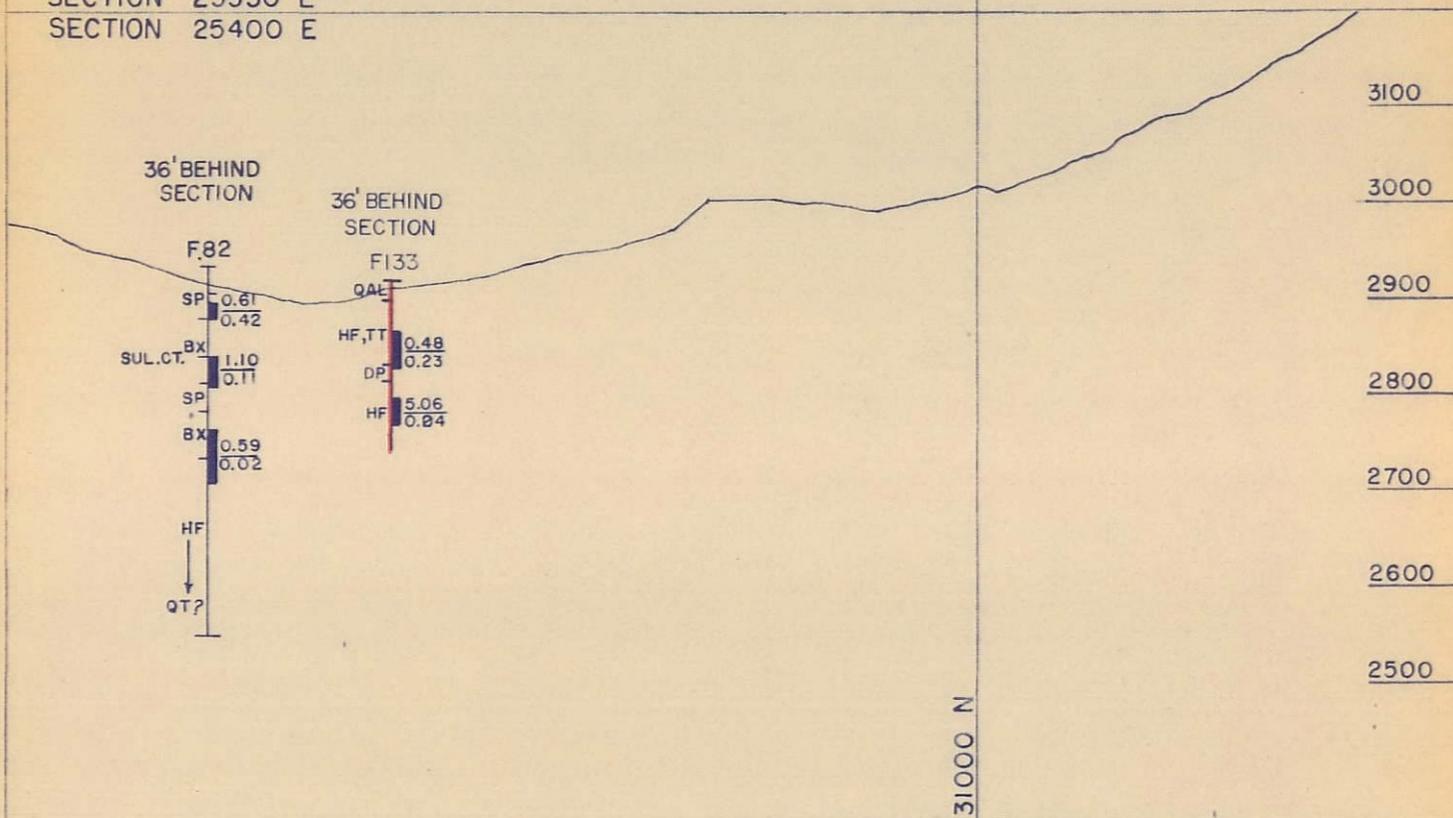
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JAN 1966	FILE S-121-A
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S ————— N



SECTION 25550 E
SECTION 25400 E

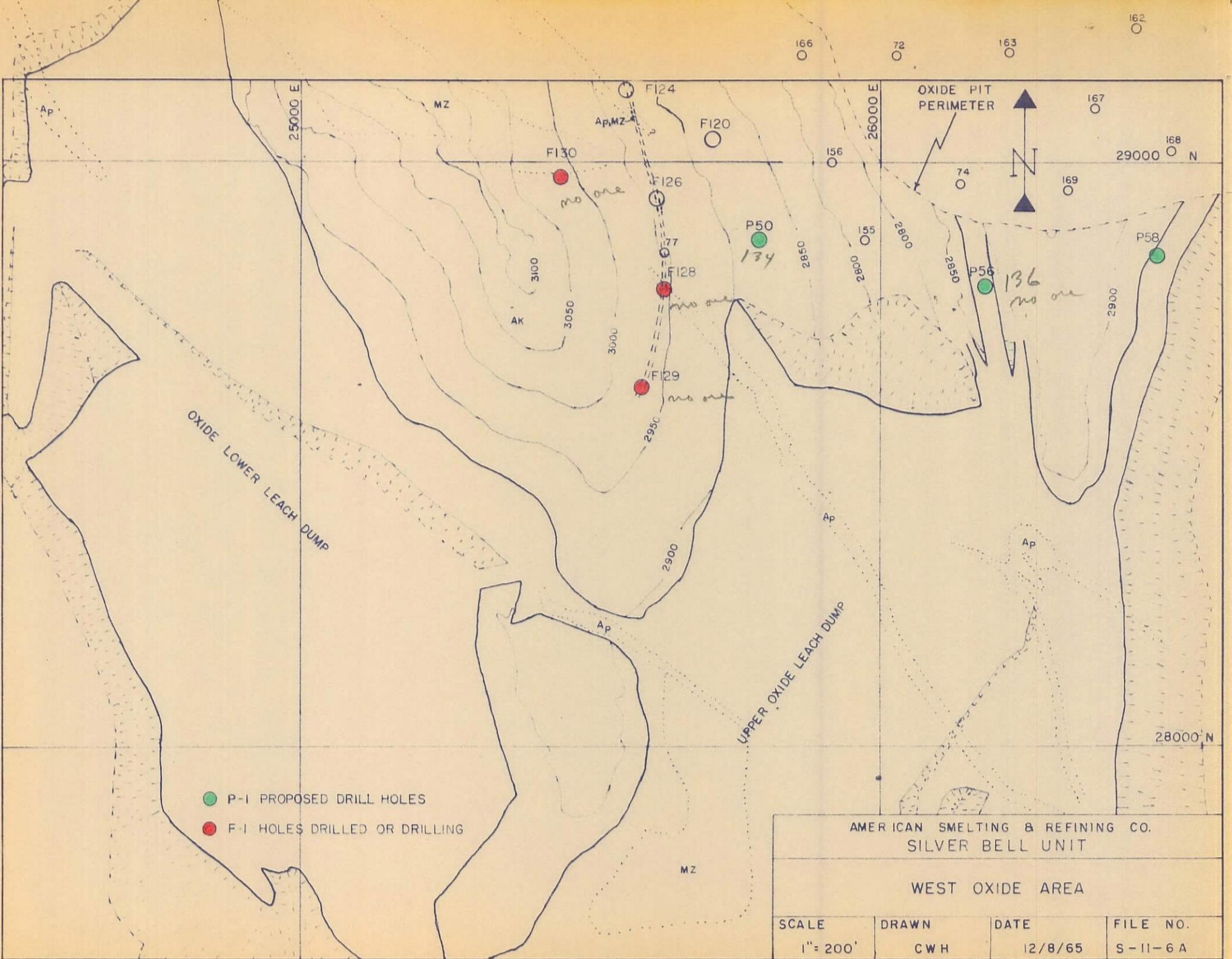


■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

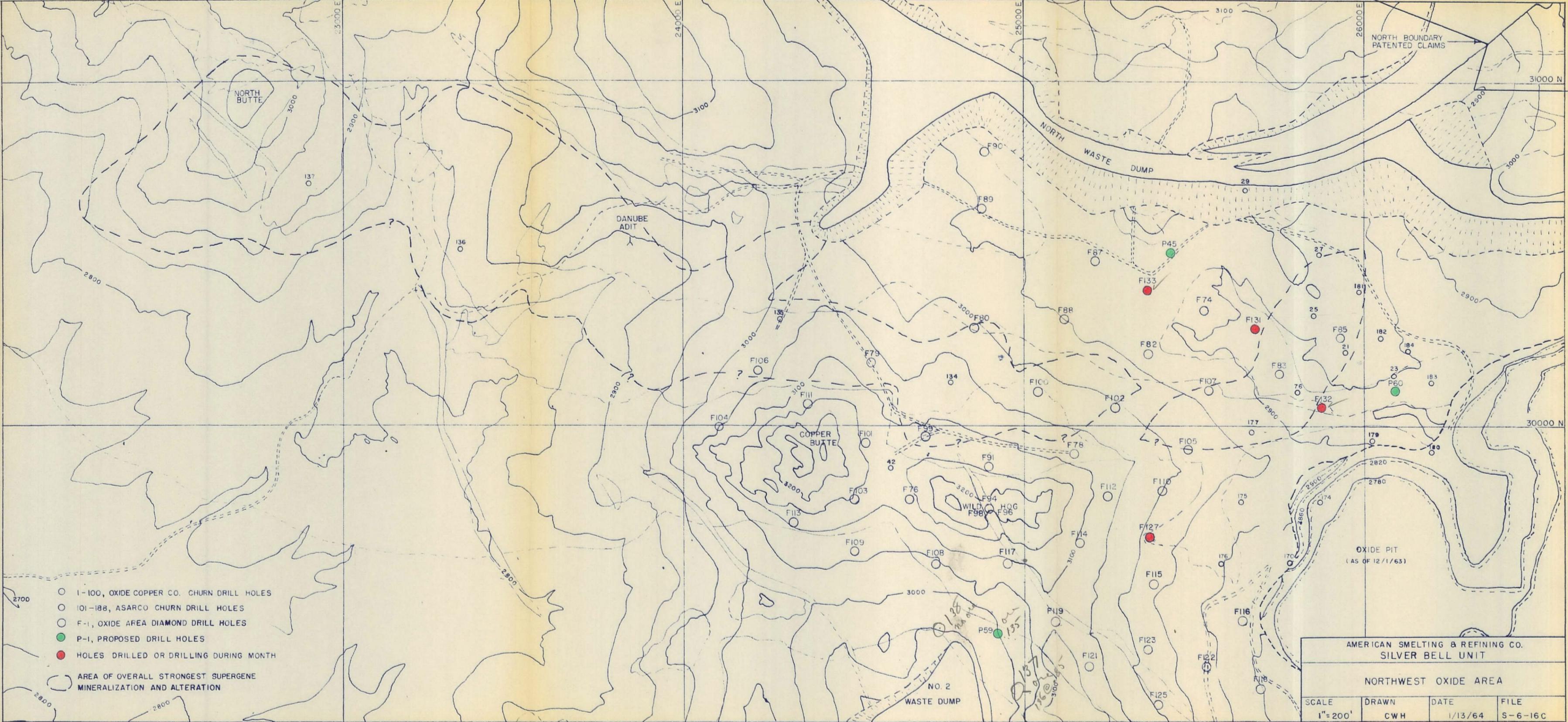
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JAN 1966	S-121- A



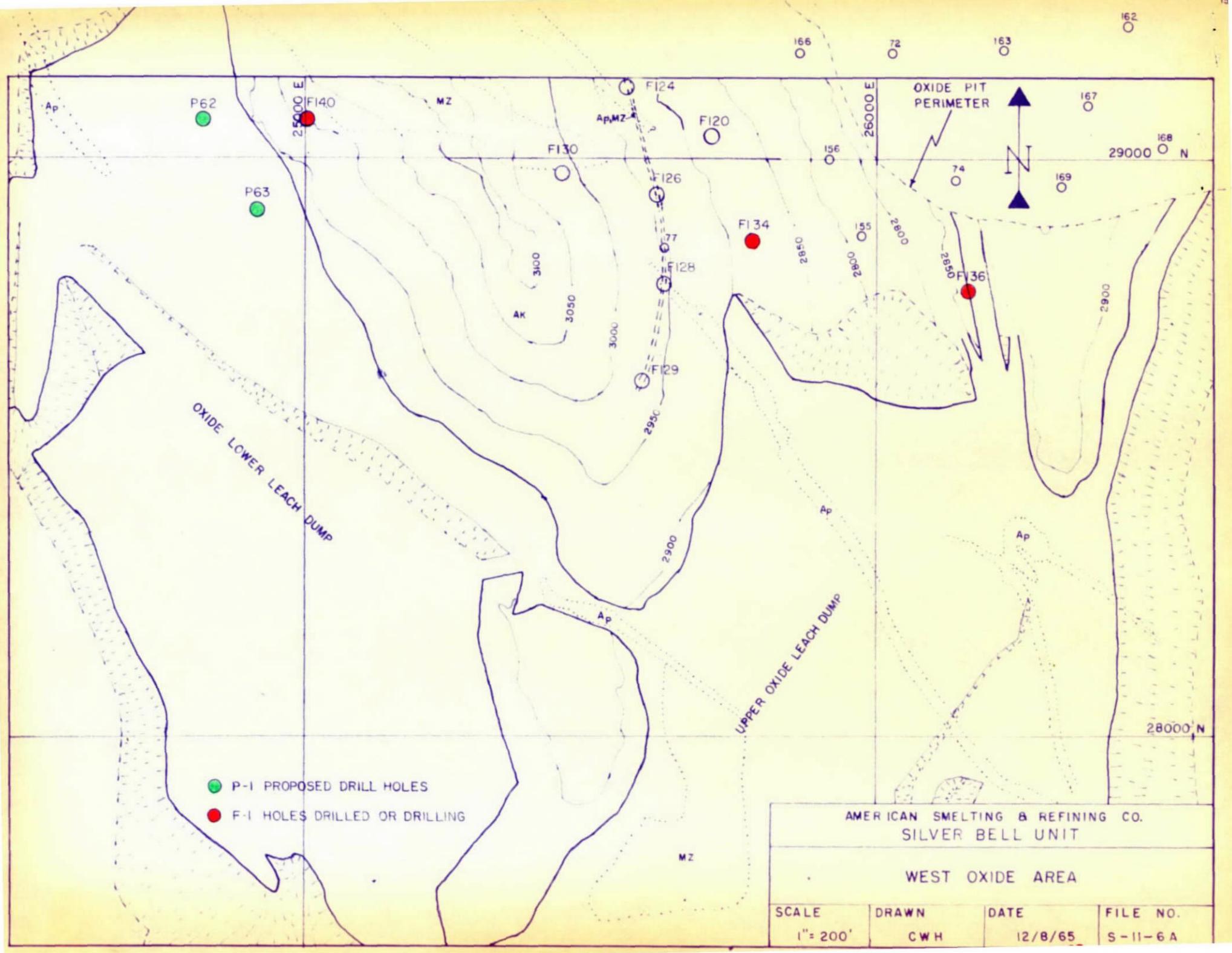
AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
WEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE NO.
1" = 200'	CWH	12/8/65	S-11-6A

JAN 1966



- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
NORTHWEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	1/13/64	S-6-16C



- P-I PROPOSED DRILL HOLES
- F-I HOLES DRILLED OR DRILLING

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
WEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE NO.
1" = 200'	CWH	12/8/65	S-11-6A

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

December 28, 1965

Mr. J. H. Courtright, Chief Geologist
Southwestern Mining Department
American Smelting and Refining Company
P. O. Box 5795
Tucson, Arizona 85703

SILVER BELL UNIT
MONTHLY DRILLING REPORT

Dear Sir:

Enclosed is your copy of Silver Bell Unit's Monthly
Drilling Report for the month of November, 1965.

Very truly yours,

D. R. Jameson
D. R. JAMESON
Superintendent

RLM/O

Encl.

cc: RBMeen

To: Mr. J. A. Courtright
Chief Geologist
Tucson office

Harold: Note new $8\frac{1}{2} \times 11$ "
Plan map.

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

December 15, 1965

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING

The following report briefly summarizes the results of the diamond drilling in the Oxide area during the month of November, 1965.

Hole F-114 started the month at 254.5 feet and bottomed at 420.9 feet. The advance was in alaskite except for a post-mineral andesite dike from 367.0 to 383.2. Brecciation was strong from 225 to 259 and from 268 to 277. This may have been caused by pre-mineral faulting. Chalcocite was moderate from 291 to 367.

Hole F-115 was collared and drilled alaskite to 147.5 and then monzonite to the bottom at 328.7. The sulfide contact was at 73. Strong chalcocite was measured from 79 to 175.

Hole F-116 cored alaskite to 102.0 and then monzonite to the bottom at 290.4. The sulfide contact was at 90. Moderate copper values were found from 84 to 126. Once again a sharp decrease in copper assays was noticed with the change in rock type from alaskite to monzonite.

Hole F-117 penetrated alaskite from the top to the bottom at 430.1. Strong brecciation - possible pre-mineral faults - was noted from 54 to 67 and from 77 to 87. The sulfide contact was at 106. Chalcocite with chalcopyrite was moderate from 105 to 272 and weak from 340 to 414.

Hole F-118 also drilled alaskite from the top to the bottom at 317.0. The sulfide contact was at 92. Copper values were strong from 92 to 174 and weak from 222 to 302.

Hole F-119 cored alaskite from the collar to 236.0, monzonite to 353.0, alaskite again to the bottom at 421.6. Brecciation was noted from 320 to 333. The sulfide contact was at 160. Copper sulfides were strong from 161 to 264.

Hole F-120 was started in aplite (?) to 9.2 and then penetrated monzonite to 111 and alaskite to the end of the month at 387.2. The sulfide contact was at 89. Chalcocite with chalcopyrite was strong from 104 to 225 and weak from 279 to 304.

Composite assays were made of the ore columns on several of the holes to gather additional data on this possible westward extension (see data sheet). Of special interest is that with the exception of hole F-76, the non-sulfide copper values are quite low. The 1964 average mill feed assays are listed for comparison. The MoS_2 values are a little higher. The silver values are a little

less. The sulfide iron, part of which is chalcopyrite, is less than one-half the 1964 total Fe. Although this last figure is not directly comparable, used with geologic observation it supports the lower pyrite content found to the west of Oxide Pit.

In a general way, drilling has shown that the pyrite content decreases to the west to only trace amounts under Wild Hog Butte. Chalcopyrite is present through the enriched zone, usually needing chalcocite to make ore grade. Chalcocite is the main ore mineral, but is often found replacing the primary chalcopyrite.

A new plan map is attached showing the area to the south of the present drilling area. If mineralization continues there is a good chance that drilling will have to be done through the leach dumps. Leaching operations in the area under observation will be suspended shortly so there will be no conflict with operations. A rotary drill may have to be brought in to penetrate the dump.

See accompanying attachments.


C. W. Haynes
Resident Geologist

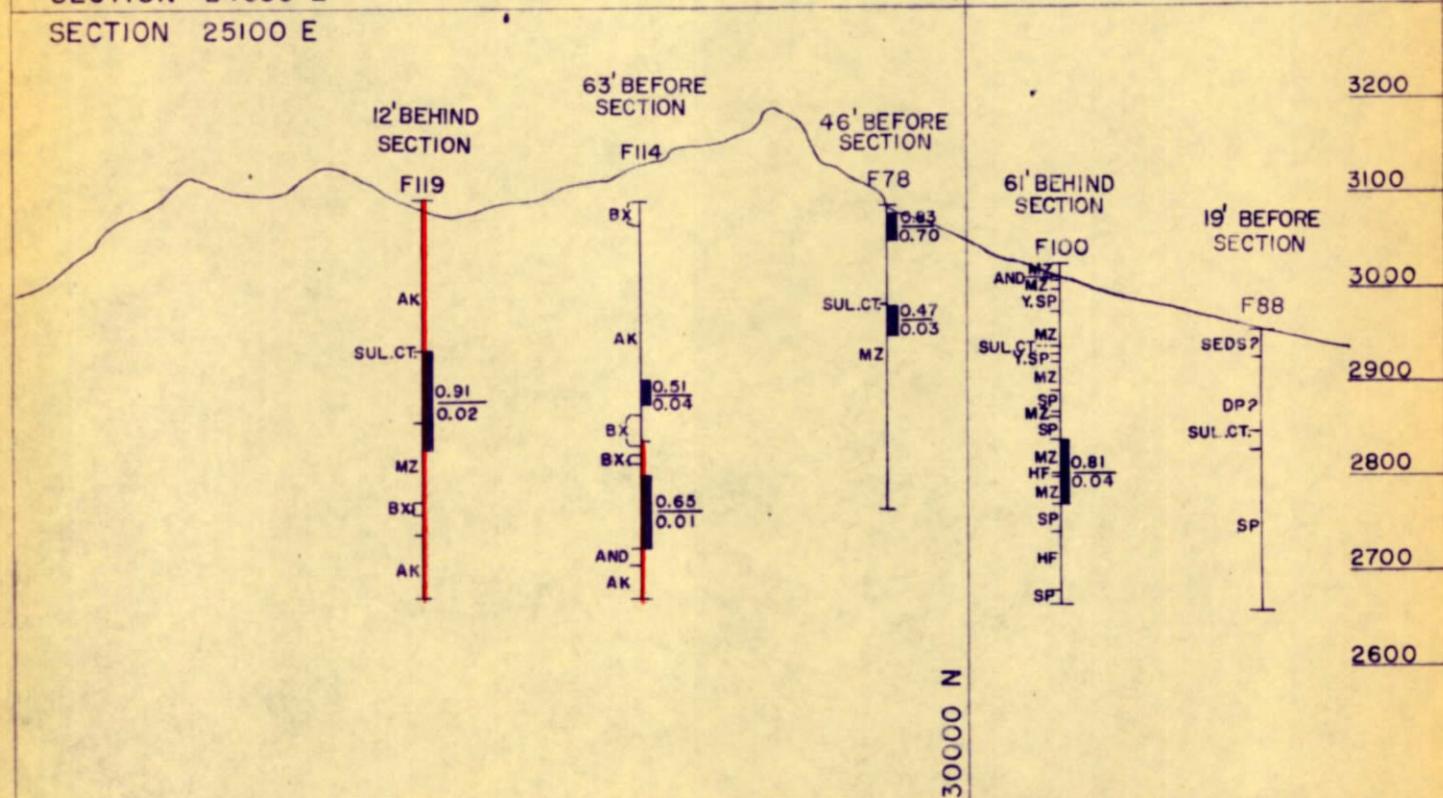
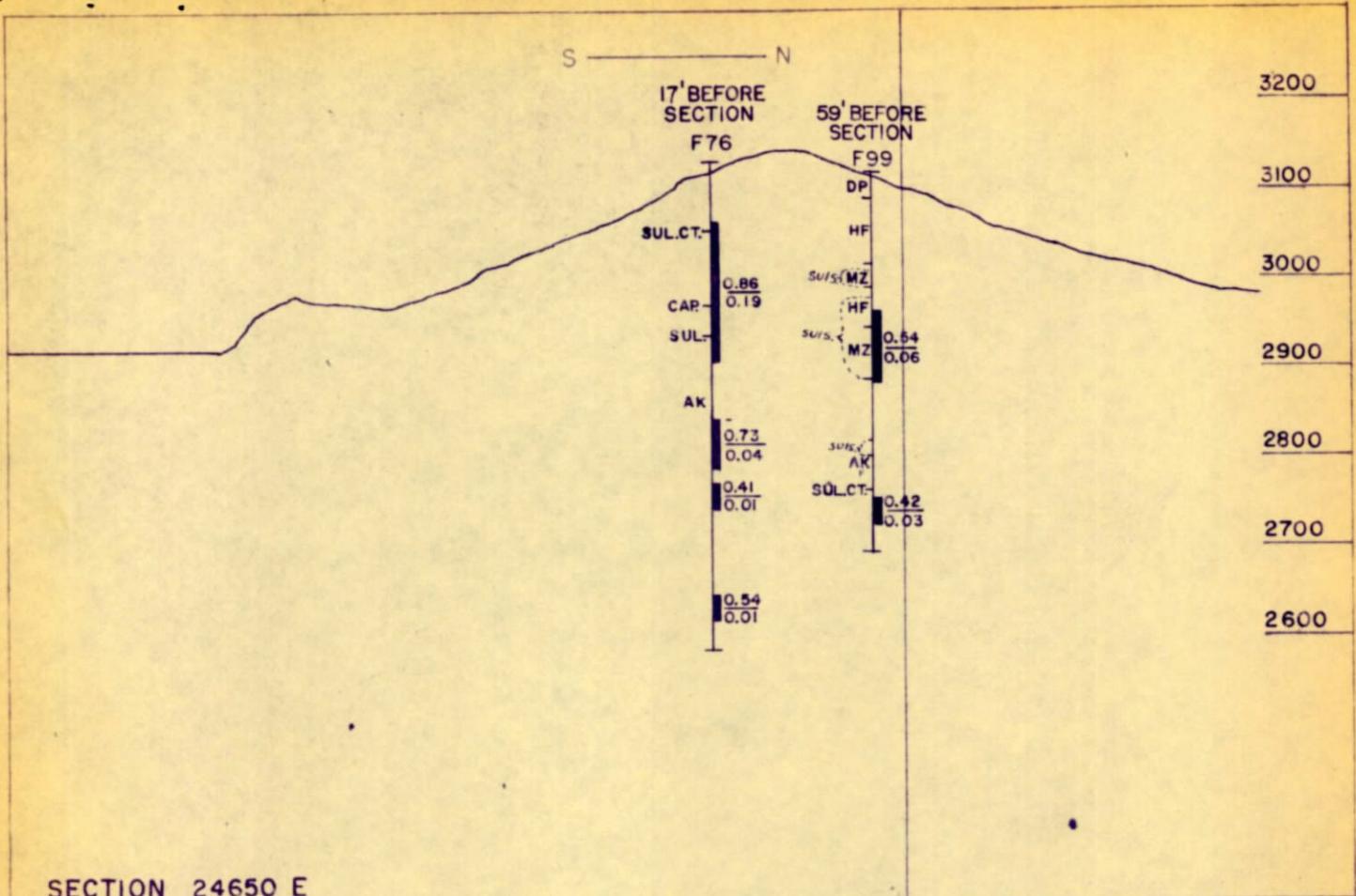
CWH:jca

DIAMOND DRILLING IN THE OXIDE AREA

Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses		Average % Cu		Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
F-114	3092.7	29,657	25,163	291.1 - 367.0	75.9	0.65	0.01	116.4	420.9	420.9
F-115	2964.9	29,539	25,381	79.3 - 174.7	95.4	1.08	0.05	328.7	328.7	328.7
F-116	2872.3	29,433	25,638	84.5 - 126.4	41.9	0.60	0.02	290.4	290.4	290.4
F-117	3092.3	29,601	24,950	104.6 - 271.6	167.0	0.77	0.03	430.1	430.1	430.1
				340.0 - 414.0	74.0	0.45	0.01			
F-118	2858.0	29,237	25,690	92.1 - 174.4	82.3	1.01	0.03	317.0	317.0	317.0
				222.2 - 302.2	80.0	0.42	0.01			
F-119	3095.8	29,432	25,088	160.7 - 263.9	103.2	0.91	0.02	421.6	421.6	421.6
F-120	2878.3	29,038	25,719	104.2 - 224.6	120.4	1.09	0.01	387.2	387.2	
				279.1 - 303.9	24.8	0.44	0.01			
Total								<u>2,341.4</u>		

SELECTED DRILL HOLE COMPOSITE ASSAYS

Hole No.	Interval	Thickness	% Total Cu	% N.S. Cu	% MoS ₂	Oz. Ag	% Sul. Fe	% Insol.
F-76	67.1 - 223.5	156.4	0.85	0.21	0.020	0.042	0.70	95.7
F-112	118.6 - 254.0	135.4	0.70	0.01	0.030	0.037	0.85	97.0
F-115	79.3 - 174.7	95.4	1.07	0.05	0.015	0.053	0.94	95.7
F-117	104.6 - 271.6	167.0	0.82	0.03	0.048	Not Assayed	0.85	96.3
F-118	92.1 - 174.4	82.3	0.98	0.02	0.026	0.063	1.01	95.6
Weighted Averages			0.86	0.07	0.0295	0.046	0.85	96.1
1964 Average Mill Feed Assays			0.89	0.11	0.02 (Approx)	0.07	2.2 (Total Fe)	



AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE NOV 1965	FILE S-121-A

■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

S ————— N

3300

3200

3100

3000

2900

2800

2700

60' BEHIND SECTION

F108

AK $\frac{0.78}{0.05}$

MZ $\frac{0.66}{0.12}$

EOL

AK

SECTION 24800 E

SECTION 25400 E

3100

19' BEHIND SECTION

F110

F115

AK
SUL. CT. $\frac{1.08}{0.05}$

MZ

SUL. CT. $\frac{0.65}{0.02}$
BX
AK

BX

3000

2900

2800

2700

2600

2500

30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE

1" = 200'

DRAWN

CWH

DATE

NOV

1965

FILE

S-121-

A

S ————— N

19' BEFORE SECTION

62' BEHIND SECTION

3000

2900

2800

2700

2600

2500

2400

F120

F118

F116

APL7

MZ

SUL.CT:

1.09
0.01

AK

0.44
0.01

SUL.CT:

LOI
0.03

AK

0.42
0.01

SUL.CT:

0.65
0.01

AK

MZ

SECTION 25700 E

30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized.
Cu Assay is Total Cu / Non Sul. Cu

SCALE

1" = 200'

DRAWN

CWH

DATE

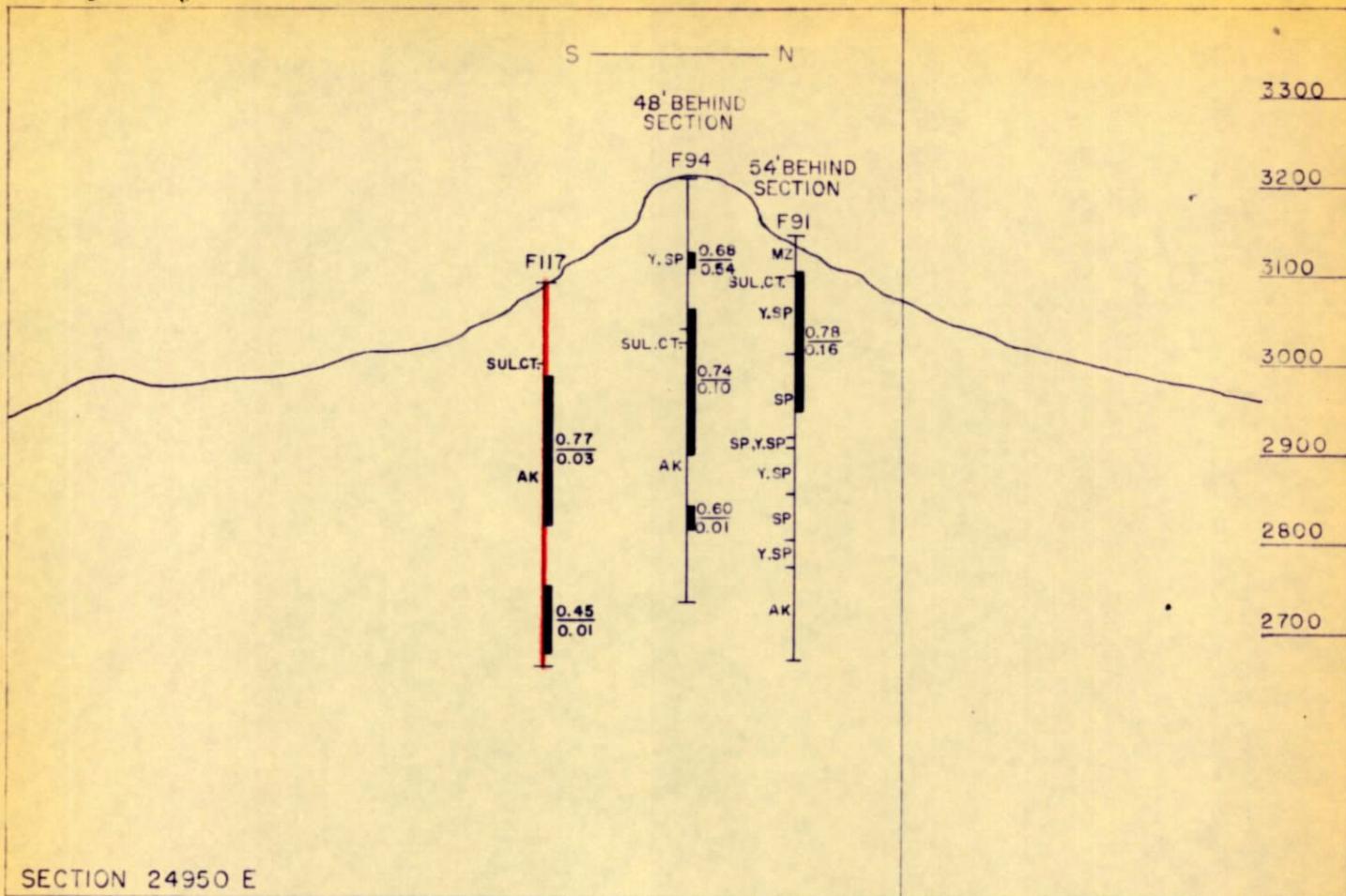
NOV

FILE

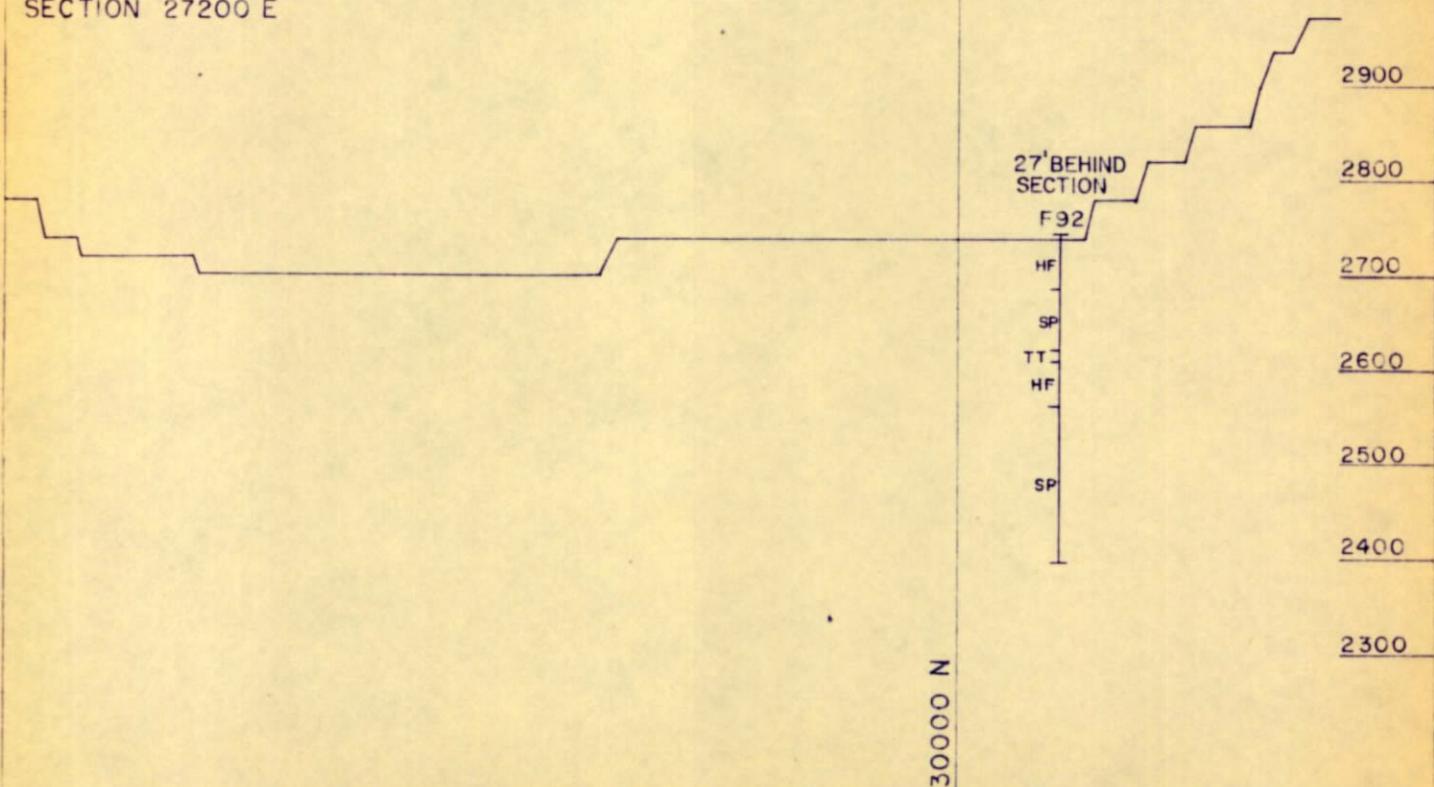
1965

S-121-

A



SECTION 24950 E
SECTION 27200 E



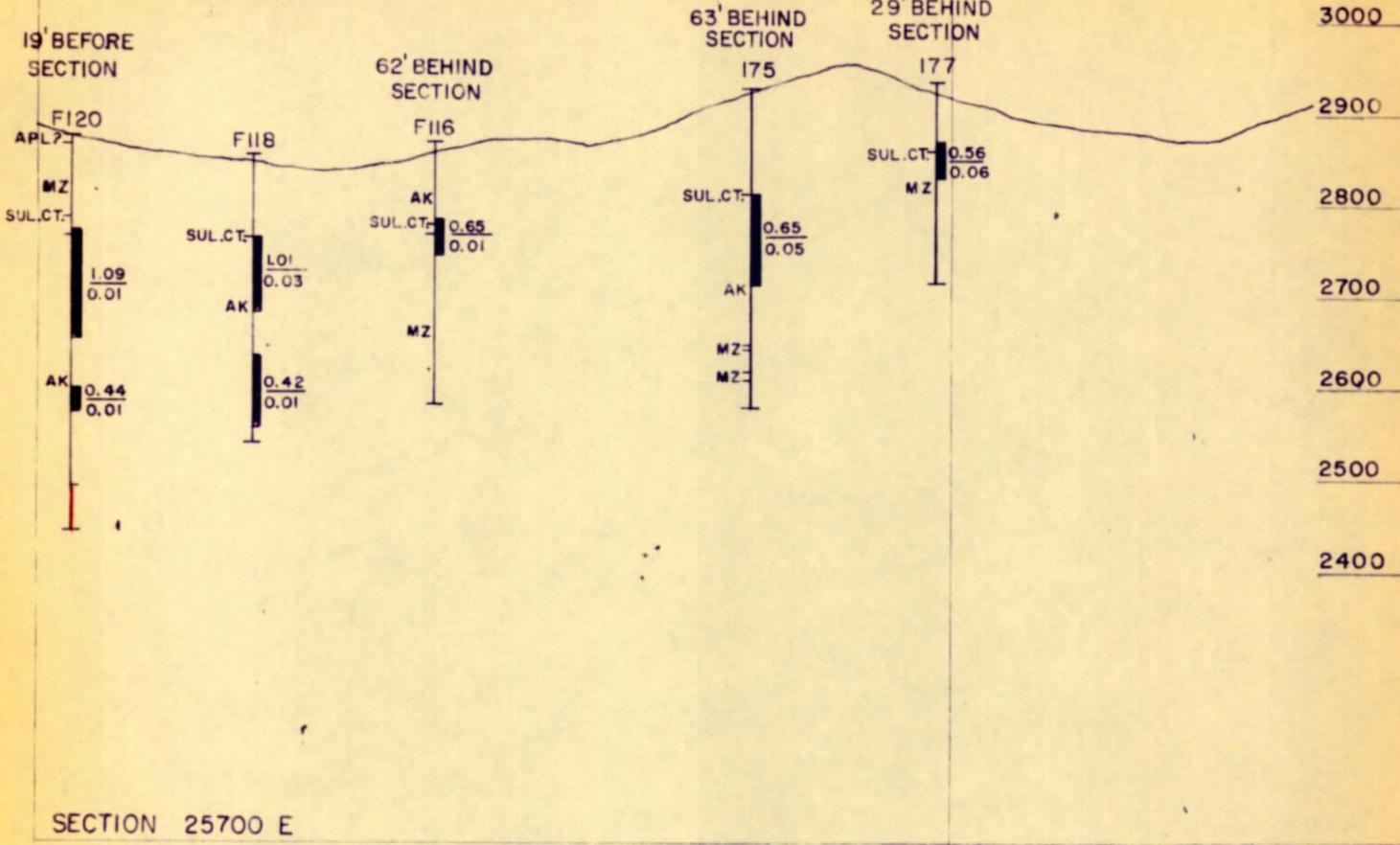
■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE NOV 1965	FILE S-121-A
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S ————— N

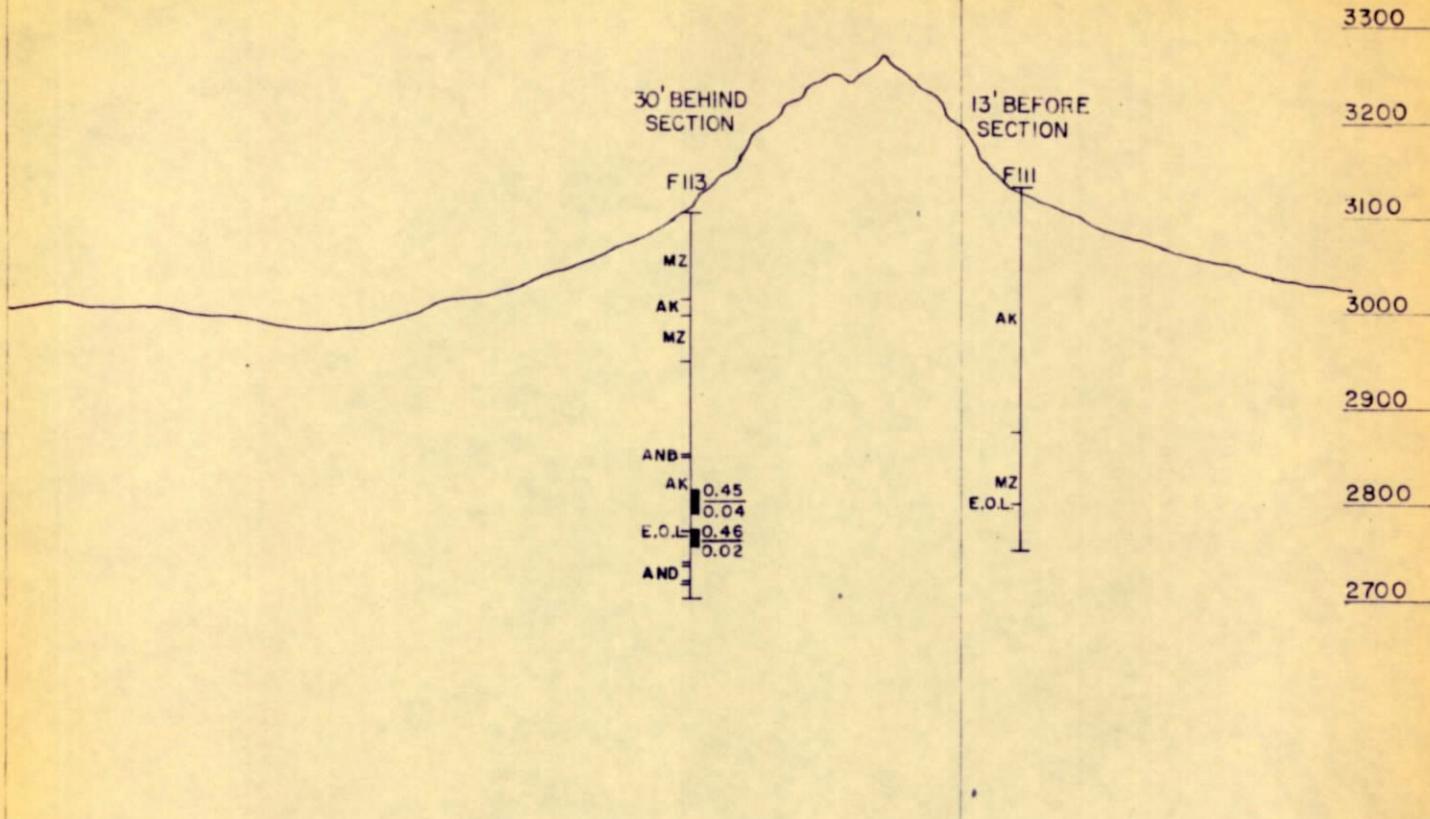


█ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

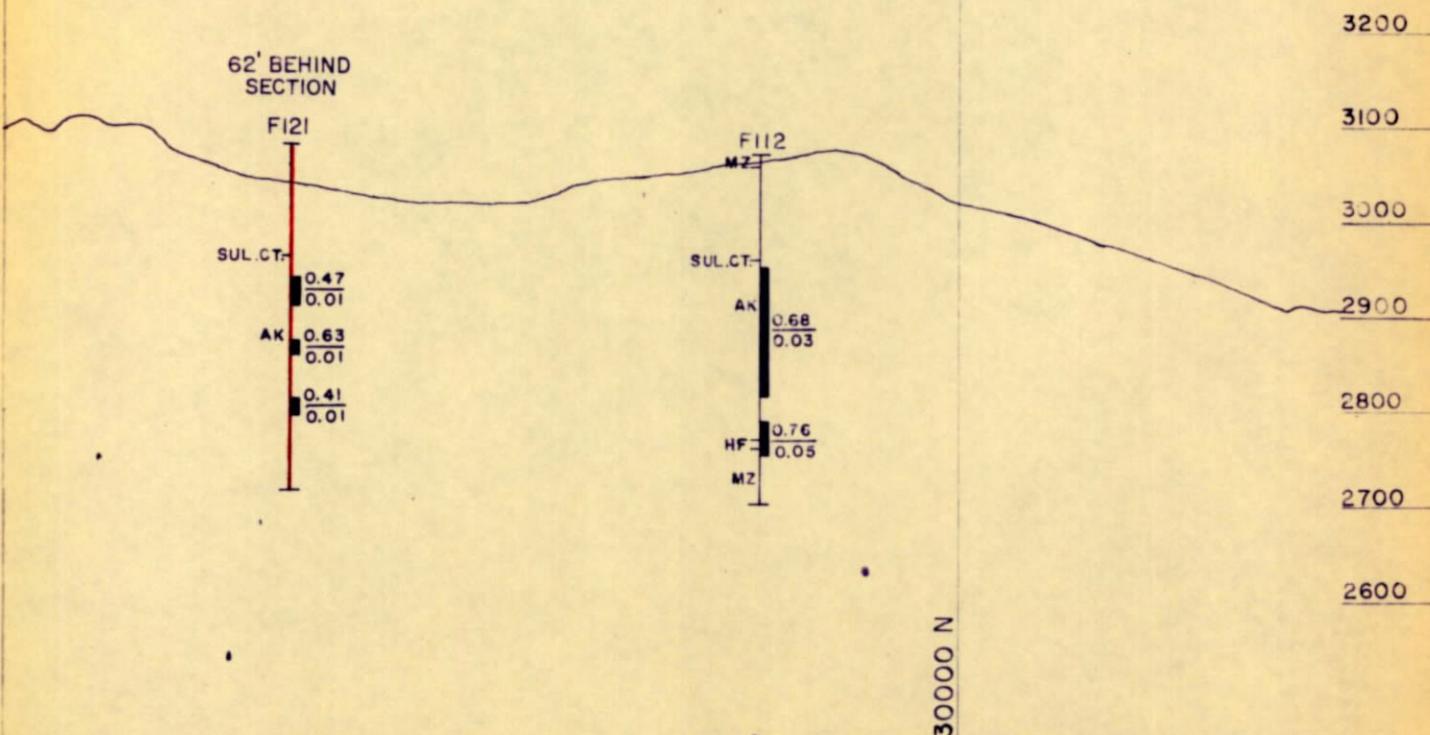
AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE DEC	FILE S-121-A

1965

S ————— N



SECTION 24350 E
SECTION 25250 E



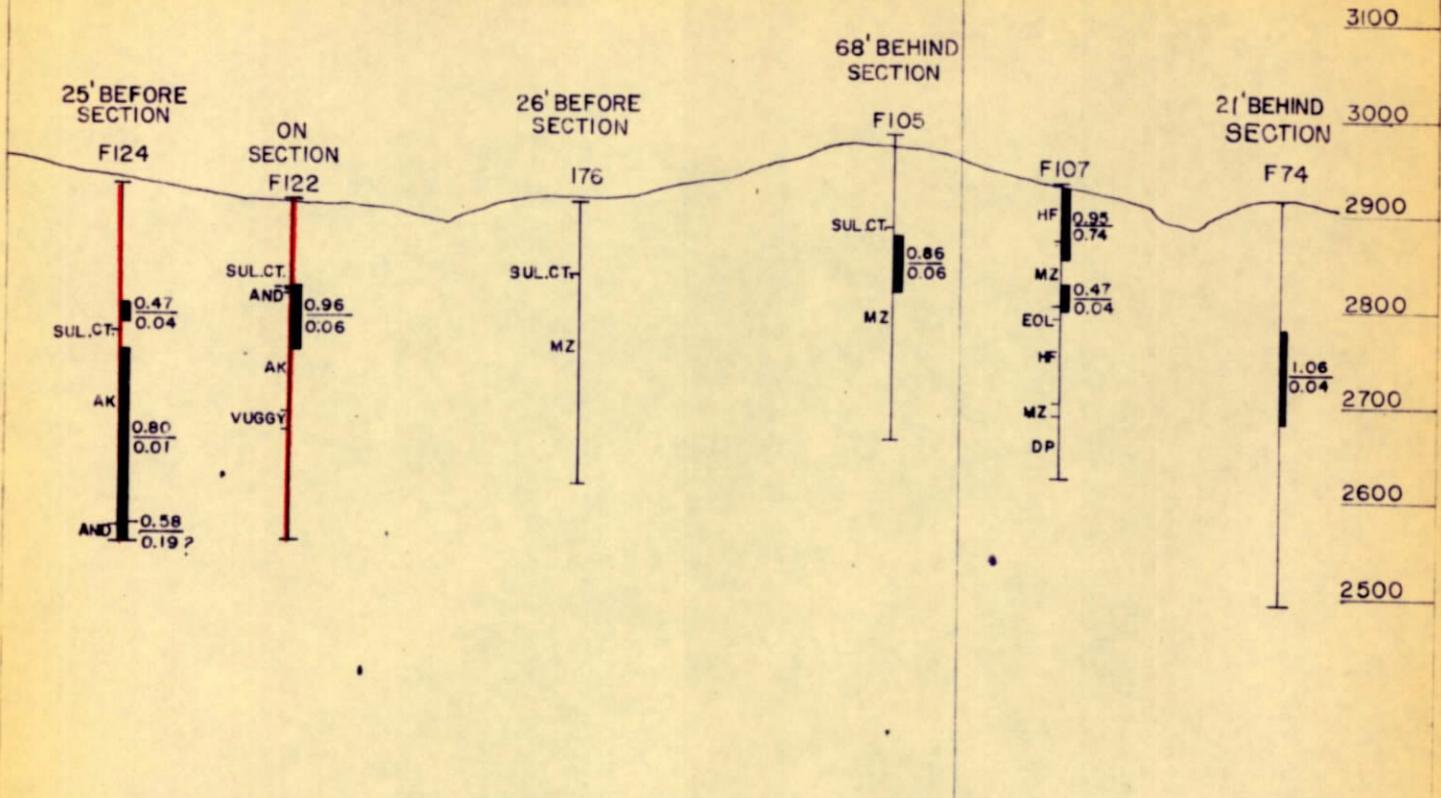
■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

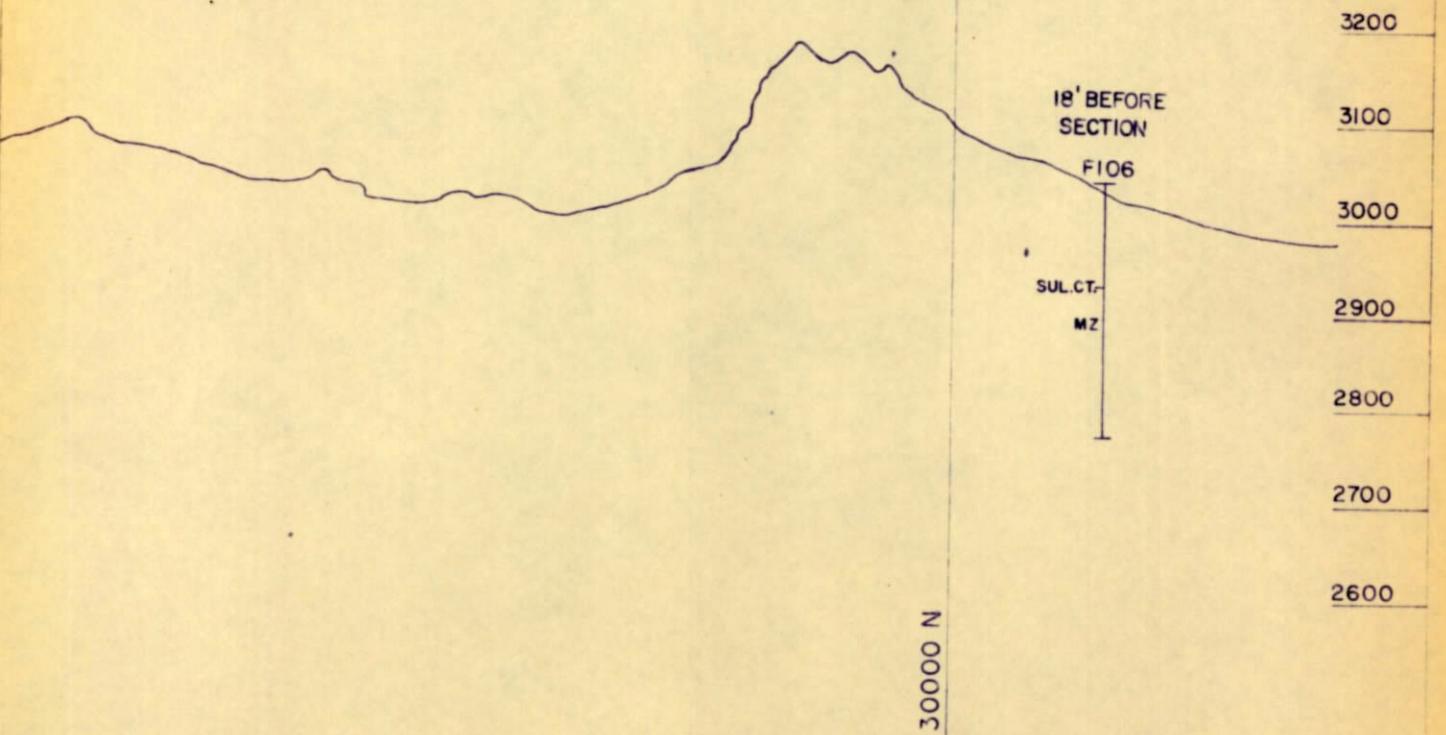
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE DEC 1965	FILE S-121-A
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S ————— N



SECTION 25550 E
SECTION 24200 E



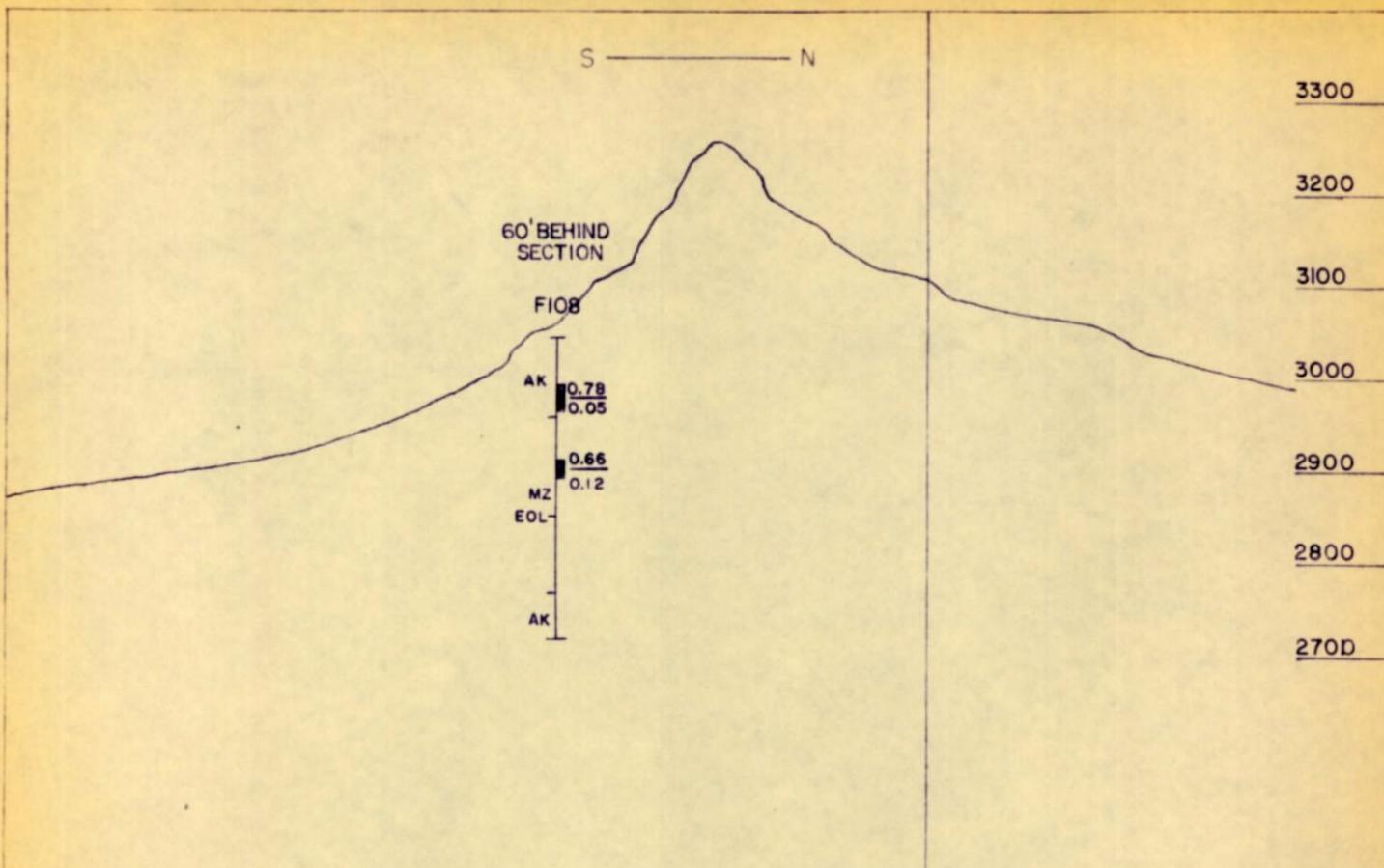
30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

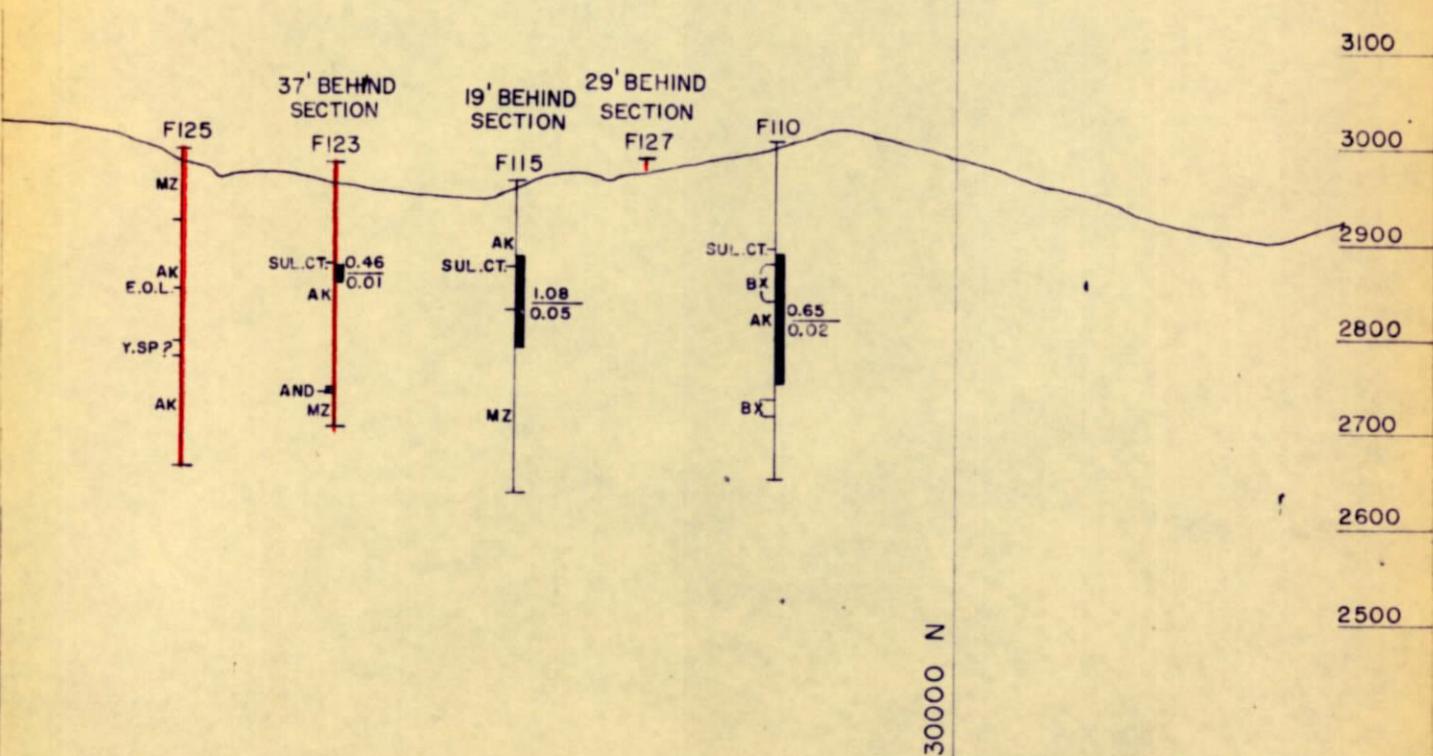
OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu/Non Sul. Cu

SCALE 1" = 200'	DRAWN CWH	DATE DEC 1965	FILE S-121-A
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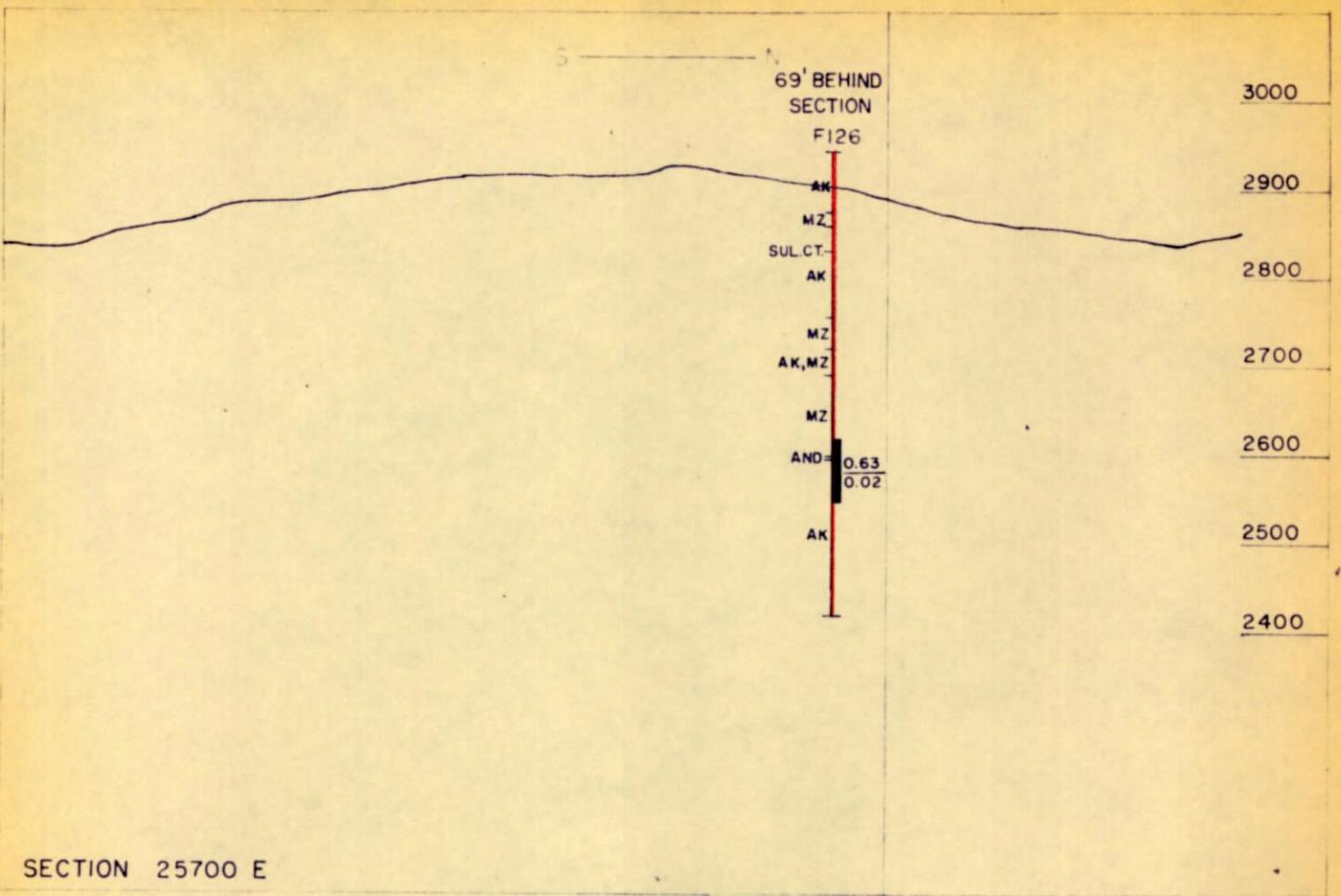


SECTION 24800 E
SECTION 25400 E



■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE DEC 1965	FILE S-121-A



3000
2900
2800
2700
2600
2500
2400

69' BEHIND SECTION
F126
AK
MZ
SUL. CT.
AK
MZ
AK, MZ
MZ
AND
AK

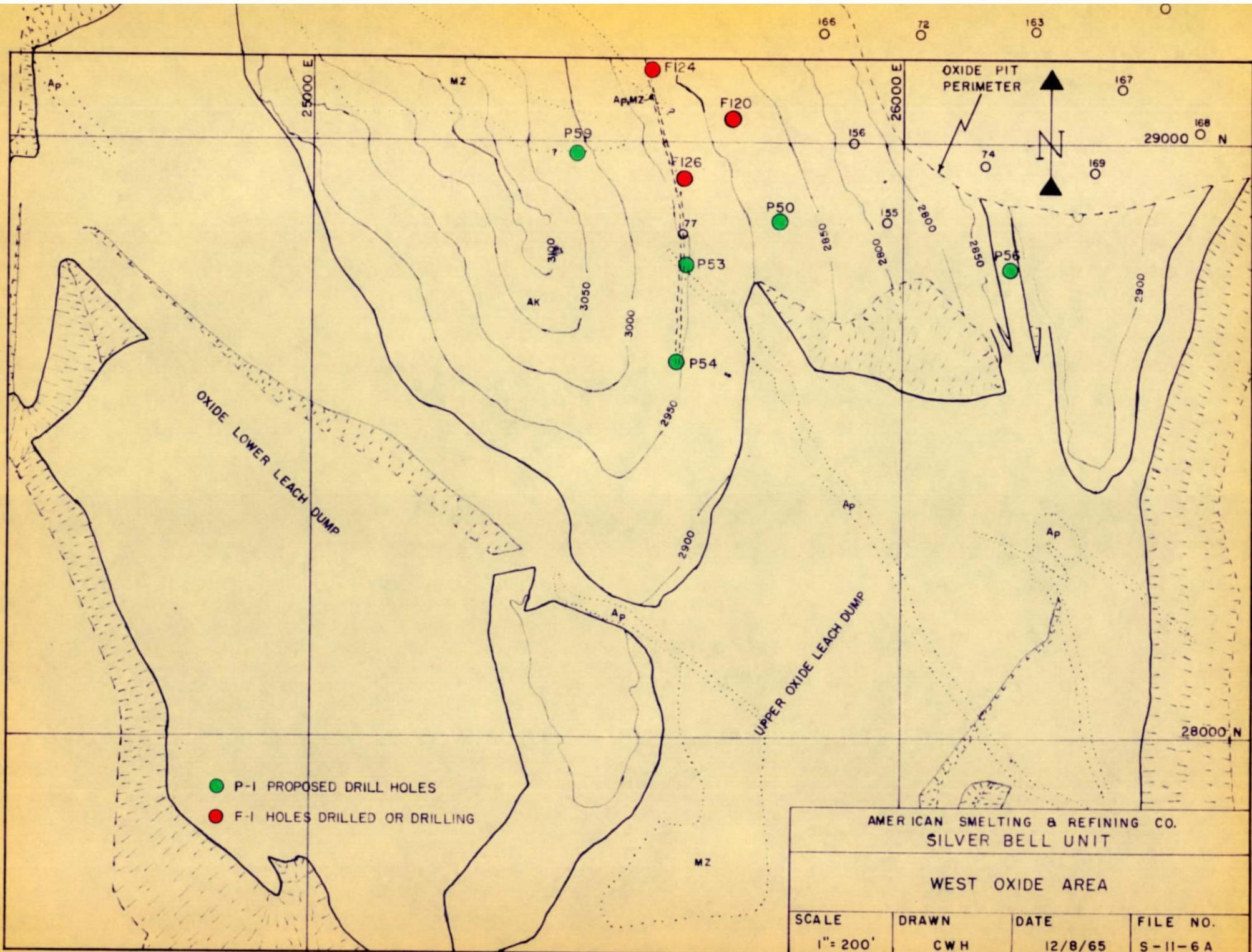
0.63
0.02

SECTION 25700 E

29000 N

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
OXIDE AREA			
DRILL HOLE PROJECTIONS			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	DEC 1965	S-121-A



AMERICAN SMELTING & REFINING CO.			
SILVER BELL UNIT			
WEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE NO.
1" = 200'	CWH	12/8/65	S-II-6A

DEC 1965

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

November 15, 1965

J. H. C.
NOV 30 1965

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING.

The following report briefly summarizes the results of the diamond drilling in the Oxide area during the month of October, 1965.

Hole F-109 started the month at 50.8 feet in monzonite. At 147.9 alaskite was encountered and this continued to the bottom at 308.5. The sulfide contact was at 104. Although several individual ore grade runs were found, they were not consecutive to make an ore column.

Hole F-110 was collared and bottomed, at 354.6, in alaskite. Brecciation from possible pre-mineral faults was found in two areas. The sulfide contact was at 113. Moderate chalcocite and chalcopyrite was measured from 118 to 256.

Hole F-111 cored alaskite to 257.0 and monzonite to the bottom at 381.0. Mineralization was sparse throughout the hole. Sulfides (pyrite, chalcocite, and chalcopyrite) predominated over leaching after 221, but limonite on fractures continued to 333, where jarosite was found to the bottom.

Hole F-112 penetrated monzonite to 12.0, alaskite to 300.6, hornfels to 310.2, and monzonite to the bottom at 368.2. The sulfide contact was at 111. Moderate chalcocite and chalcopyrite was found from 119 to 254 and from 282 to 317.

Hole F-113 drilled monzonite to 91.3, alaskite to 107, monzonite to 155.1, then alaskite to the bottom at 406.0. Three thin post-mineral andesite dikes were found between 253 and 390. End of leaching was at 333. Weak sulfides were found from 292 to 315, and from 333 to 351.

Hole F-114 was collared and cored alaskite to the end of the month at 254.5. Brecciation was found from the collar to 24 and from 225 to the end of the month. These also appear to have been pre-mineral faults. Sulfides began appearing after 98, but were generally spotty and mixed with the leached capping. Weak sulfides were measured from 188 to 216.

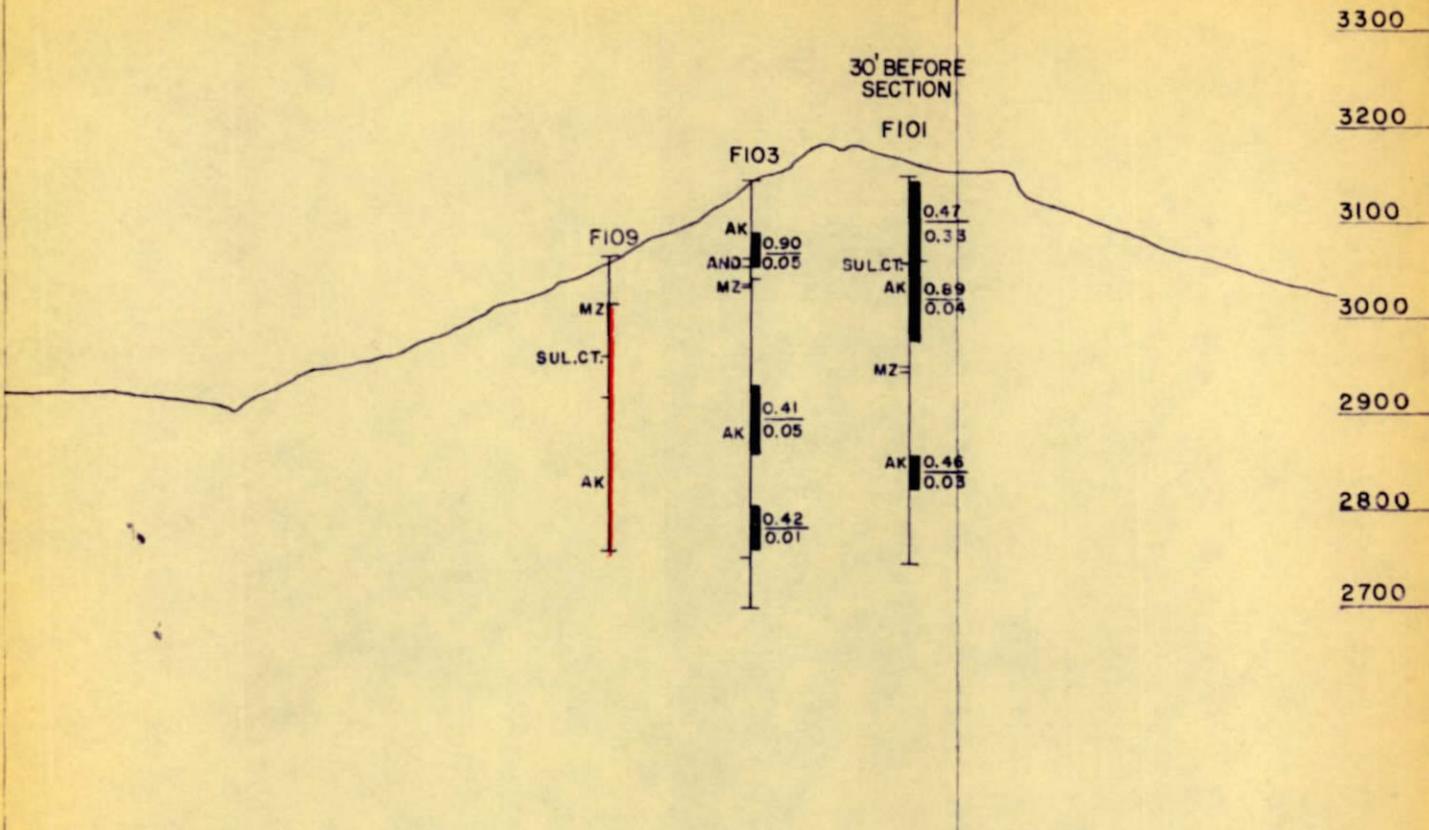
Ore quality chalcocite-chalcopyrite has now been shown to exist in an east-west line from the saddle between Copper and Wild Hog buttes and the northwest corner of West Extension of Oxide pit. Copper Butte looks like Wild Hog Butte as far as surface expression of mineralization is concerned, but drilling shows that the copper values have been eroded or leached away with little or no enrichment. Drilling will now be concentrated from the western edges of Oxide towards the west in an effort to develop tonnage that will make another westward extension possible. Ore continues to be found in alaskite in preference to any other rock type.

See accompanying sections and plan map.

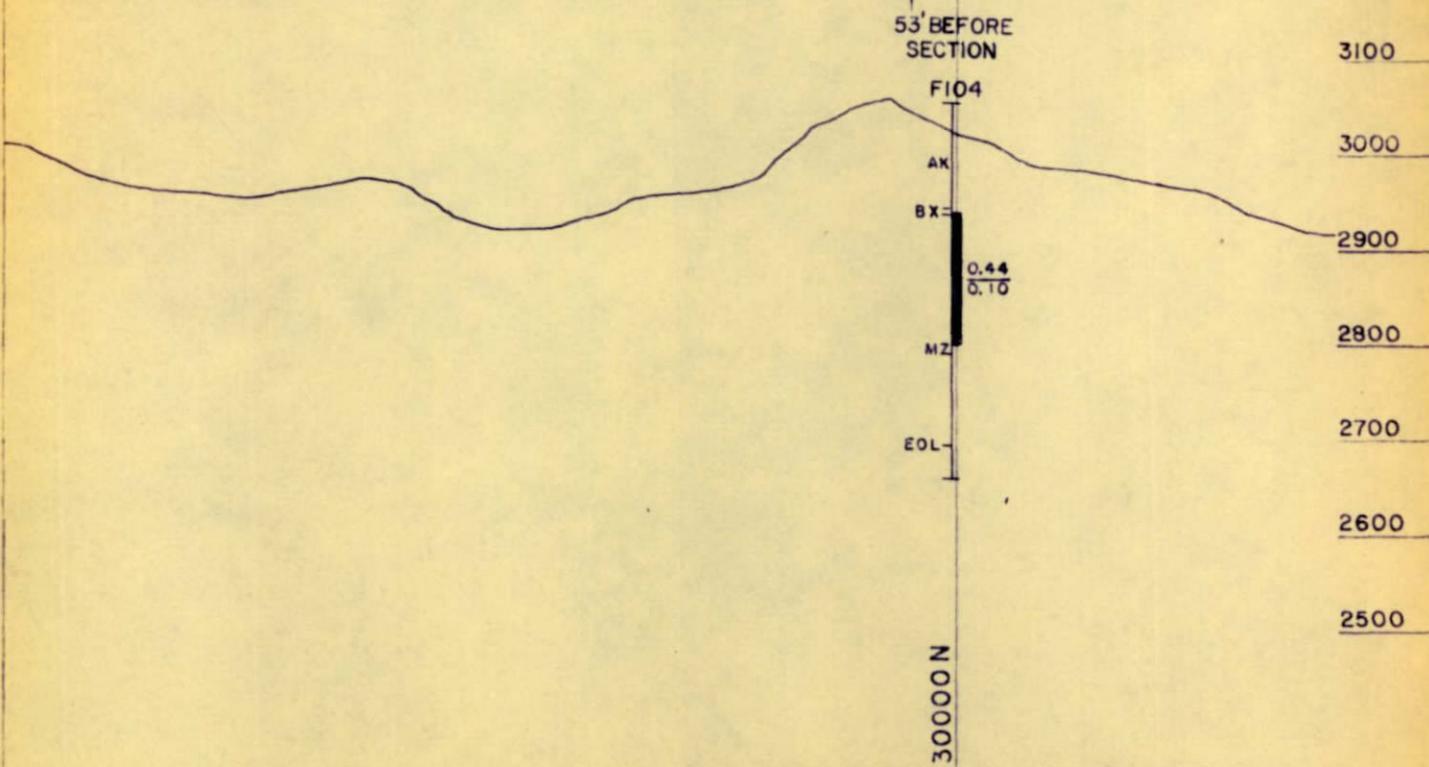
DIAMOND DRILLING IN THE OXIDE AREA

Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses		Average % Copper		Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
F-109	3066.5	29,636	24,499	No consecutive ore runs				255.7	308.5	308.5
F-110	3005.6	29,812	25,404	118.0 - 255.6	137.6	0.65	0.02	354.6	354.6	354.6
F-111	3135.8	30,063	24,363	No ore runs in hole.				381.0	381.0	381.0
F-112	3069.8	29,793	25,243	118.6 - 254.0 281.6 - 316.5	135.4 34.9	0.68 0.76	0.03 0.05	368.2	368.2	368.2
F-113	3107.8	29,718	24,320	292.3 - 314.7 333.2 - 350.8	22.4 17.6	0.45 0.46	0.04 0.02	406.0	406.0	406.0
F-114	3092.7	29,657	25,162	188.2 - 215.6	27.4	0.51	0.04	254.5	254.5	
TOTAL								<u>2,022.0</u>		

S ————— N



SECTION 24500 E
SECTION 24050 E



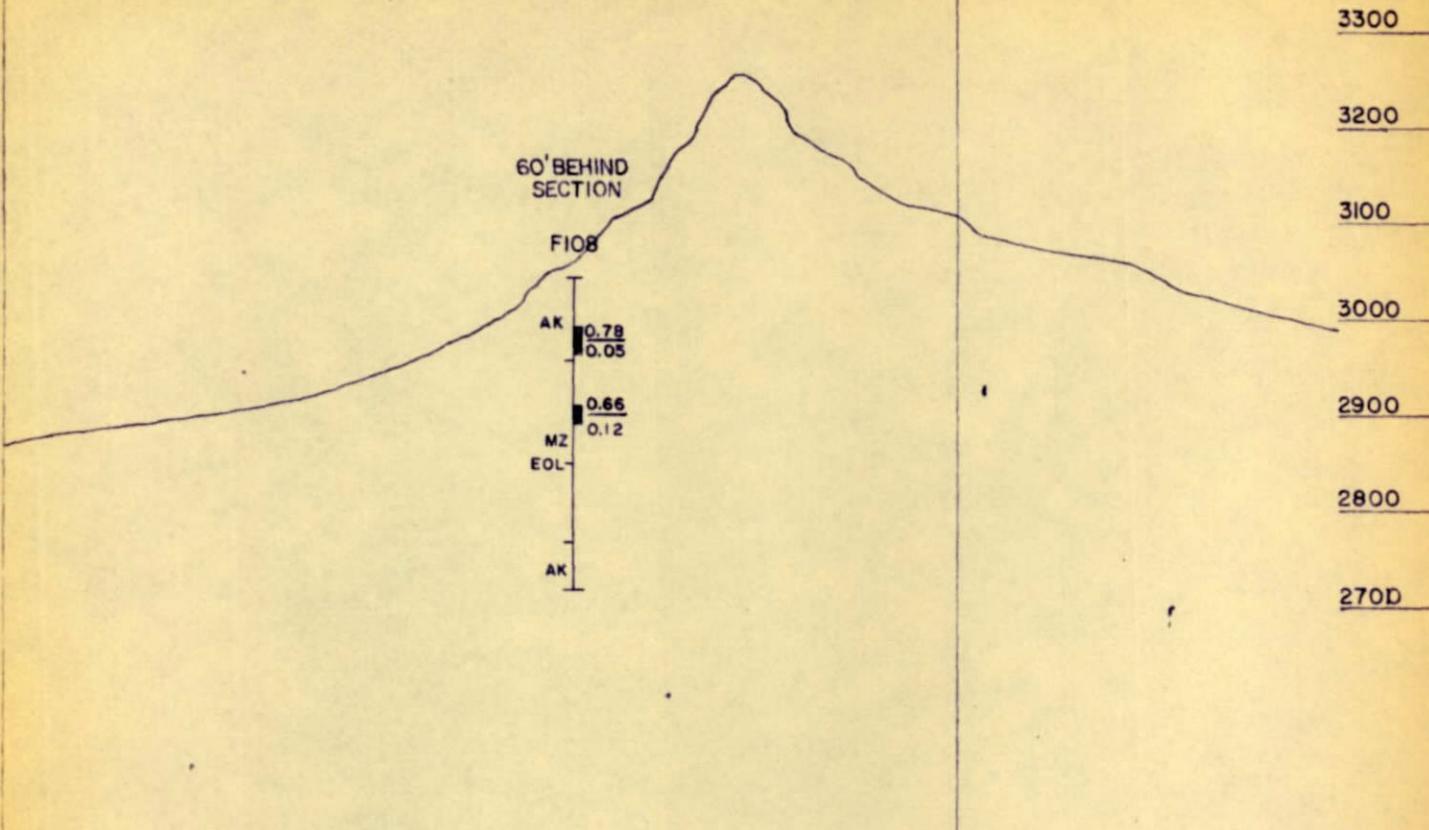
█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

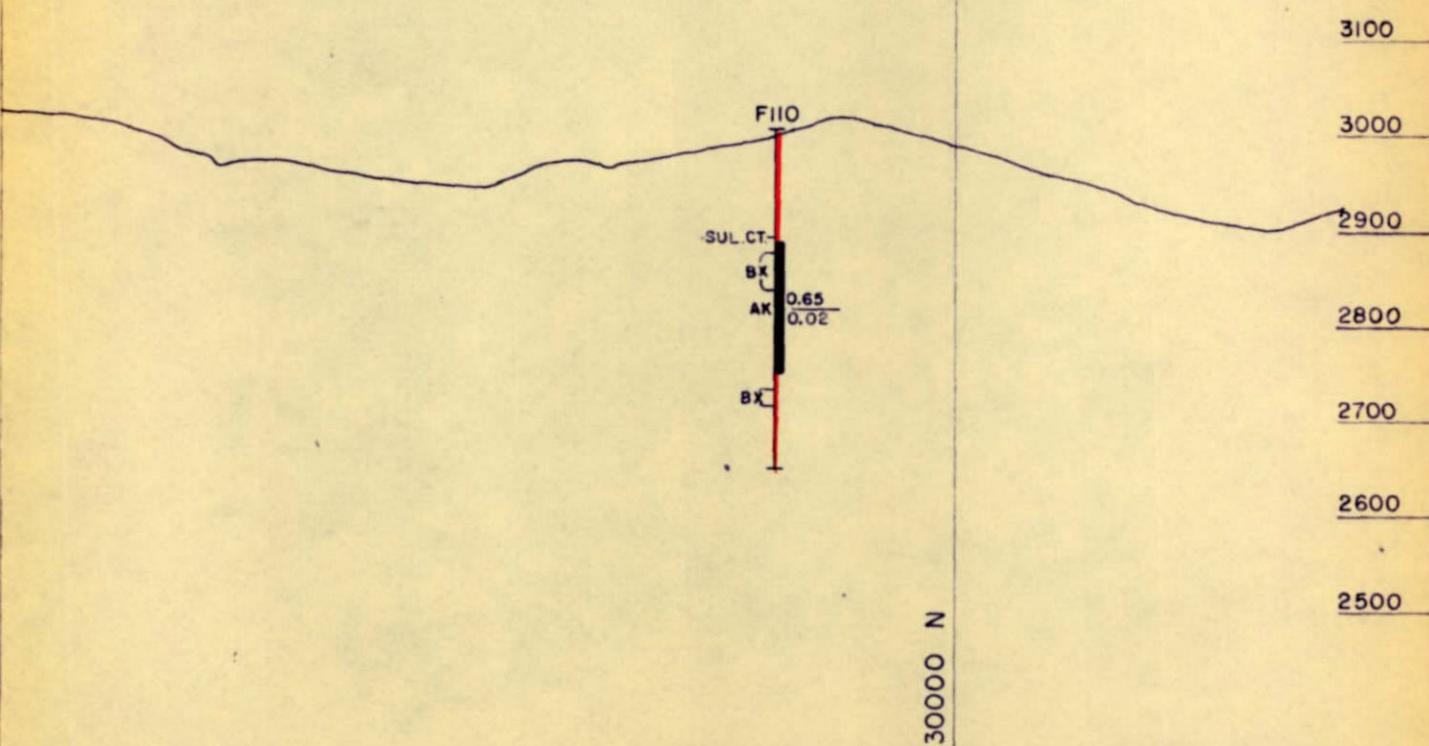
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE OCT 1965	FILE S-121-A
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S ————— N



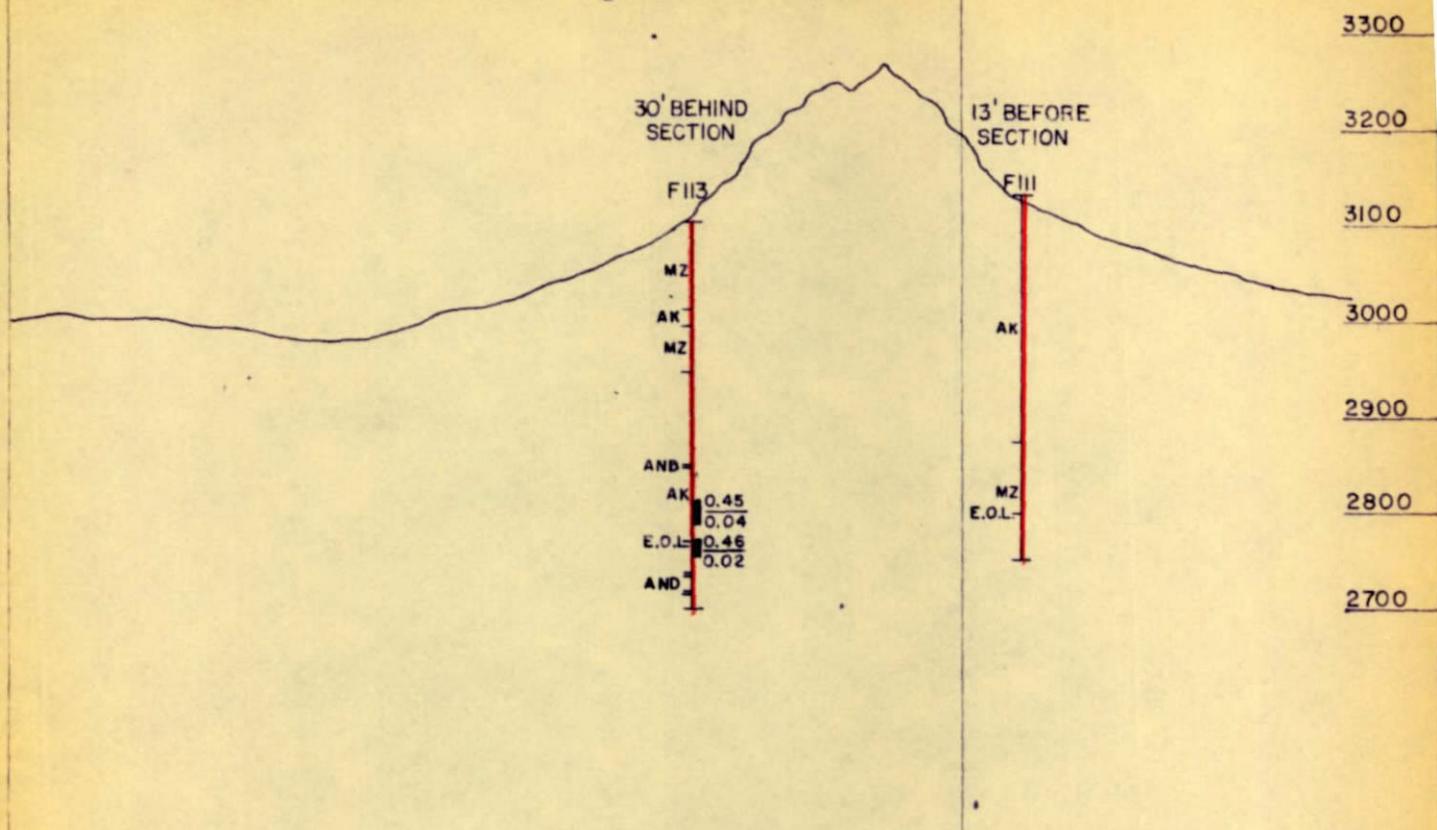
SECTION 24800 E
SECTION 25400 E



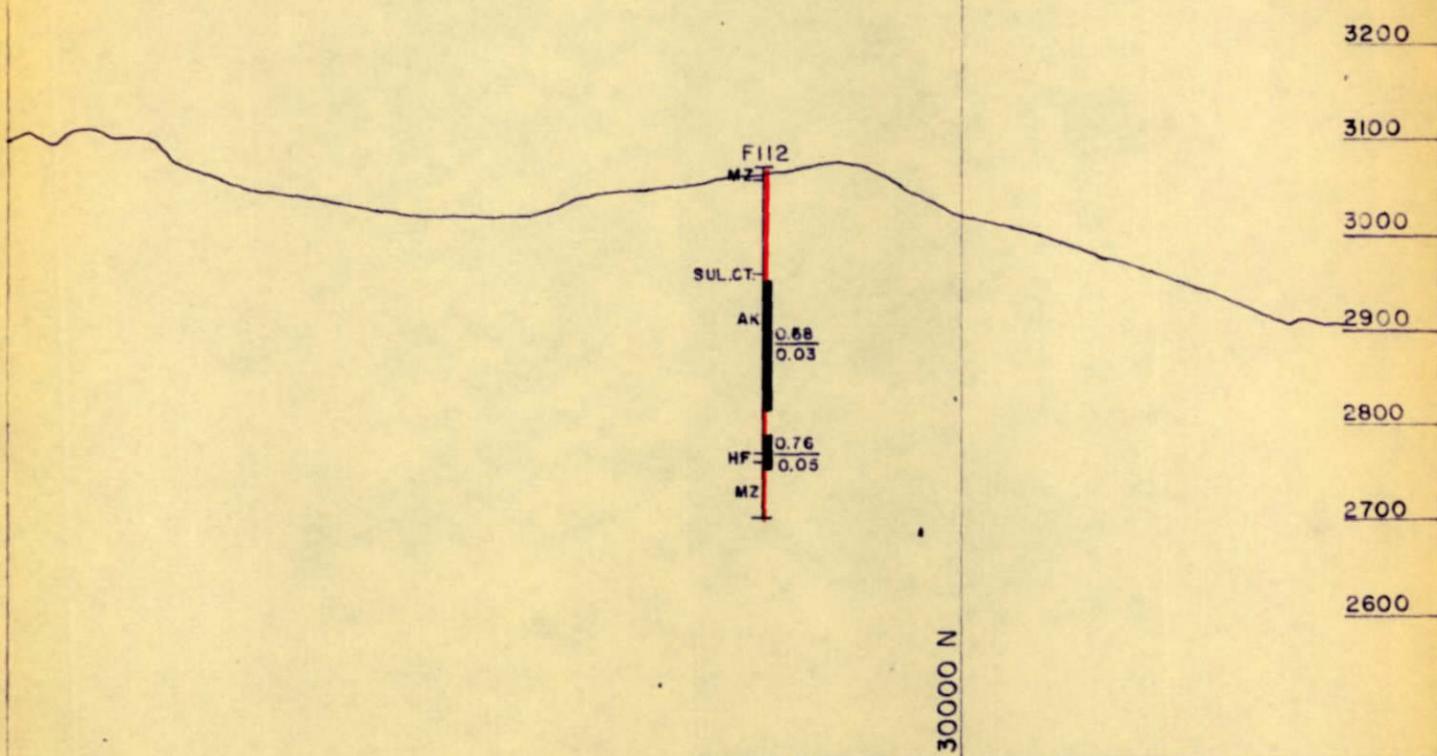
■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE OCT 1965	FILE S-121-A

S ————— N



SECTION 24350 E
SECTION 25250 E



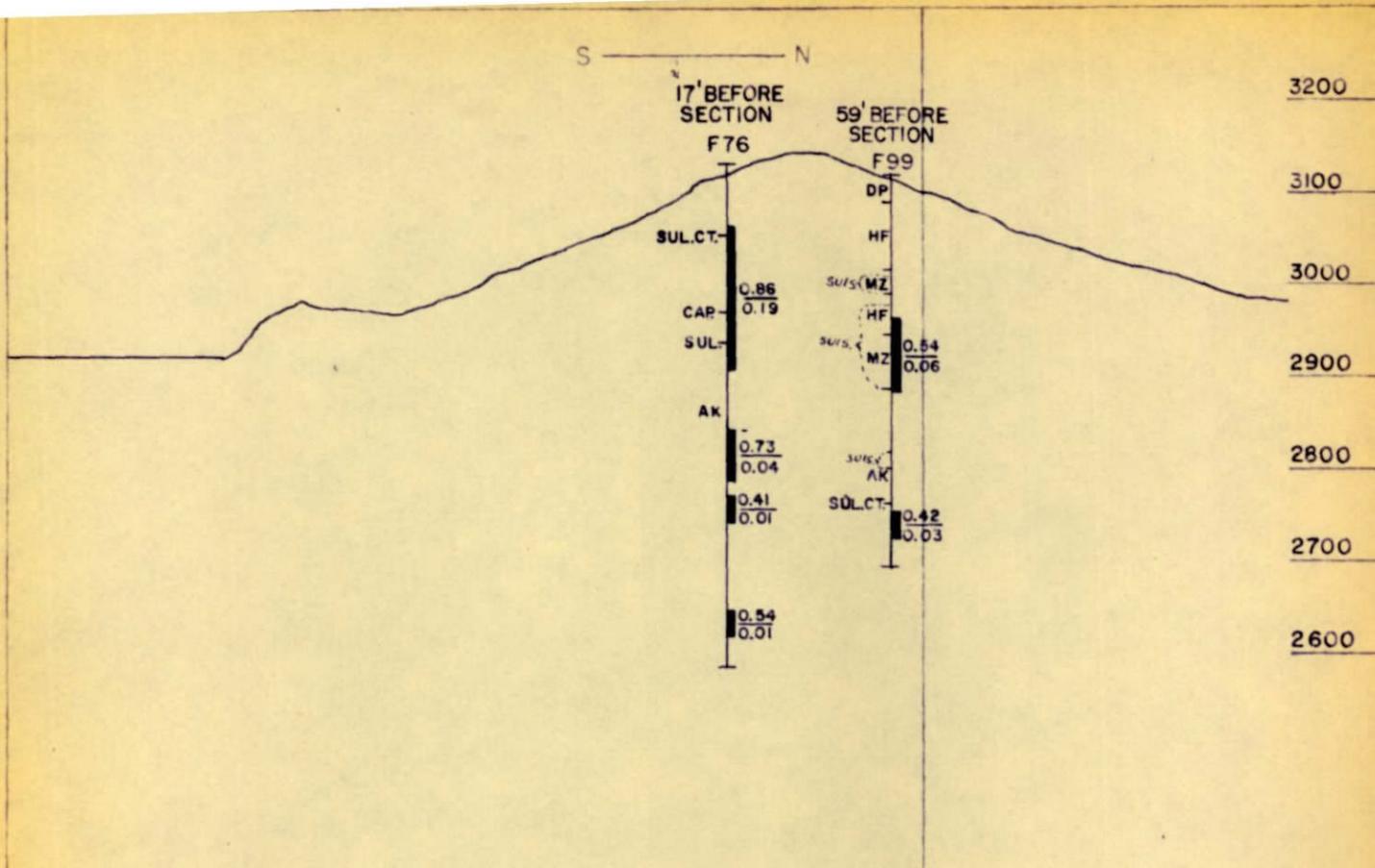
30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

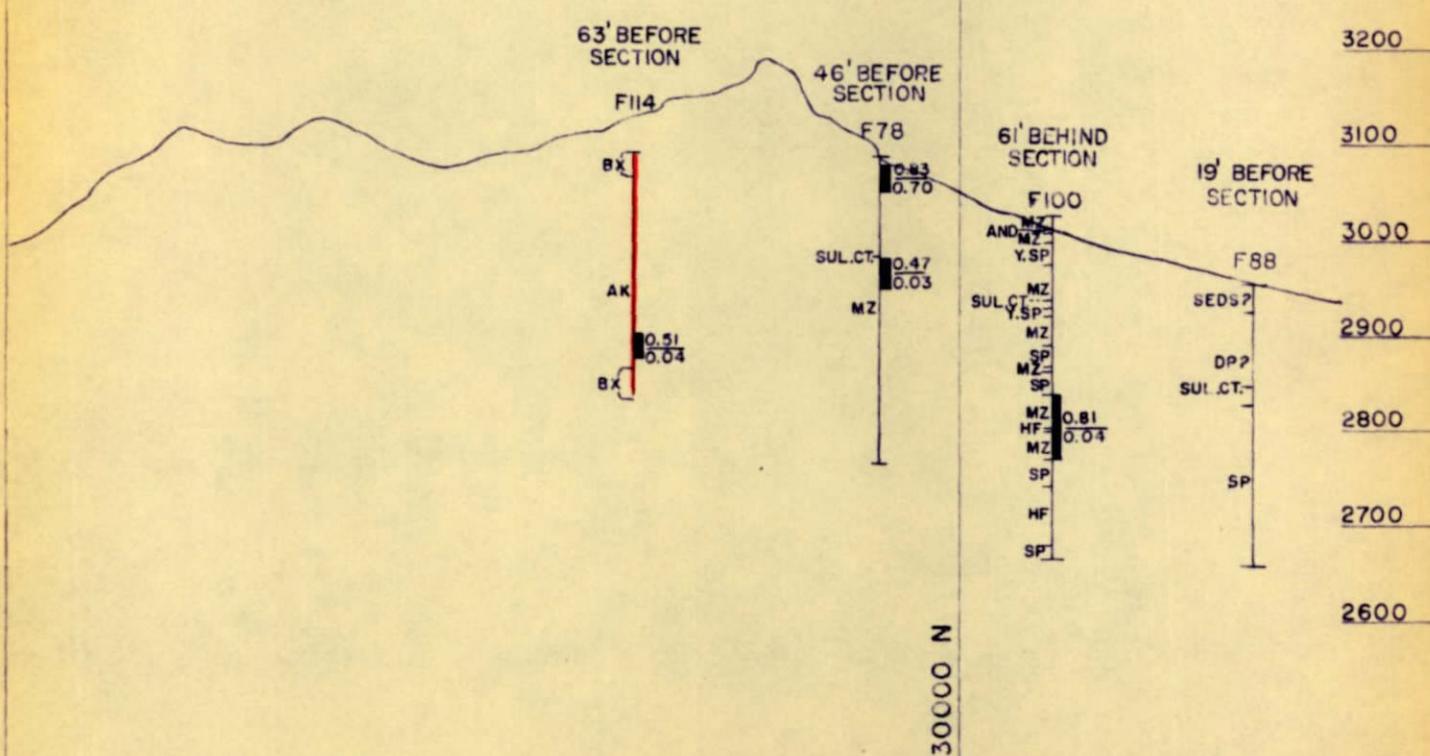
OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE 1" = 200'	DRAWN CWH	DATE OCT 1965	FILE S-121-A
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SECTION 24650 E
SECTION 25100 E

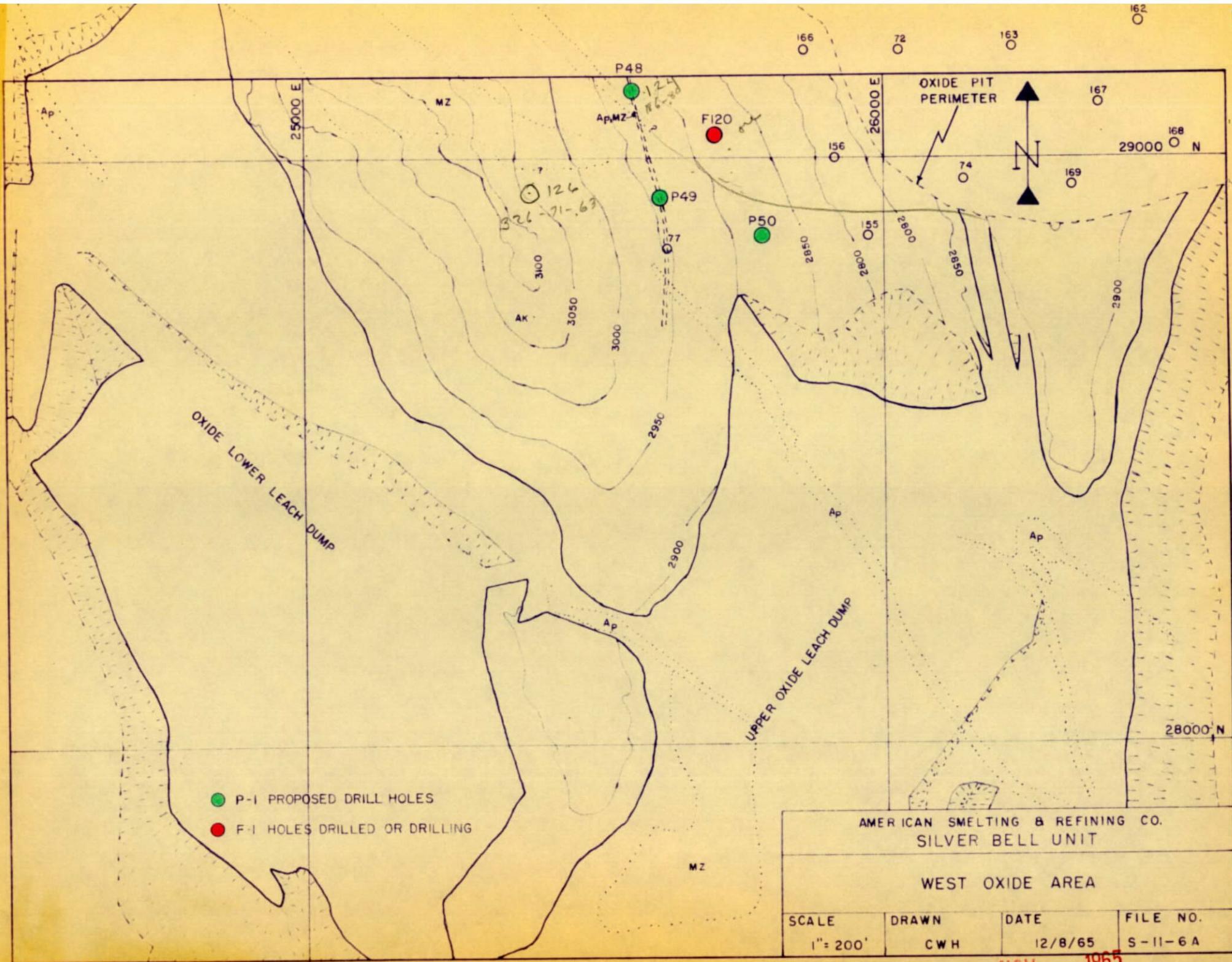


AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	OCT 1965	S-121-A



NOV 1965

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT

Silver Bell,

Arizona

October 12, 1965

*Read
now*

W.E.S.

NOV 2 1965

J.H.C.

NOV 3 1965

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING

The following report briefly summarizes the results of the diamond drilling in the Oxide area during the month of September, 1965.

Hole F-102 started the month at 33.0 feet and bottomed at 300.0 feet. The advance was in monzonite. Weak mixed sulfide and non-sulfide mineralization was found from 79 to 177. The sulfide contact was at 110.

Hole F-103 started the month at 103.6 and bottomed at 448.4. The advance was in alaskite except for monzonite from 109 to 112. Weak sulfides were measured from 214 to 287 and from 342 to 387. End of leaching was at 395.

Hole F-104 was collared and drilled alaskite to 111.3, mixed alaskite-monzonite intrusive breccia to 116.9, and monzonite to the bottom at 379.5. Weak mixed sulfide-non-sulfide mineralization was found from 115 to 254. End of leaching was at 360.

Hole F-105 drilled monzonite from the top to the bottom at 319.9. Strong chalcocite was measured from 104 to 163. The sulfide contact was at 95.

Hole F-106 penetrated sparsely mineralized monzonite from the collar to the bottom at 268.0. The sulfide contact was at 109.

Hole F-107 collared in hornfels to 59.6 and then drilled monzonite to 127, quartzitic hornfels to 230, monzonite to 243, and then bottomed in dacite at 311.3. Strong non-sulfides were found from 5 to 79. Weak sulfides were found from 106 to 133. End of leaching was at 142.

Hole F-108 cored alaskite from the collar to 87, monzonite to 278.3, and alaskite again to the bottom at 328.1. Moderate sulfides were found from 52 to 79 and from 133 to 152. End of leaching was at 195.

Hole F-109 was started and drilled leached monzonite to the end of the month at 50.8.

This month's drilling has again shown that unlike the original Oxide and El Tiro chalcocite deposits, one rock type is the most favorable for ore; alaskite. Other rock types can, and do, carry ore, but not to the extent as the alaskite. Therefore the search will be continued in the area mainly in alaskite, but other rocks will have to be checked also if evidence suggests ore mineralization. Primary chalcopyrite mineralization continues to be stronger in the alaskite than in any other rock type.

See accompanying section, and plan map.

C. W. Haynes

C. W. Haynes
Resident Geologist

CWH:jca

DIAMOND DRILLING IN THE OXIDE AREA

<u>Hole No.</u>	<u>Ground Elevation</u>	<u>Coordinates</u>		<u>+0.40% Copper Lenses</u>		<u>Avg. % Cu</u>		<u>Feet Drilled During Month</u>	<u>Depth End of Month</u>	<u>Final Depth</u>
		<u>North</u>	<u>East</u>	<u>Interval</u>	<u>Thickness</u>	<u>Total</u>	<u>N.S.</u>			
F-102	3007.0	30,051	25,268	79.2 - 131.6 131.6 - 177.0	52.4 45.4	0.41 0.56	0.14 0.10	267.0	300.0	300.0
F-103	3143.9	29,783	24,499	214.0 - 287.2 341.9 - 386.8	73.2 44.9	0.41 0.42	0.05 0.01	344.8	448.4	448.4
F-104	3056.8	29,995	24,103	115.2 - 253.8	138.6	0.44	0.10	379.5	379.5	379.5
F-105	2983.9	29,931	25,482	104.3 - 163.3	59.0	0.86	0.06	319.9	319.9	319.9
F-106	3040.8	30,160	24,218	No ore runs in hole.				268.0	268.0	268.0
F-107	2934.4	30,106	25,543	5.0 - 79.1 105.5 - 133.1	74.1 27.6	0.95 0.47	0.74 0.04	311.3	311.3	311.3
F-108	3045.2	29,599	24,740	51.7 - 78.6 133.3 - 151.6	26.9 18.3	0.78 0.66	0.05 0.12	328.1	328.1	328.1
F-109	3066.5	29,636	24,499	No ore runs this interval.				50.8	50.8	
TOTAL								<u>50.8</u>	<u>2,269.4</u>	

S ————— N

16' BEFORE SECTION

F102

SUL.CT. 0.41
0.14
MZ 0.56
0.10

40' BEHIND SECTION

F87

QAL
SLTST 0.92
SP 0.65
HF
SP, HF
HF 0.53
0.40
SP 0.50
0.03

BX. SEDS

HF
SP
HF

3200

3100

3000

2900

2800

2700

2600

SECTION 25250 E
SECTION 24950 E

72' BEHIND SECTION

F89

QT 0.49
HF 0.16

MB, SP

HF

SUL.CT. 0.44
0.05

SLTST

HF

65' BEHIND SECTION

F90

QAL
HF
QT
HF

SUL.CT.

TT

HF

TT

QT

3100

3000

2900

2800

2700

2600

2500

31000 N

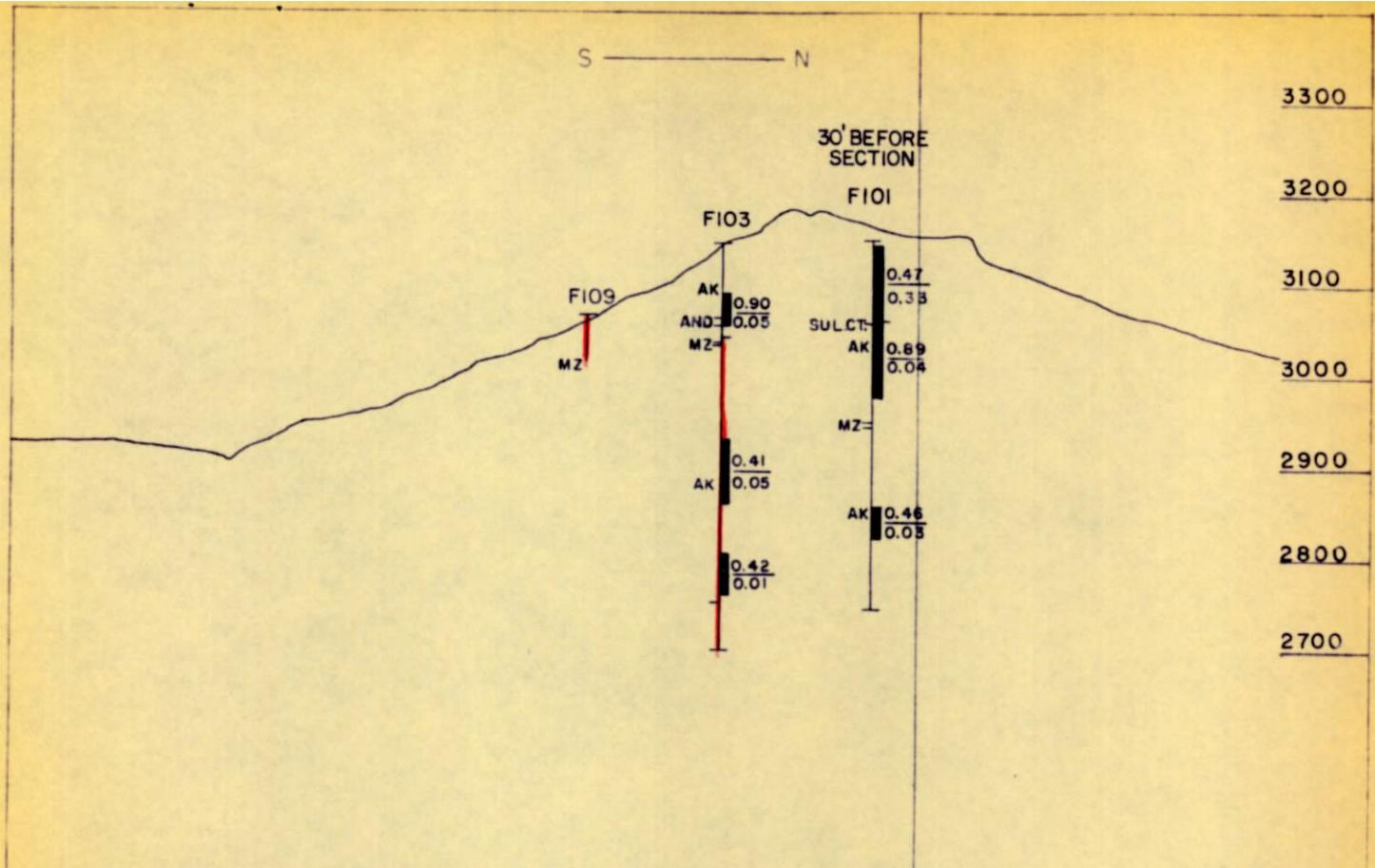
AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

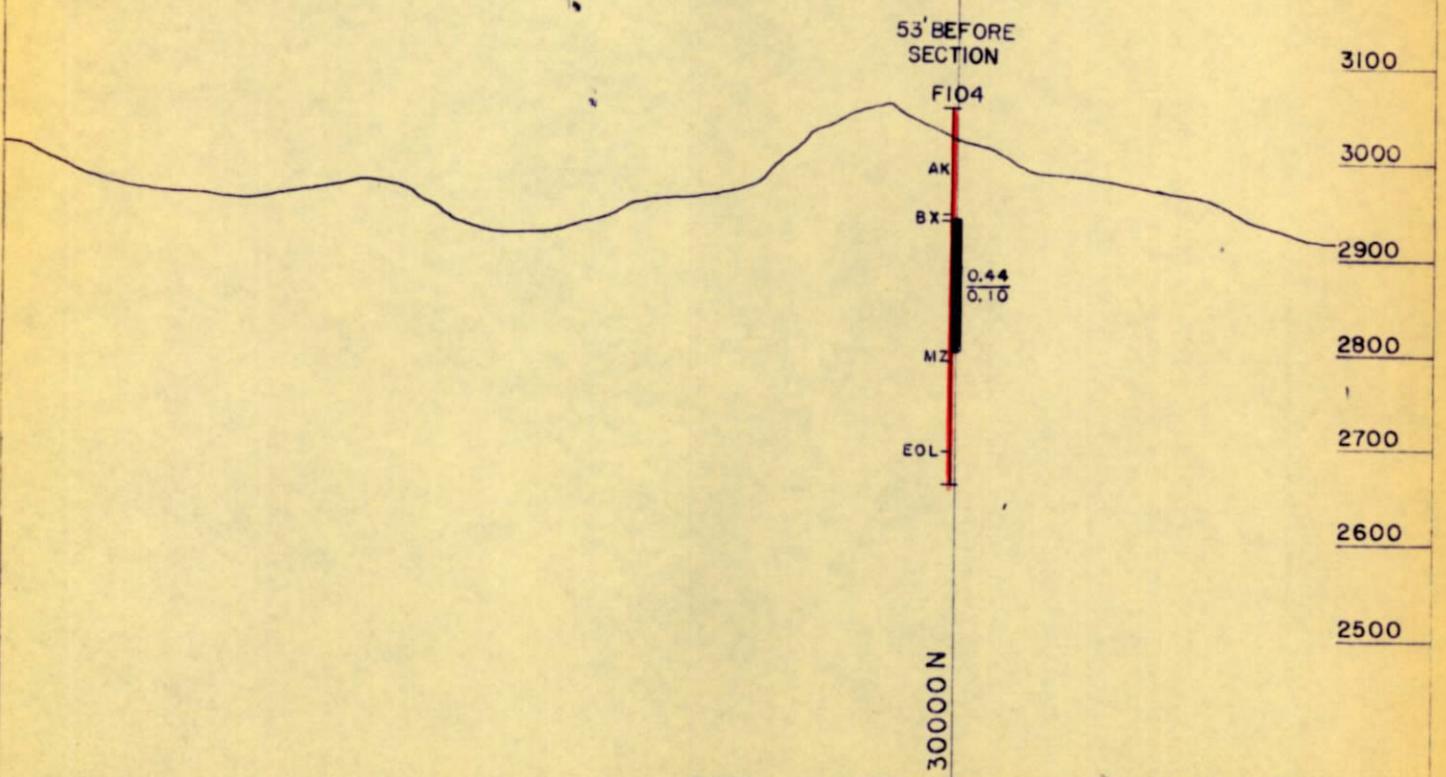
■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE 1" = 200'	DRAWN CWH	DATE SEP 1965	FILE S-121-A
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S ————— N



SECTION 24500 E
SECTION 24050 E



30000 N

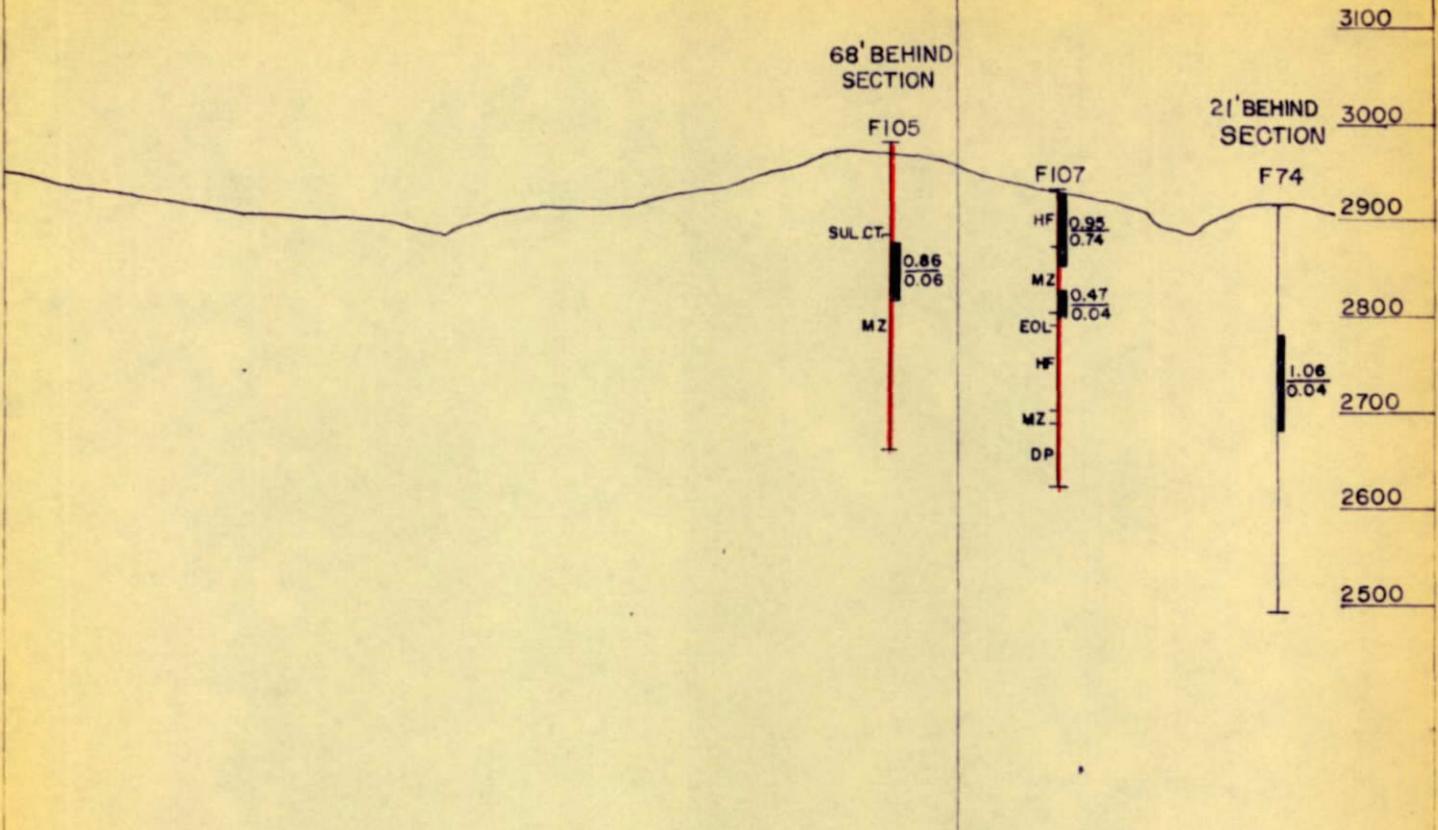
█ +0.4% Total Copper
█ Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

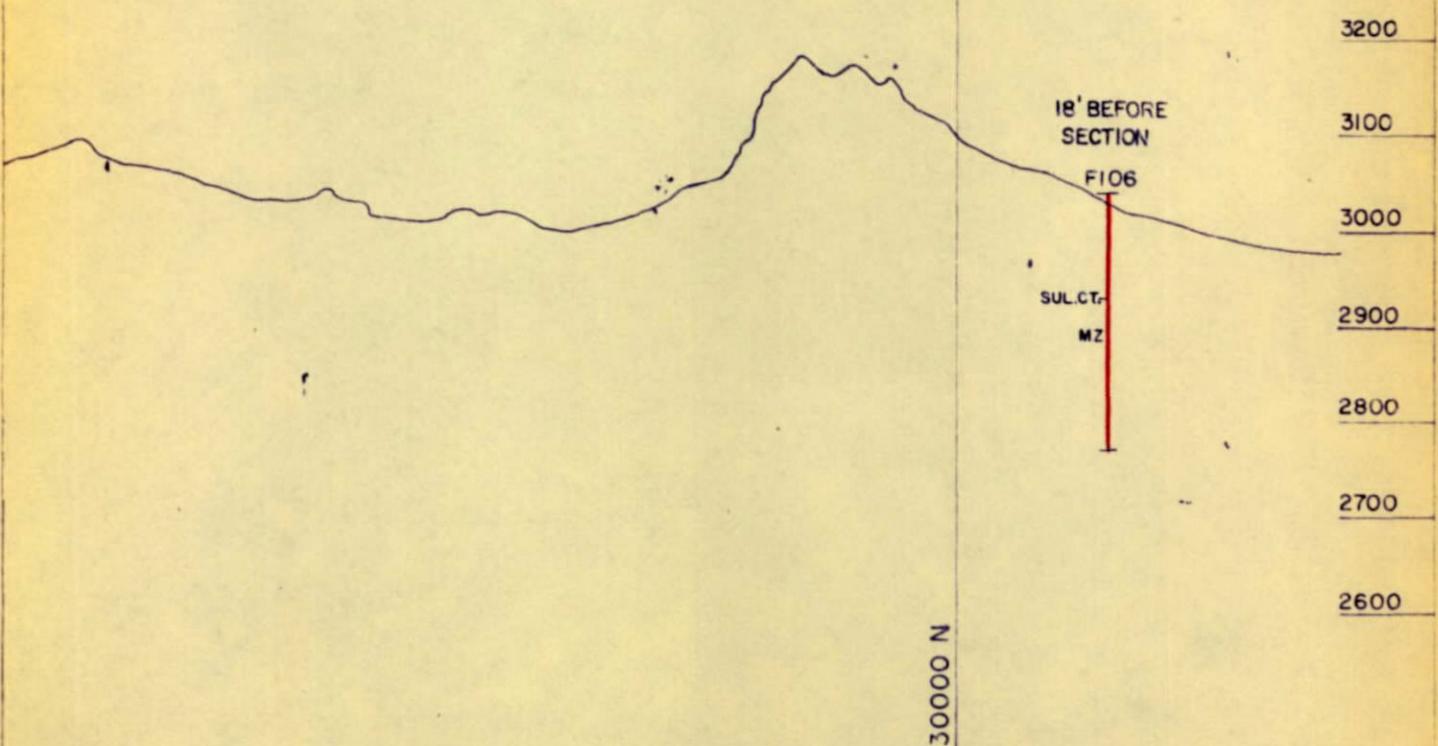
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE SEP 1965	FILE S-121-A
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S ————— N



SECTION 25550 E
SECTION 24200 E



30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	SEP 1965	S-121-A

S ————— N

3300

3200

3100

3000

2900

2800

2700

60' BEHIND SECTION

F108

AK 0.78
0.05

MZ 0.66
0.12

EOL

AK

SECTION 24800 E

30000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	SEP 1965	S-121-A

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

September 20, 1965

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: MONTHLY REPORT ON OXIDE AREA DIAMOND DRILLING

The following report briefly summarizes the results of the diamond drilling in the Oxide area during the month of August, 1965.

Hole F-96 started the month at 164.2 feet in alaskite. Syenodiorite was encountered from 295.6 to 392.1 except for a younger syenodiorite dike from 330.2 to 337.7. Silty hornfels was found from 392.1 to 435.0, and then alaskite to the bottom at 445.0. The sulfide contact was at 271. Non-sulfide copper was moderate from 66 to 271. Sulfide copper was strong from 271 to 335 and weak from 364 to 435.

Hole F-97 started the month at 51.6 and bottomed at 440.0. Monzonite was drilled all the way except for syenodiorite from 175 to 349.7. Chalcopyrite was the main copper mineral and was sparse throughout except for being weak from 148 to 166. This is the last hole planned inside the pit. For results on these four holes see Memorandum to you dated 8/30/65. The remaining holes are in the Northwest Oxide area.

Hole F-98 was an angle hole from the same location as F-94 and F-96. The bearing was due west and the dip was -65 degrees. Younger syenodiorite was drilled to 22.4 and then alaskite to the bottom at 425.0. A partly leached breccia zone (fault?) was found from 407.1 to 425.0. The sulfide contact was at 151. Non-sulfides were weak from 60 to 161. Sulfides were strong from 161 to 342, and strong, but partly mixed from 378 to 425.0. The hole was stopped as it had entered the area of influence of vertical hole F-76.

Hole F-99 was collared and encountered almost every rock type in this area. Dacite porphyry was drilled to 28.5, then hornfels to about 103; then monzonite to 127.6; hornfels again to 172.5; monzonite to 232.4; and finally alaskite to the bottom at 425.6. The sulfide zones were spotty (See Section) with the final sulfide capping contact at 357. Weak sulfides were measured from 155 to 235 and from 365 to 393.

Hole F-100 was a mixture of monzonite, syenodiorite, younger syenodiorite, and andesite from the collar to the bottom at 361.5. In addition silty hornfels was found from 221.7 to about 225 and from 284 to 345. The sulfide contact was at 87. Strong sulfides were measured from 188 to 254.

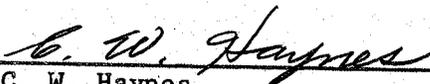
Hole F-101 drilled alaskite from top to bottom at 406.0, except for a monzonite dike from 199.2 to 203.2. Sulfides began at 91 but there was some leaching almost everywhere in the hole. Weak non-sulfides were found from the collar to 88. Sulfides were strong from 88 to 172 and weak from 292 to 328.

Hole F-102 was started and drilled leached monzonite to the end of the month at 33.0.

Hole F-103 was collared and penetrated alaskite to 82.2, andesite to 91.4, and alaskite to the end of the month at 103.6. Strong sulfides were measured from 53 to 91.

The Northwest Oxide area is becoming rather complex. Surface outcrops are not too plentiful except on the main ridge which is mainly alaskite. Remnant pods of dacite porphyry are scattered through the northern slope, which has been cut by syenodiorite porphyry, monzonite, younger syenodiorite, and post-mineral adnesite. Paleozoic sediments, now metamorphosed mainly to hornfels, are found as xenoliths within an intrusive, and as entrapped bodies between intrusives. Copper sulfide mineralization is as chalcocite and chalcopyrite each, but mainly as chalcocite replacing chalcopyrite. Non-sulfide copper is mainly chrysocolla and malachite. Pyrite content is low, especially in the alaskite where it is present in trace amounts. Leaching is often present through and below the enriched (chalcocite) zone. Supergene alteration is weak but hydrothermal alteration moderate with sericite, orthoclase, and biotite. The grade of mineralization appears to be commercial. The problem now is to develop enough tonnage to make mining practical.

See accompanying maps and sections.


C. W. Haynes
Resident Geologist

CWH:jca

DIAMOND DRILLING IN THE OXIDE AREA

Hole No.	Ground Elevation	Coordinates		+0.40% Copper Lenses		Average % Cu		Feet Drilled During Month	Depth End of Month	Final Depth
		North	East	Interval	Thickness	Total	N.S.			
F-96**	3207.4	29,761	24,902	65.6 - 271.4 271.4 - 335.4 363.6 - 435.0	205.8 64.0 71.4	0.67 1.01 0.48	0.46 0.13 0.03	280.8	445.0	445.0
F-97*	2741.1	29,660	26,880	147.7 - 165.7	18.0	0.44	0.01	388.4	440.0	440.0
F-98***	3207.4	29,761	24,902	60.2 - 161.1 161.1 - 341.8 377.8 - 425.0	100.9 180.2 47.2	0.41 0.85 1.39	0.32 0.05 0.27	425.0	425.0	425.0
F-99	3118.8	29,967	24,709	154.8 - 235.2 365.3 - 392.6	80.4 27.3	0.54 0.42	0.06 0.03	425.6	425.6	425.6
F-100	3024.5	30,098	25,039	187.9 - 254.3	66.4	0.81	0.04	361.5	361.5	361.5
F-101	3148.1	29,949	24,530	5.0 - 87.6 87.6 - 171.8 291.8 - 327.7	82.6 84.2 35.9	0.47 0.89 0.46	0.33 0.04 0.03	406.0	406.0	406.0
F-102	3007.0	30,051	25,268	No ore runs this interval.				33.0	33.0	
F-103	3143.9	29,783	24,499	52.5 - 91.4	38.9	0.90	0.05	103.6	103.6	
TOTAL								<u>2,423.9</u>		

* Same coordinate as CDH 46. (See last month's map).

** This is an angle hole. Bearing is due East. Dip is -55 degrees.

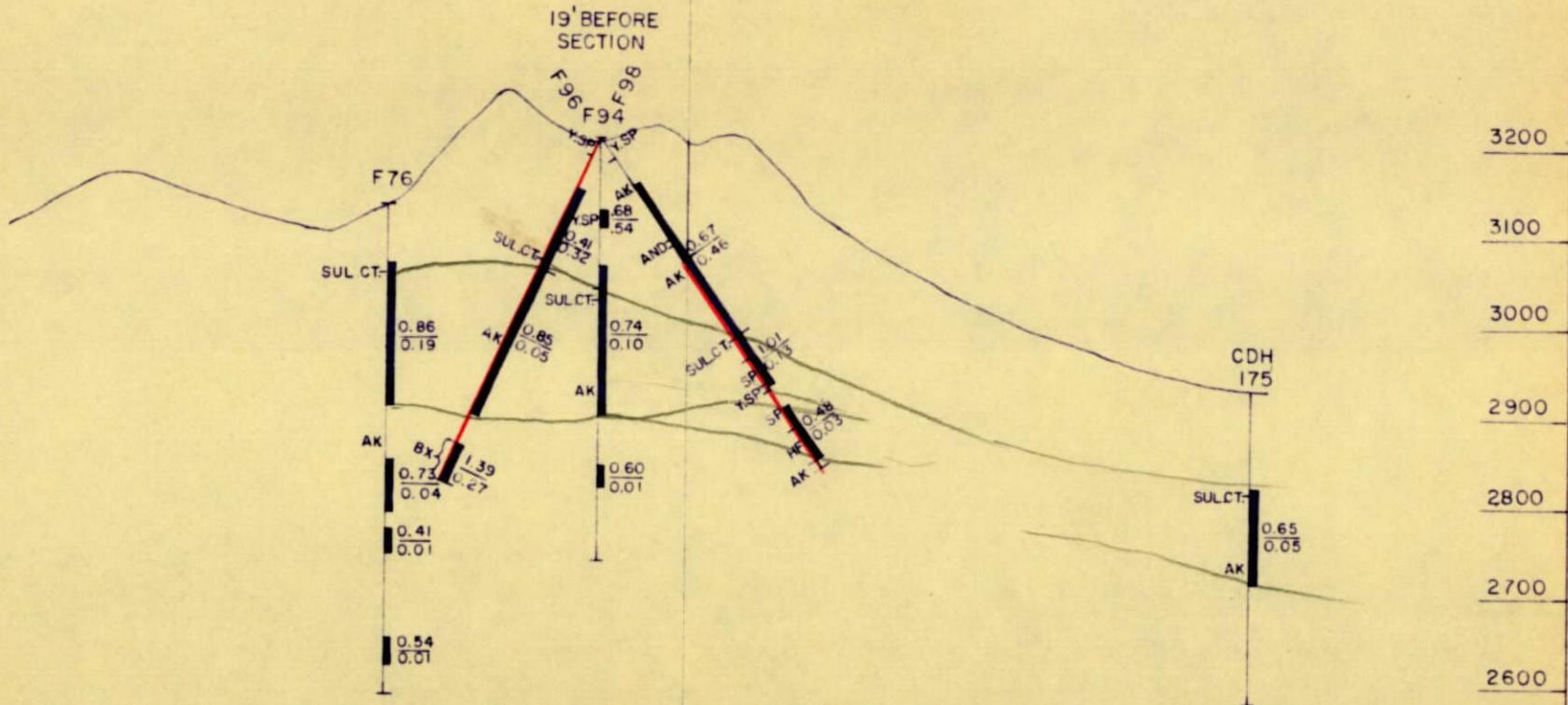
*** This is an angle hole. Bearing is due West. Dip is -65 degrees.

25000 E

26000 E

W ——— E

19' BEFORE SECTION



SECTION 29780 N

+0.40% TOTAL CU

ADVANCE FOR MONTH

SILVER BELL UNIT

OXIDE AREA

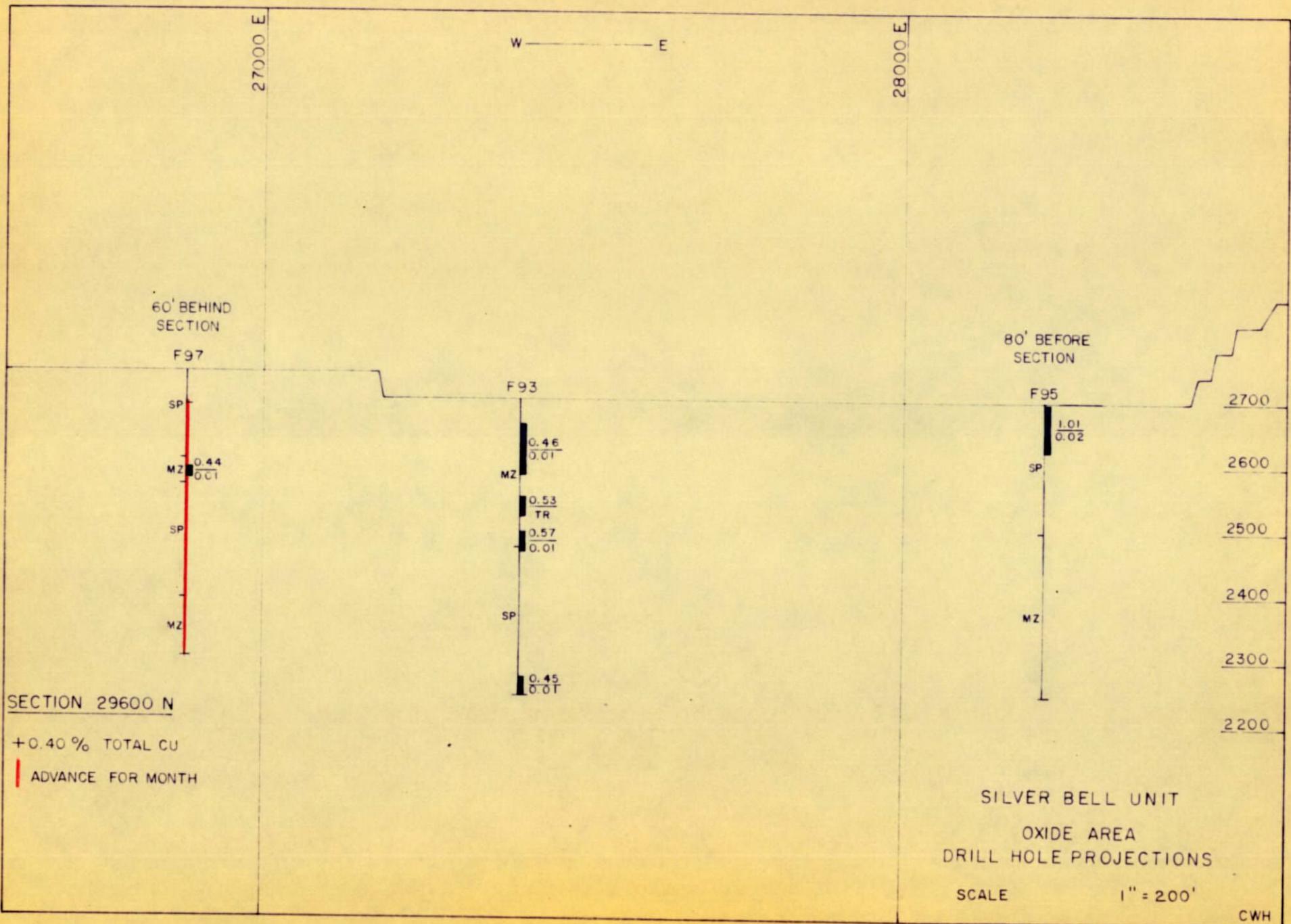
DRILL HOLE PROJECTIONS

SCALE

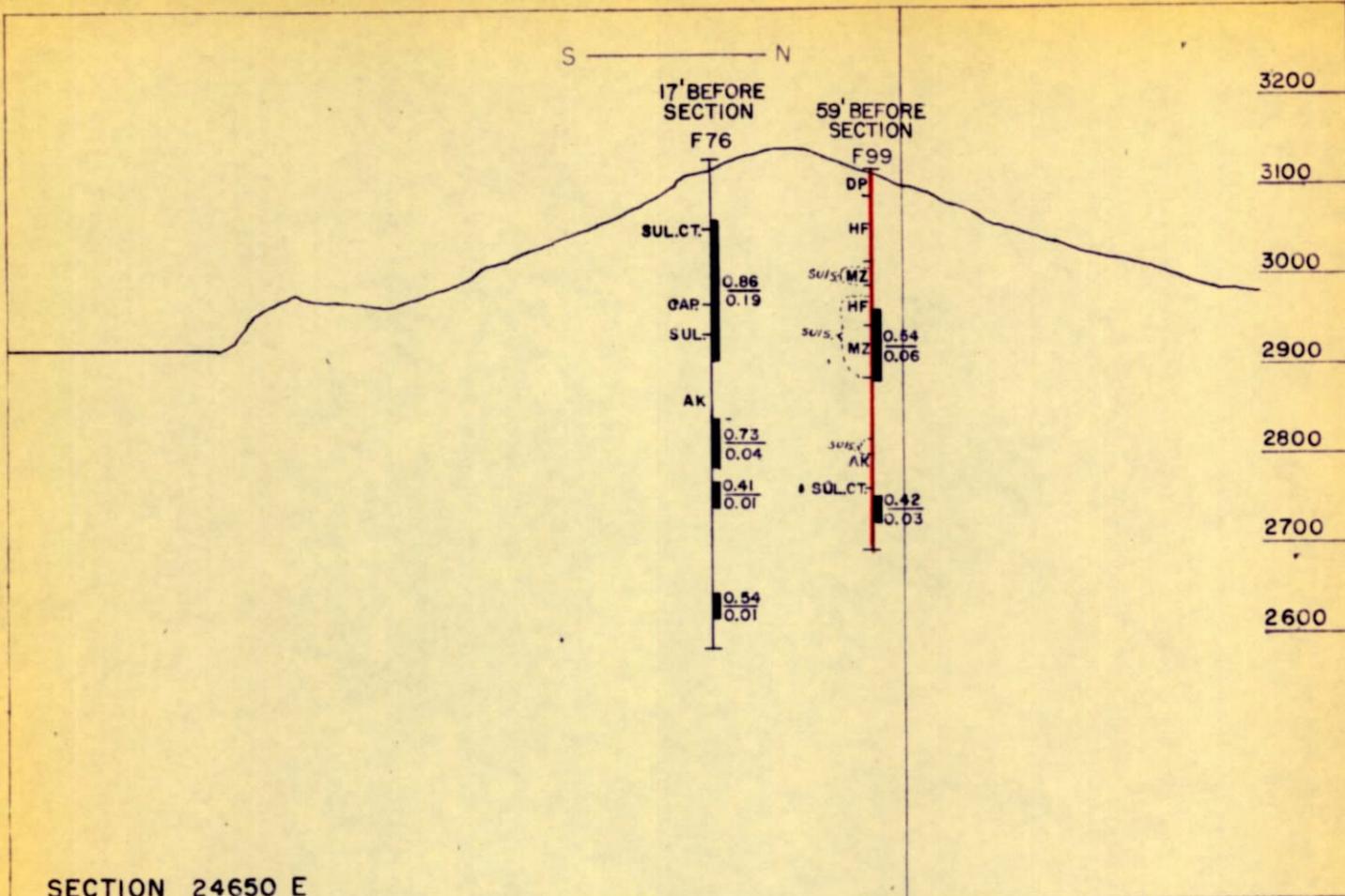
1" = 200'

CWH

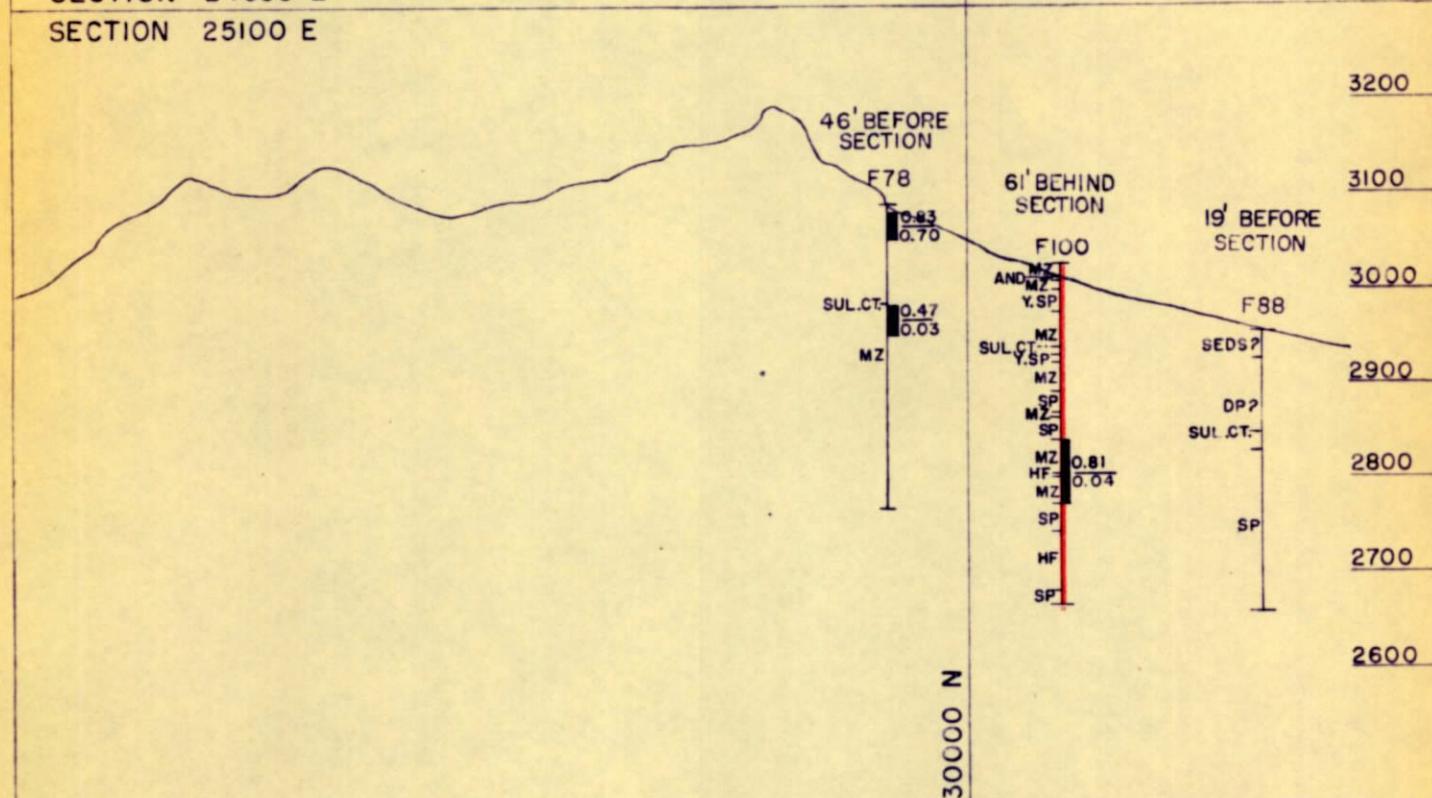
110 1065



AUG 1965



SECTION 24650 E
SECTION 25100 E



AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	AUG 1965	S-121-A

■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

S ————— N

3300
3200
3100
3000
2900
2800
2700

30' BEFORE SECTION

F101

F103

AK 0.90
AND 0.05
AK

0.47
0.35
SULCT:
AK 0.69
0.04

MZ

AK 0.46
0.03

SECTION 24500 E

30000 N

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE AUG 1965	FILE S-121-A
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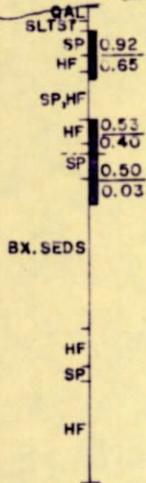
S ————— N

16' BEFORE SECTION

F102

MZ

40' BEHIND SECTION
F87



3200

3100

3000

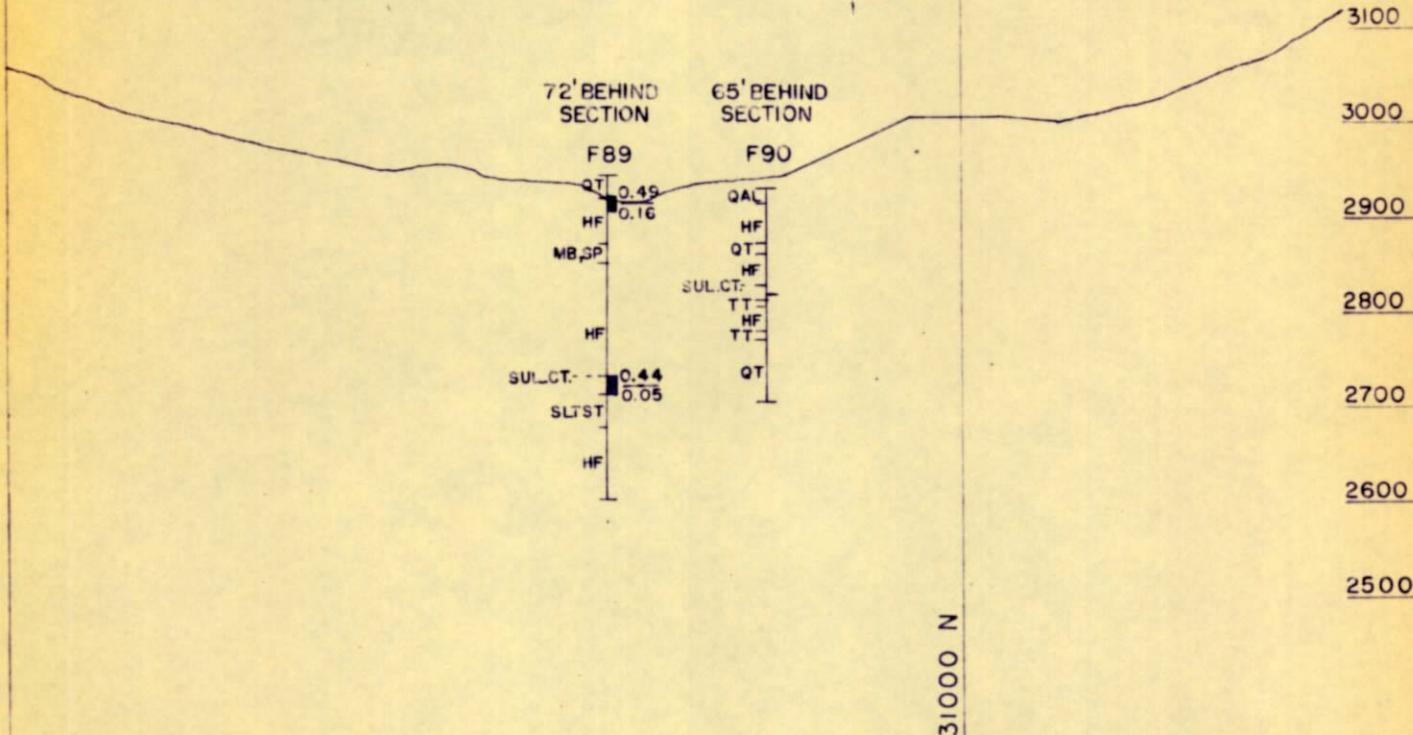
2900

2800

2700

2600

SECTION 25250 E
SECTION 24950 E



3100

3000

2900

2800

2700

2600

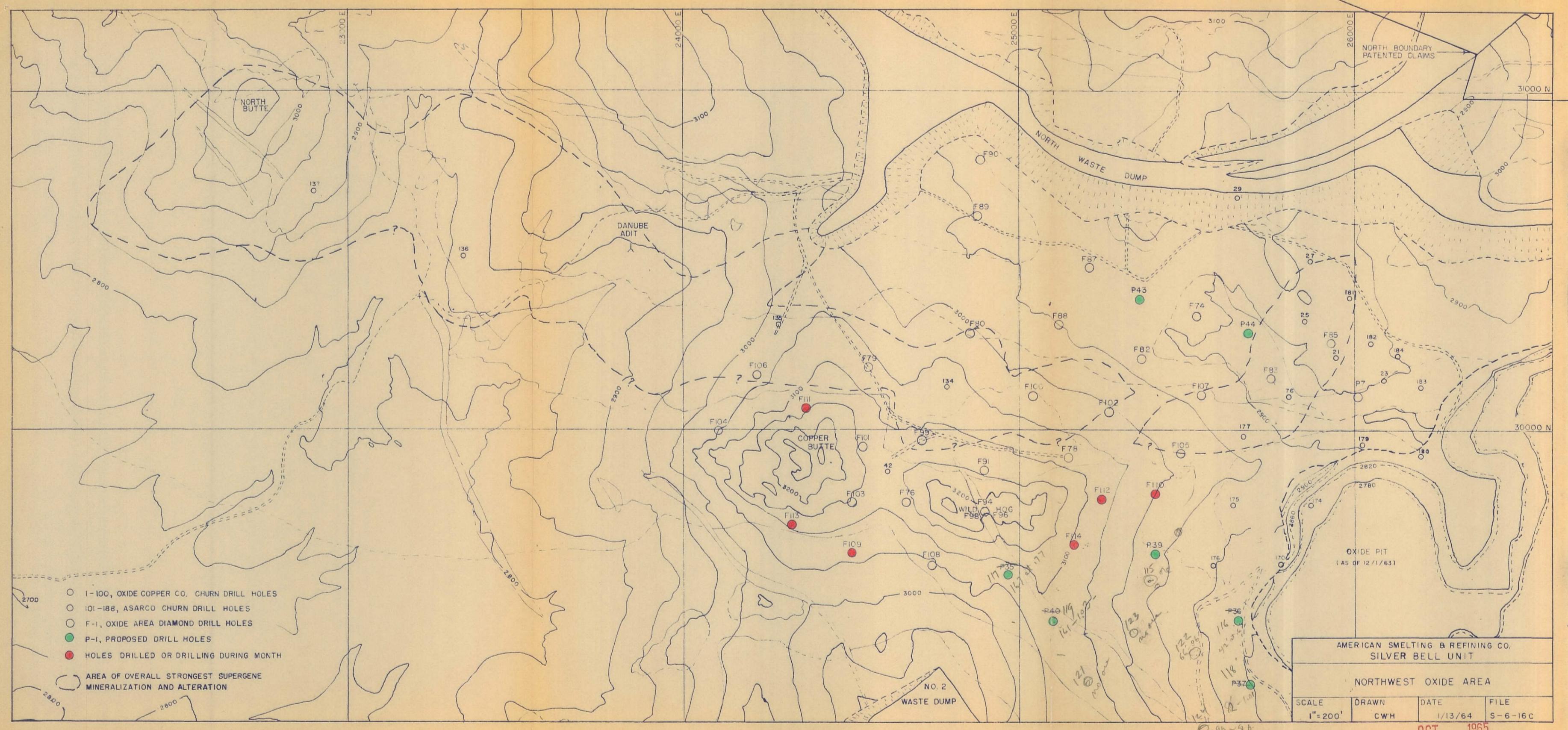
2500

■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	AUG 1965	S-121-A

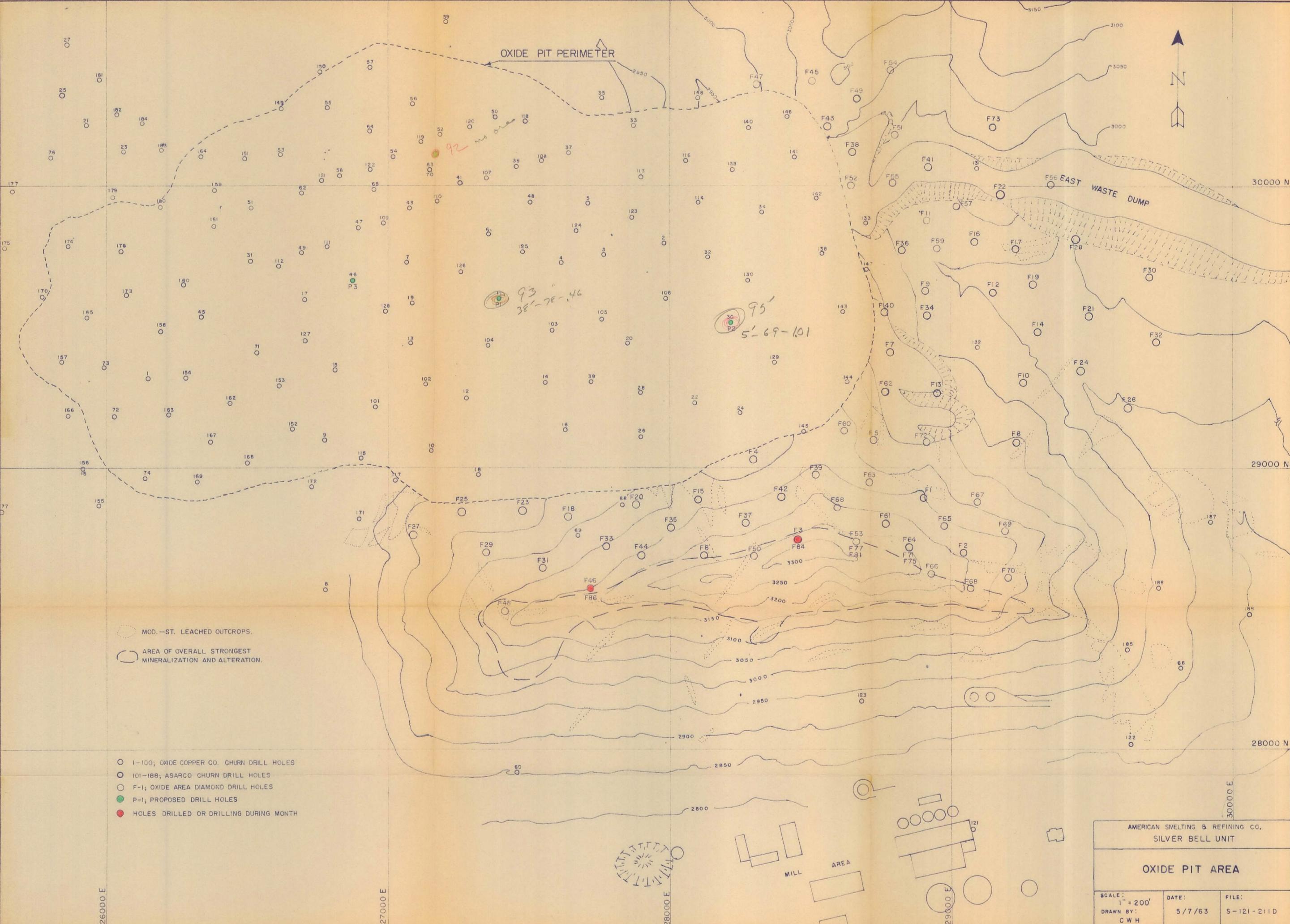


- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH

○ AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION

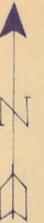
AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
NORTHWEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	1/13/64	S-6-16C

OCT 1965



OXIDE PIT PERIMETER

EAST WASTE DUMP



○ MOD.-ST. LEACHED OUTCROPS.
 ○ AREA OF OVERALL STRONGEST MINERALIZATION AND ALTERATION.

○ 1-100; OXIDE COPPER CO. CHURN DRILL HOLES
 ○ 101-188; ASARCO CHURN DRILL HOLES
 ○ F-1; OXIDE AREA DIAMOND DRILL HOLES
 ● P-1; PROPOSED DRILL HOLES
 ● HOLES DRILLED OR DRILLING DURING MONTH

AMERICAN SMELTING & REFINING CO.
 SILVER BELL UNIT
OXIDE PIT AREA
 SCALE: 1" = 200'
 DATE: 5/7/63
 FILE: S-121-211D
 DRAWN BY: CWH

JUN 1965

MILL AREA

93
38-78-46

95
5-69-101

26000 E

27000 E

28000 E

29000 E

30000 E

17.7

17.7

30000 N

29000 N

28000 N

2800

2850

2900

2950

3000

3050

3100

3150

3200

3250

3300

3350

3400

3450

3500

3550

3600

3650

3700

3750

3800

3850

3900

3950

4000

4050

4100

4150

4200

4250

4300

4350

4400

4450

4500

4550

4600

4650

4700

4750

4800

4850

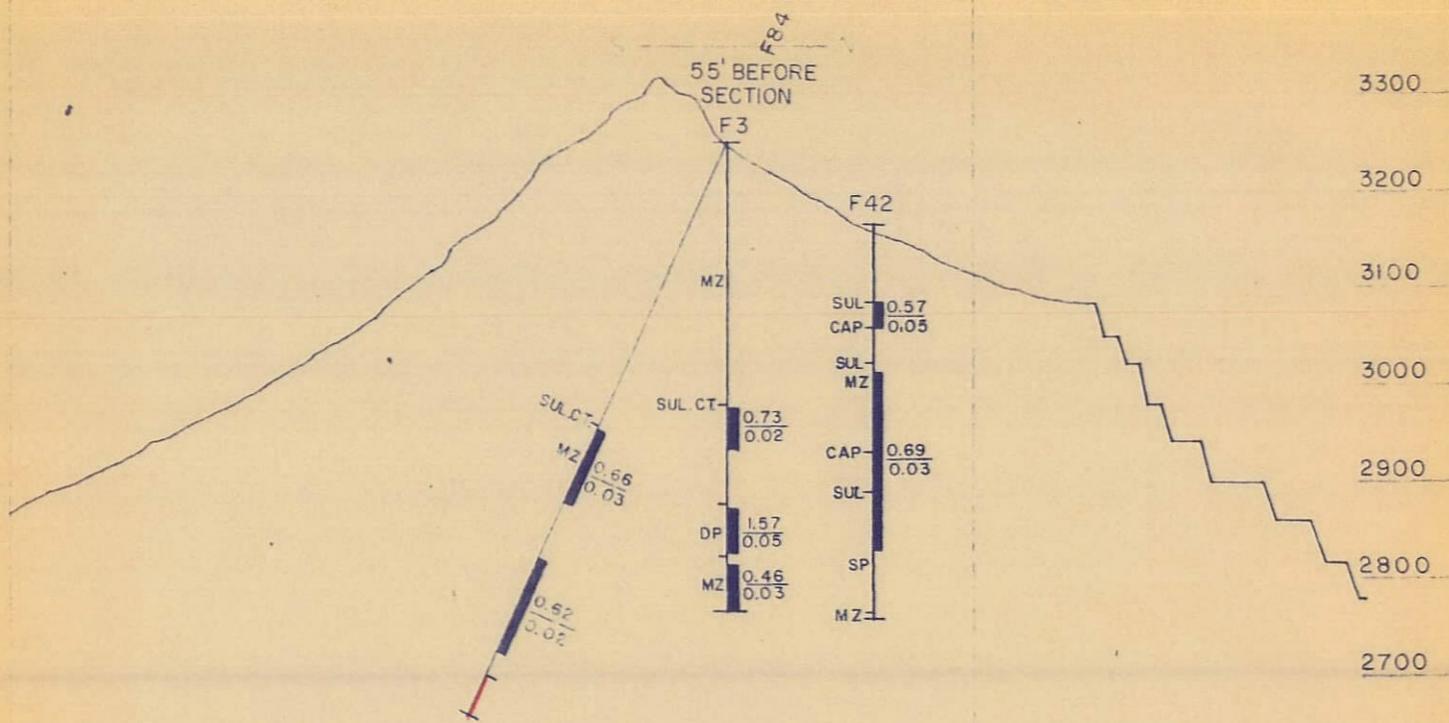
4900

4950

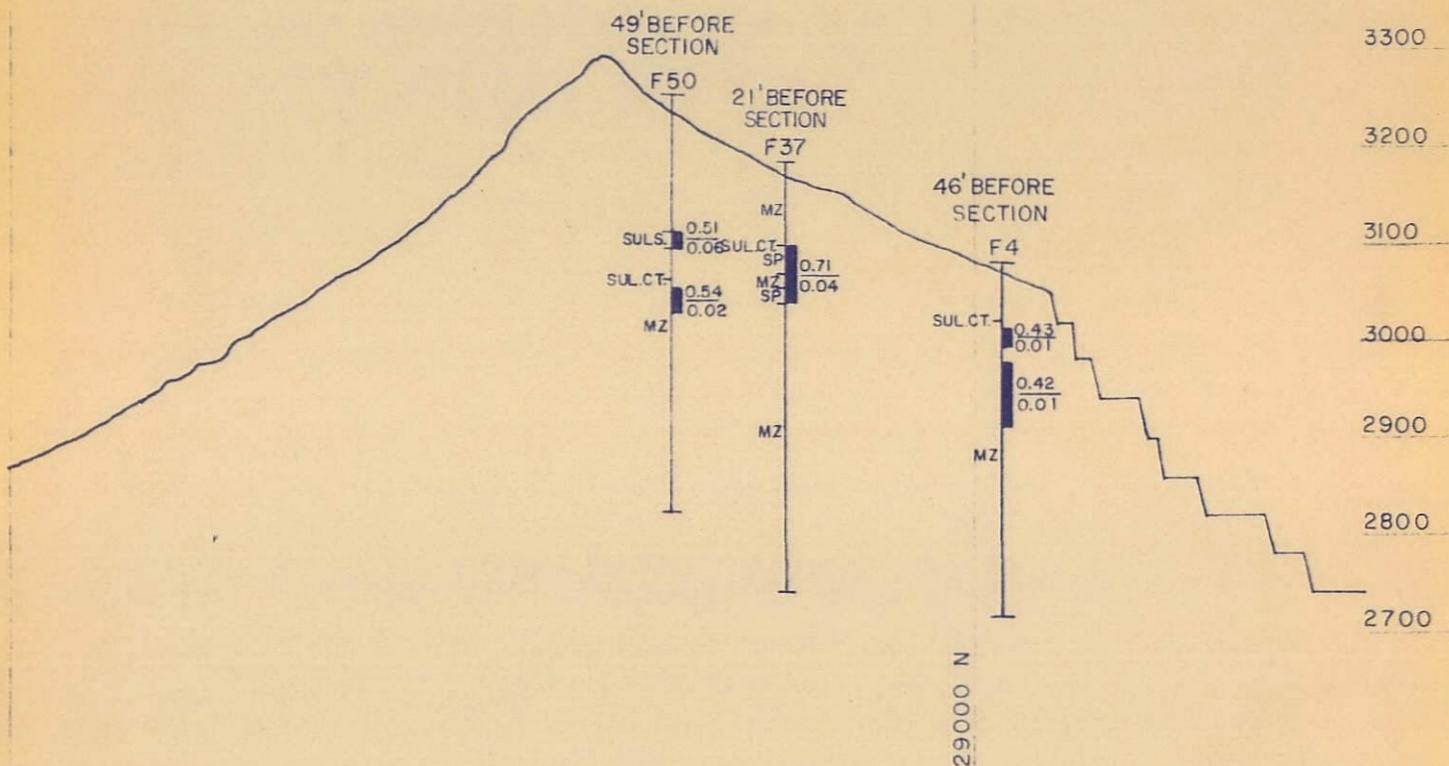
5000

5050

5100



SECTION 28400 E
SECTION 28250 E



■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu/Non Sul. Cu

AMERICAN SMELTING & REFINING CO
SILVER BELLE UNIT

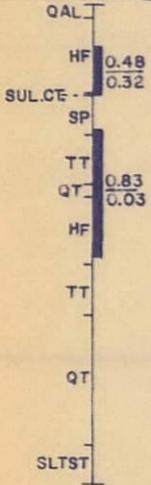
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1"=200'	DRAWN CWH	DATE JUN 1965	FILE 5-121 A
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S' ————— N

52' BEFORE SECTION

F 83



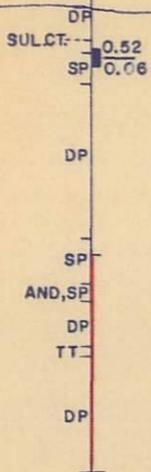
3100
3000
2900
2800
2700
2600
2500

SECTION 25700 E

SECTION 26000 E

70' BEHIND SECTION

F 85



3100
3000
2900
2800
2700
2600
2500

31000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4 % Total Copper
 | Advance for month
 Note : Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

SCALE

1" = 200'

DRAWN

CWH

DATE

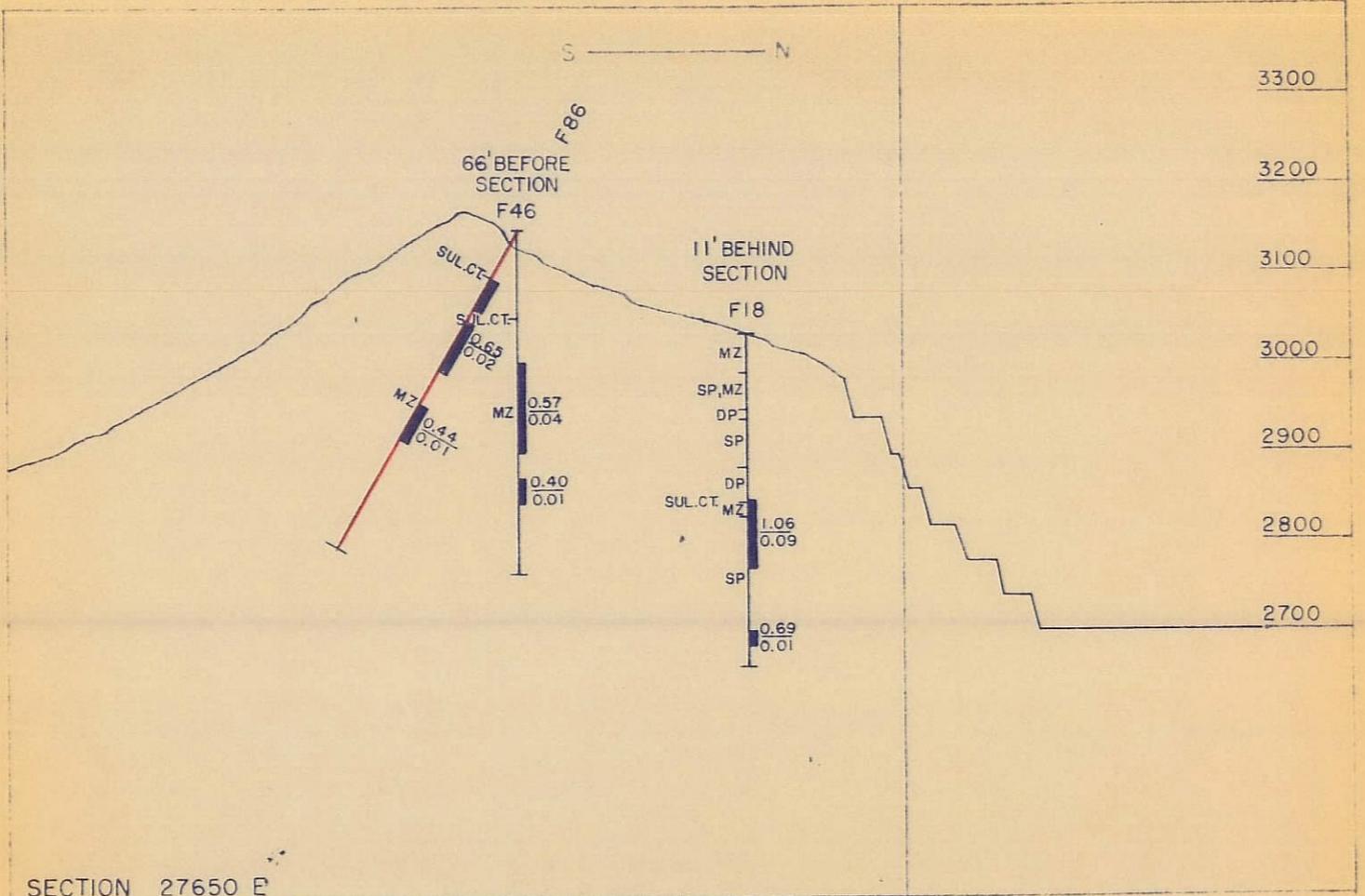
JUN

FILE

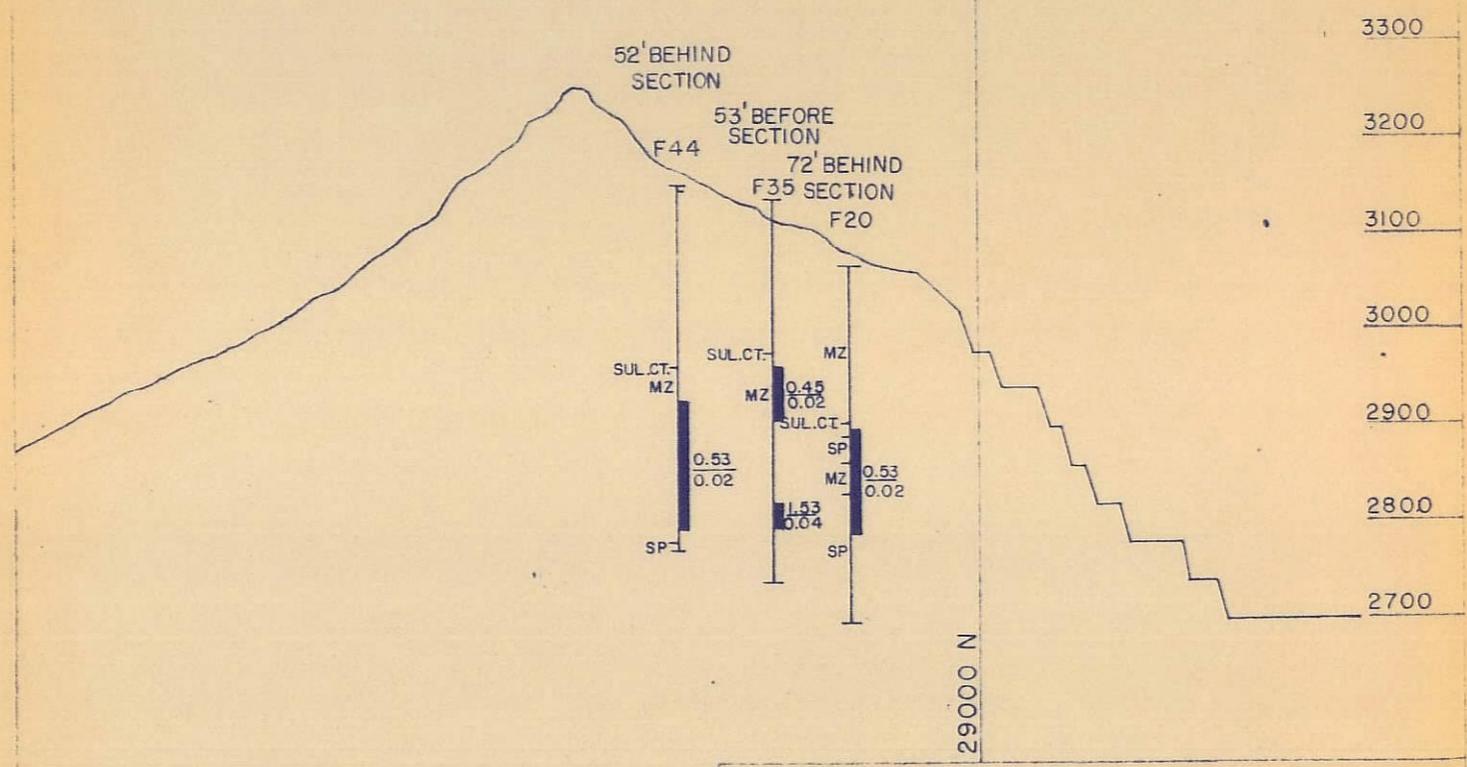
1965

S-121-

A



SECTION 27650 E
SECTION 27950 E



█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

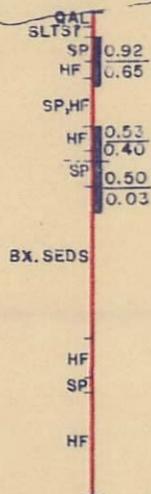
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	JUN 1965	S-121-A

S ————— N

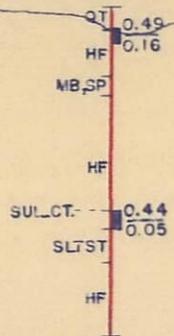
3200
3100
3000
2900
2800
2700
2600
3100
3000
2900
2800
2700
2600
2500

40' BEHIND SECTION
F87

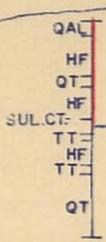


SECTION 25250 E
SECTION 24950 E

72' BEHIND SECTION
F89



65' BEHIND SECTION
F90



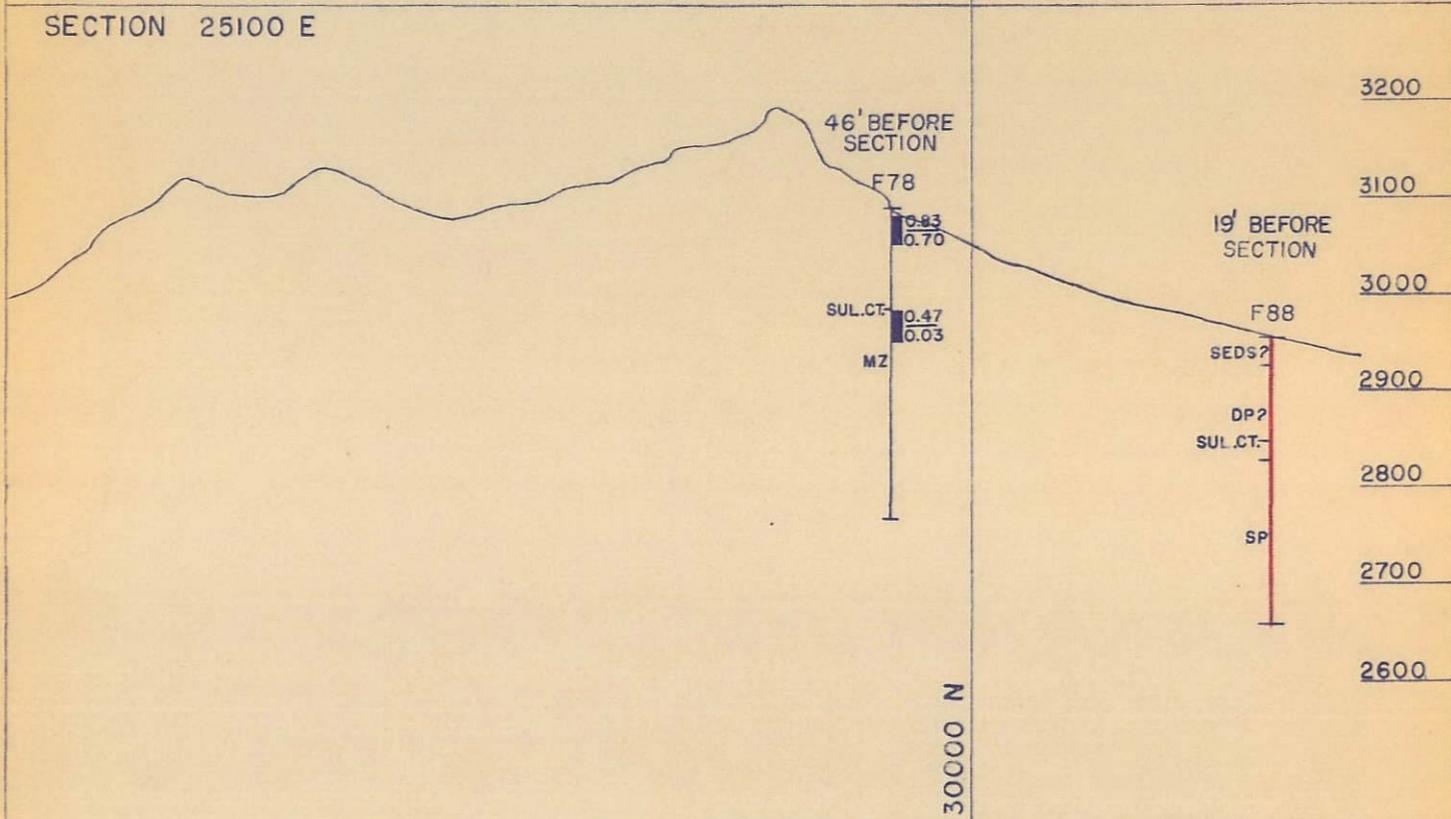
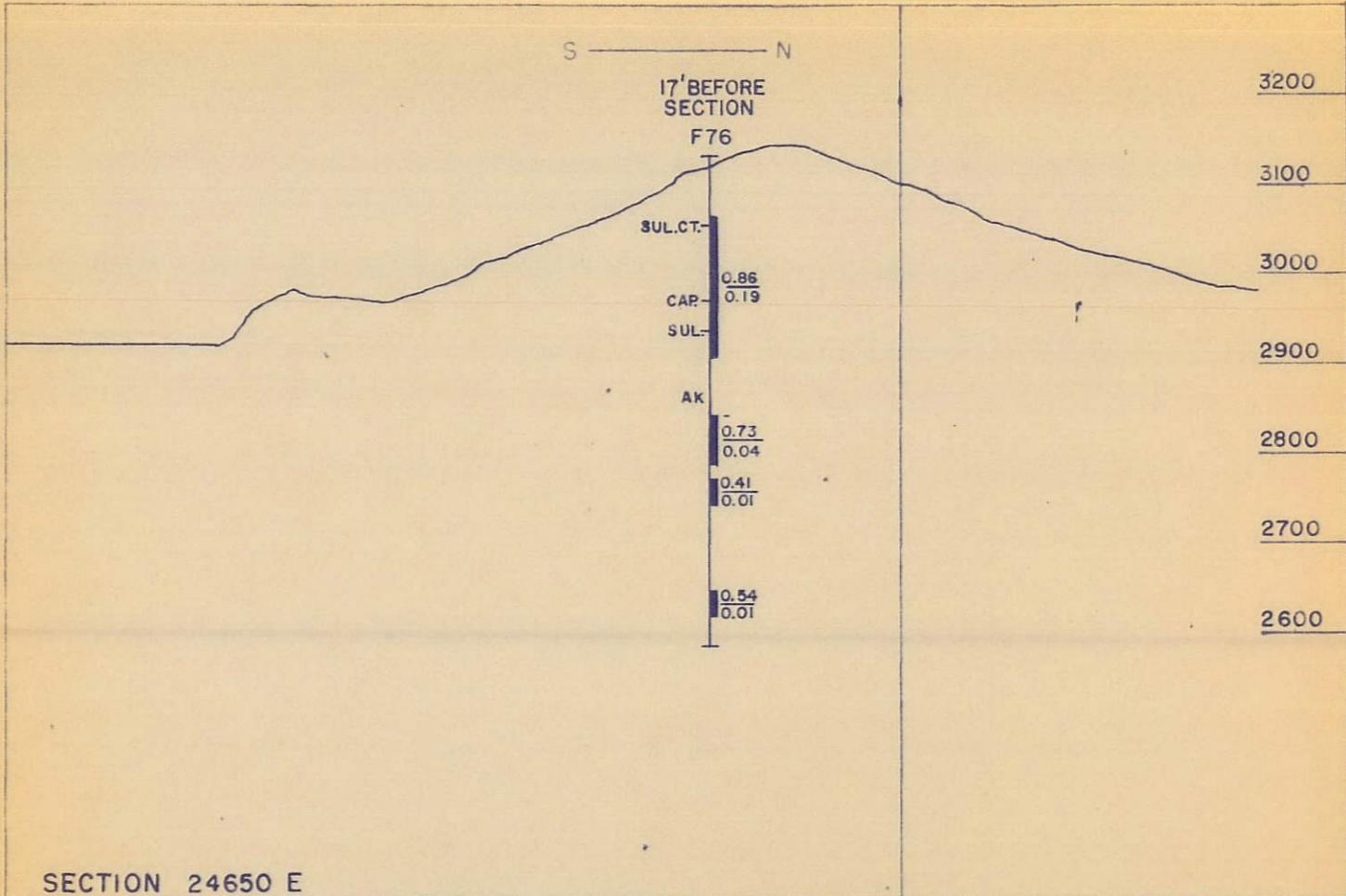
31000 N

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu/Non Sul. Cu

SCALE 1" = 200'	DRAWN CWH	DATE JUN 1965	FILE S-121-A
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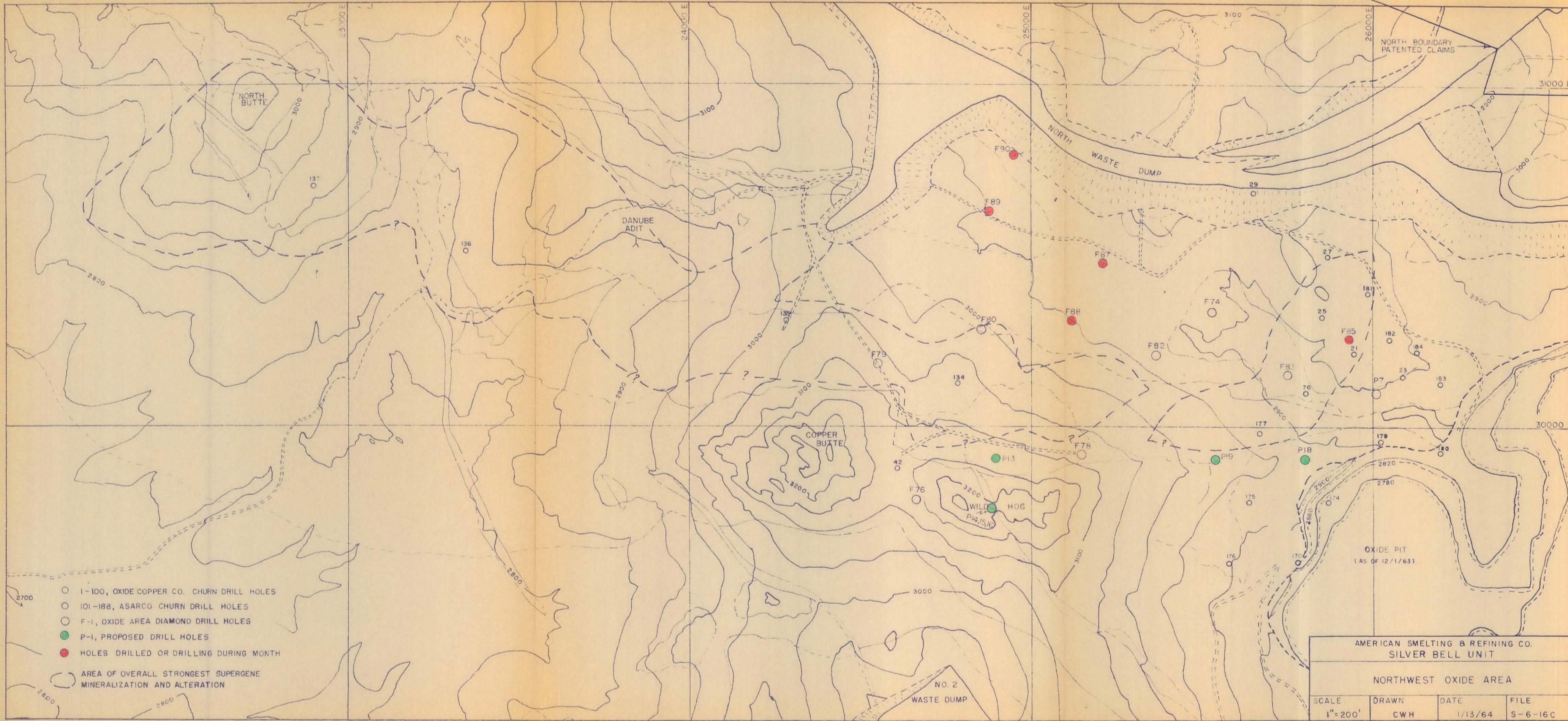


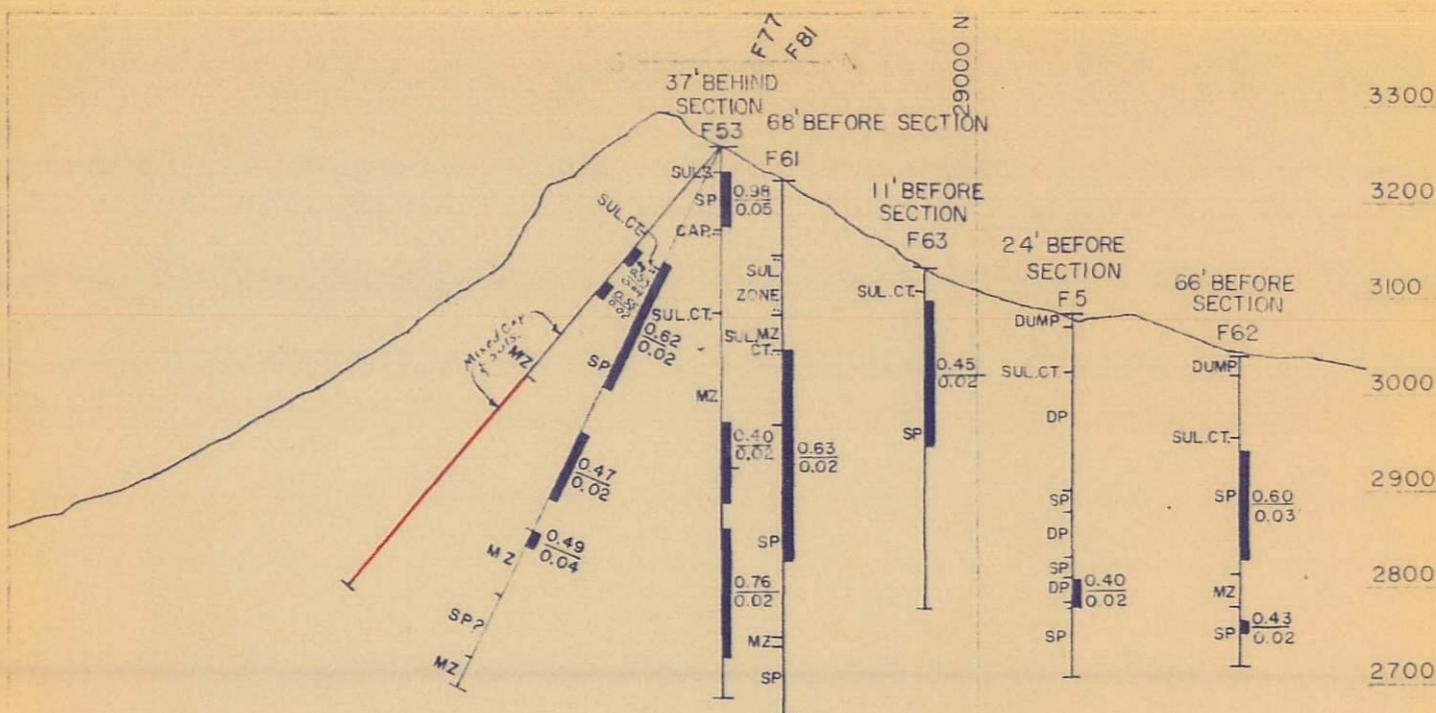
■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

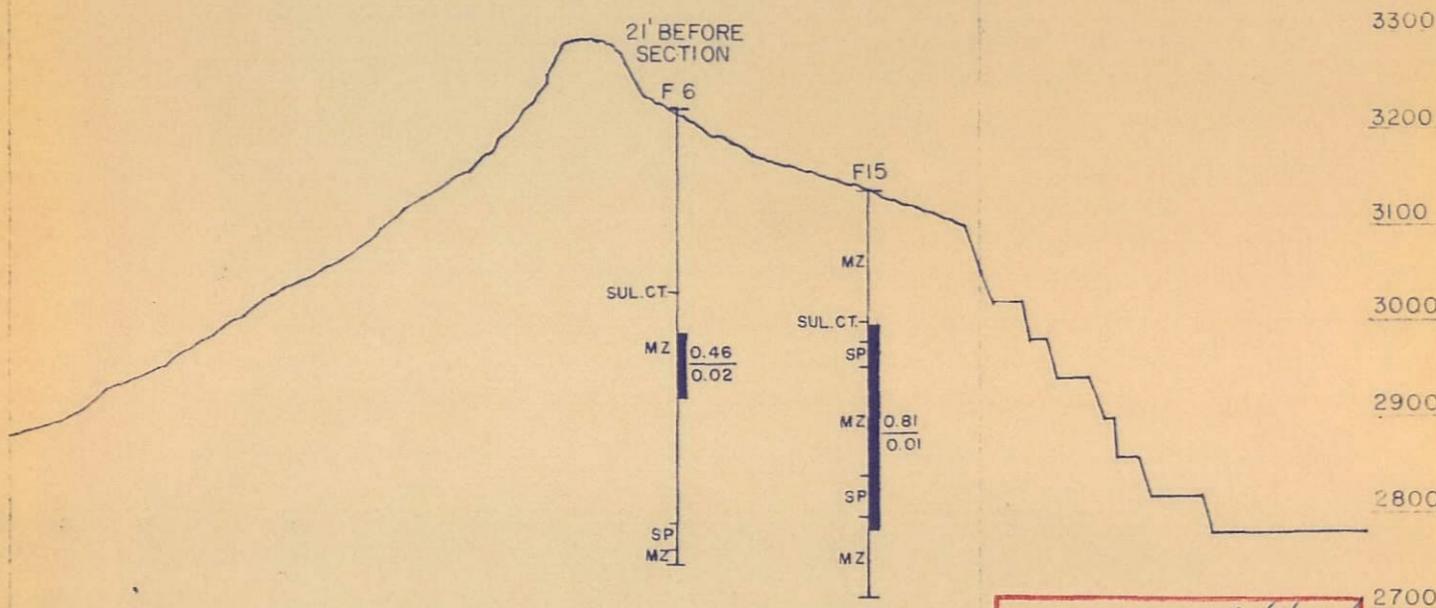
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE 1" = 200'	DRAWN CWH	DATE JUN 1965	FILE S-121- A
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SECTION 28700 E
SECTION 28100 E



TO ACCOMPANY *Monthly Letter*
DATED *May, 1965*
BY *P. R. Jameson*

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

█ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE 1"=200
DRAWN CWH
DATE MAY 1965
FILE

S ————— N

21' BEHIND SECTION

F74

QAL
 TT, HF
 MZ, SP
 SUL. CT.
 HF 1.06
 HF, AND 0.04
 HF, T
 AND
 HF
 MZ
 HF
 AND, HF
 QT?

3200

3100

3000

2900

2800

2700

2600

SECTION 25550 E
SECTION 25400 E

36' BEHIND SECTION

F82

SP 0.61
 0.42
 SUL. CT. BX 1.10
 0.11
 SP
 BX 0.59
 0.02
 HF
 QT?

3100

3000

2900

2800

2700

2600

2500

31000 N

TO ACCOMPANY *Monthly letter*
 DATED *May, 1965*
 BY *P. R. Jameson*

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized
 Cu Assay is Total Cu / Non Sul. Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	MAY	1965 S-121-A

S ————— N

3100

3000

2900

2800

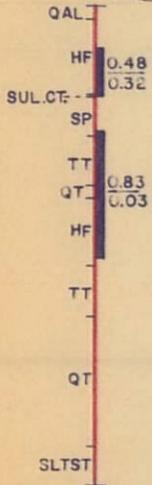
2700

2600

2500

52' BEFORE SECTION

F 83



SECTION 25700 E

SECTION 26000 E

3100

3000

2900

2800

2700

2600

70' BEHIND SECTION

F 85



31000 N

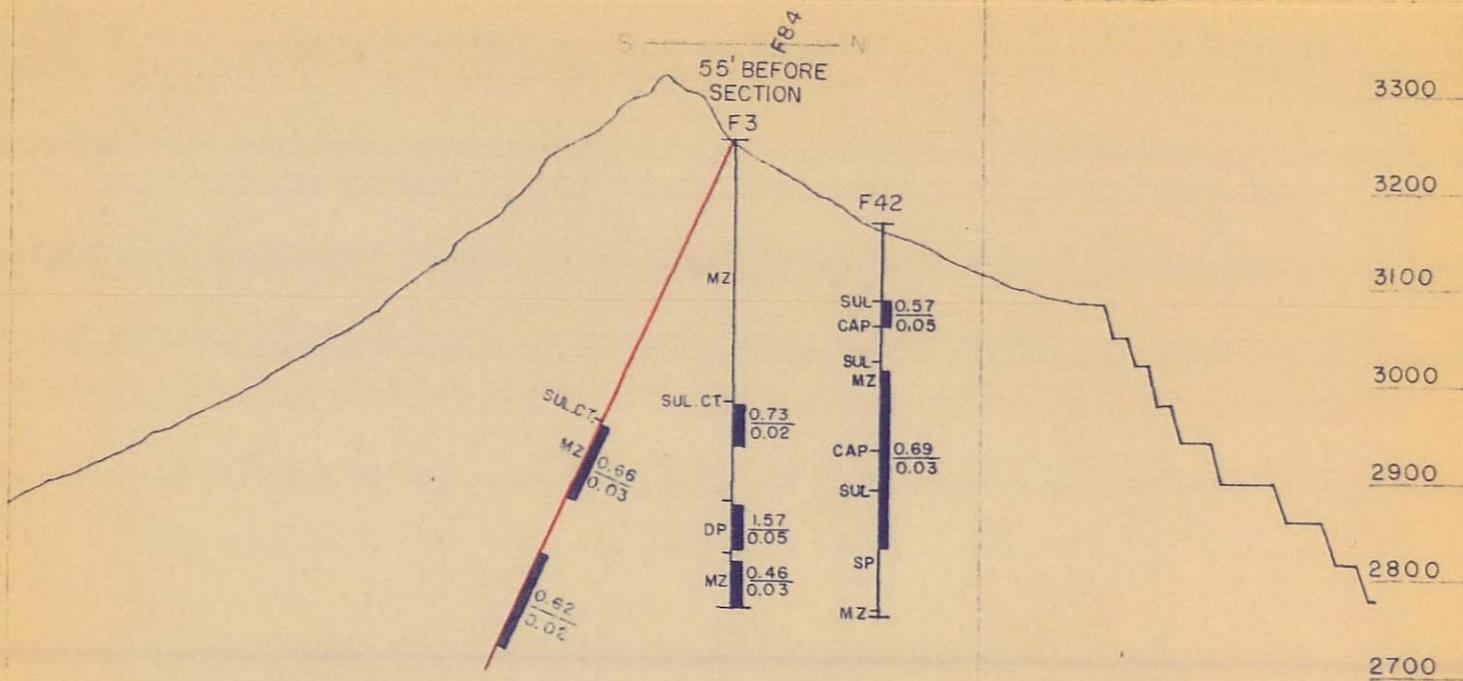
TO ACCOMPANY *Monthly letter*
DATED *May, 1965*
BY *D.R. Jameson*

AMERICAN SMELTING & REFINING CO
SILVER BELL UNIT

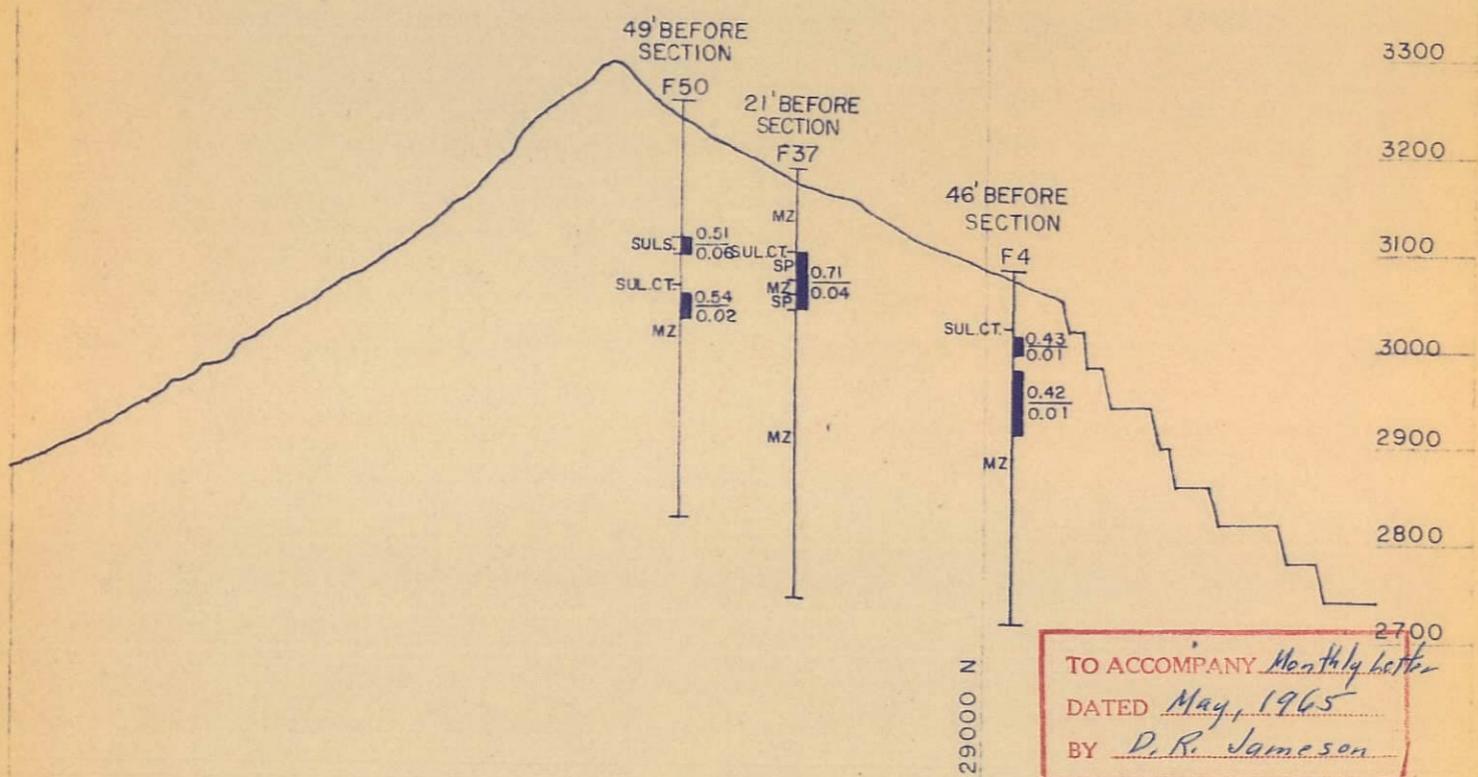
OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE 1" = 200'	DRAWN CWH	DATE MAY 1965	FILE S-121-A
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SECTION 28400 E
SECTION 28250 E



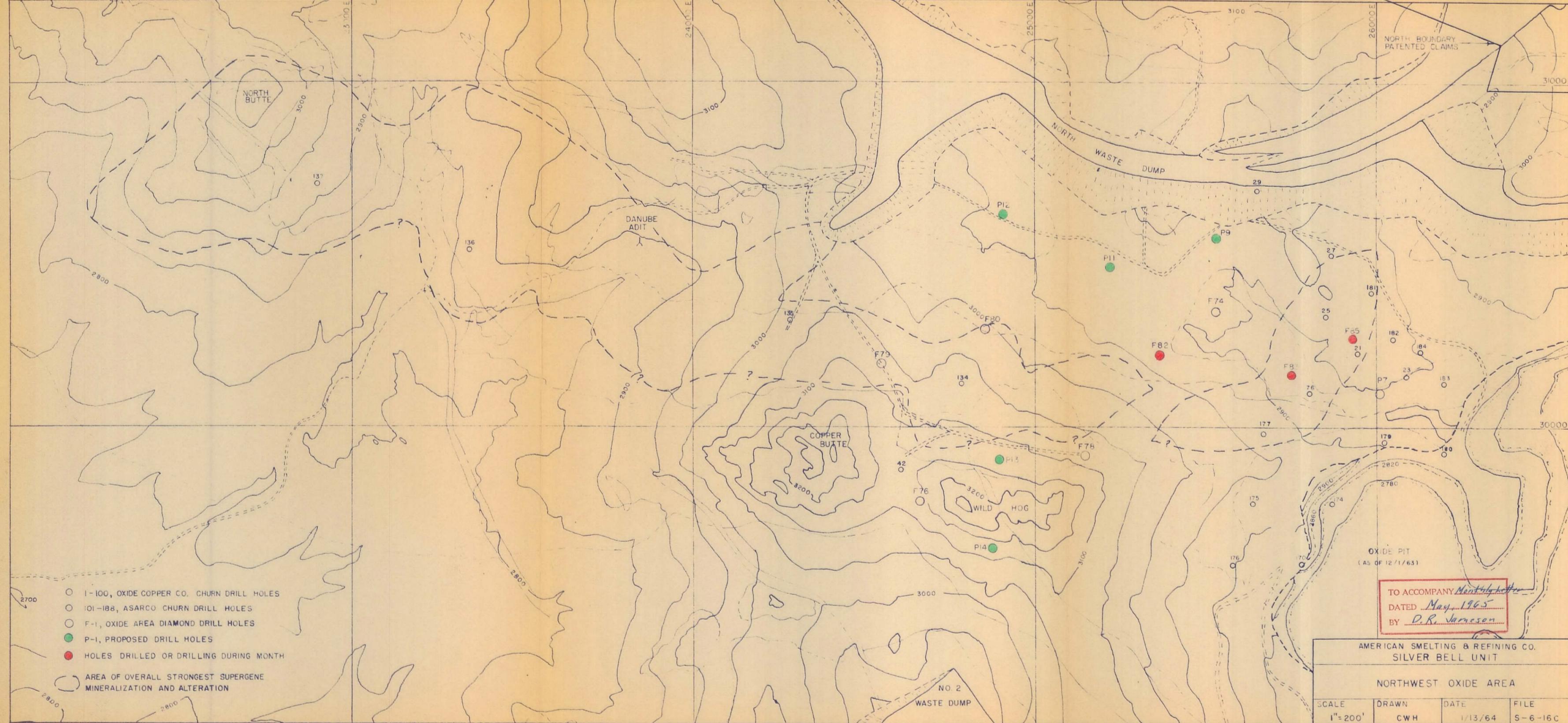
TO ACCOMPANY Monthly letter
DATED May, 1965
BY D. R. Jameson

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul Cu

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

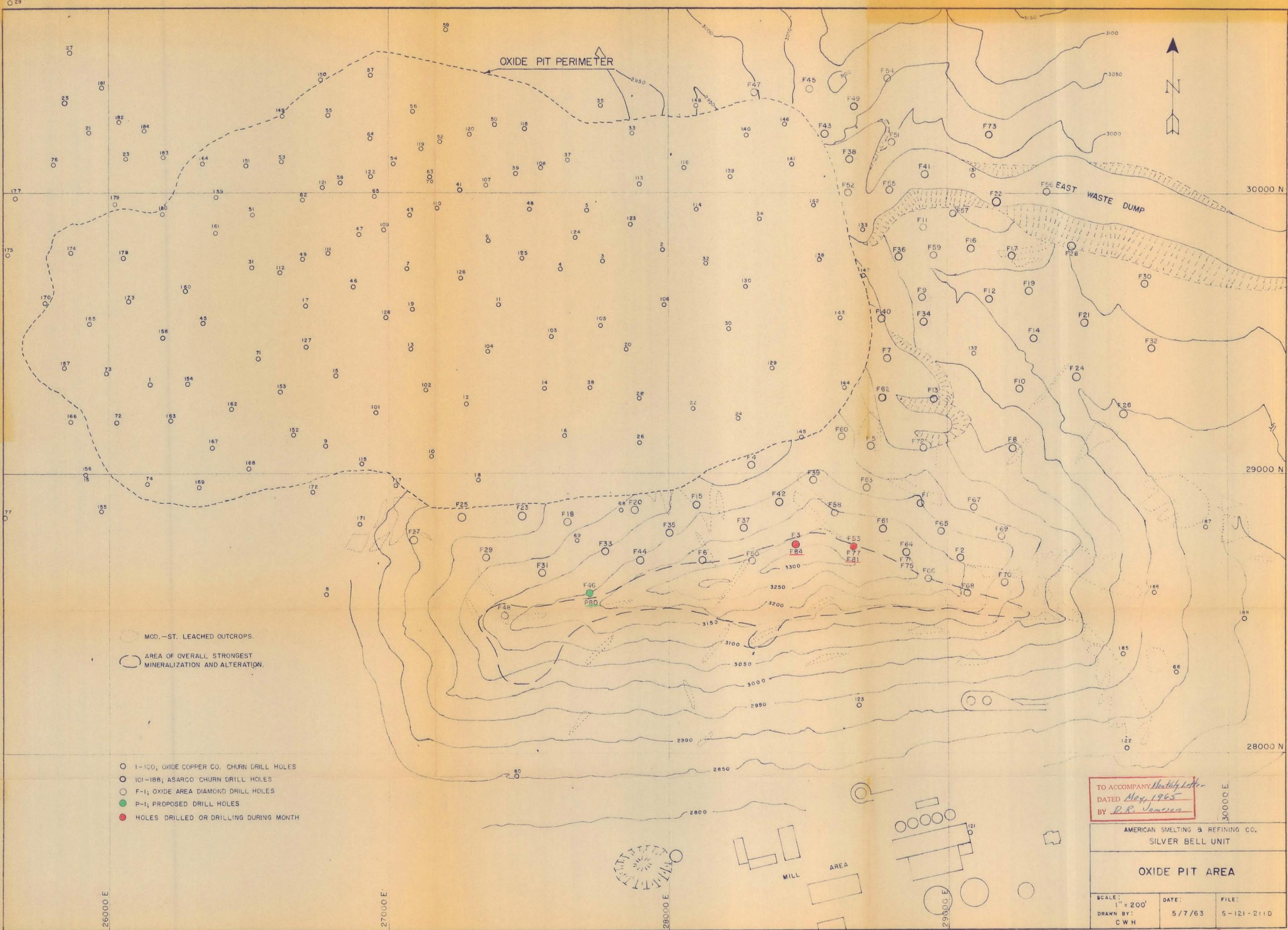
OXIDE AREA
DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	MAY 1965	3-121-A



- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH
- AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
NORTHWEST OXIDE AREA			
SCALE 1" = 200'	DRAWN CWH	DATE 1/13/64	FILE S-6-16C



MOD.-ST. LEACHED OUTCROPS.
 AREA OF OVERALL STRONGEST MINERALIZATION AND ALTERATION.

- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH

TO ACCOMPANY *Monthly letter*
 DATED *May, 1965*
 BY *D.R. James*

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE PIT AREA

SCALE: 1" = 200'	DATE: 5/7/63	FILE: S-121-211D
DRAWN BY: CWH		

AMERICAN SMELTING AND REFINING COMPANY
SILVER BELL UNIT
Silver Bell, Arizona

May 12, 1965

MEMORANDUM TO: Mr. D. R. Jameson, Superintendent

Subject: Monthly Report on Oxide Area Drilling

The following report briefly summarizes the results of the diamond drilling done in the Oxide area during April, 1965..

Hole F-75 is an angle hole on Portland Ridge at the same site as F-64 and F-71. Its bearing is due South and the angle is -49 degrees. The hole started the month at a depth of 372.3 feet and bottomed at 386.4 feet. The advance was in leached capping and the rock was an aplitic appearing syenodiorite porphyry that might actually be a silicified monzonite.

Hole F-76 is in the Northwest Oxide area. It started the month at 288.9 and bottomed at 548.3. The advance was in alaskite. Moderate chalcocite and chalcopyrite were found from 287 to 343. Weak chalcopyrite was found from 361 to 389 and from 486 to 513.

Hole F-77 is on Portland Ridge at the same site as Hole F-53. The bearing is due South and the dip is -64 degrees. Monzonite and syenodiorite were drilled from the collar to the bottom at 623.5. The sulfide contact was at 141. Chalcocite was moderate from 133 to 277, and weak from 331 to 406 and from 444 to 460.

Hole F-78 is in Northwest Oxide. It penetrated monzonite all the way to the bottom at 321.8. The sulfide contact was at 105. Strong mixed non-sulfides and chalcocite were found from from 9 to 28. Weak chalcocite was found from 105 to 137.

Hole F-79 is in Northwest Oxide. Essentially barren monzonite was cored from the collar to the bottom at 405.8. The rock showed some leaching all the way down. The first sulfides (pyrite) were after 58 feet.

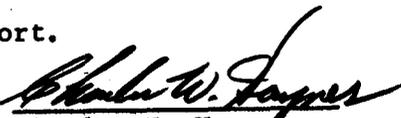
Hole F-80 is in Northwest Oxide. Syenodiorite with minor monzonite dikes was drilled to the bottom at 372.5. The sulfide contact was at 204. Sulfide mineralization was sparse, but weak mixed sulfide-non-sulfide mineralization was measured from 16 to 35 and from 62 to 96.

Hole F-81 is an angle hole on Portland Ridge at the same site as F-77 and F-53. The bearing is due South and the angle is -50 degrees. Monzonite was drilled to the end of the month. Sulfides began at 119, but some leached capping was found throughout the month. Weak chalcocite was found from 137 to 155 and from 182 to 199.

Hole F-82 is in Northwest Oxide. It was collared and reached 28.2 at the end of the month. The rock was leached syenodiorite.

See accompanying sections and plans at end of report.

CWH:jca

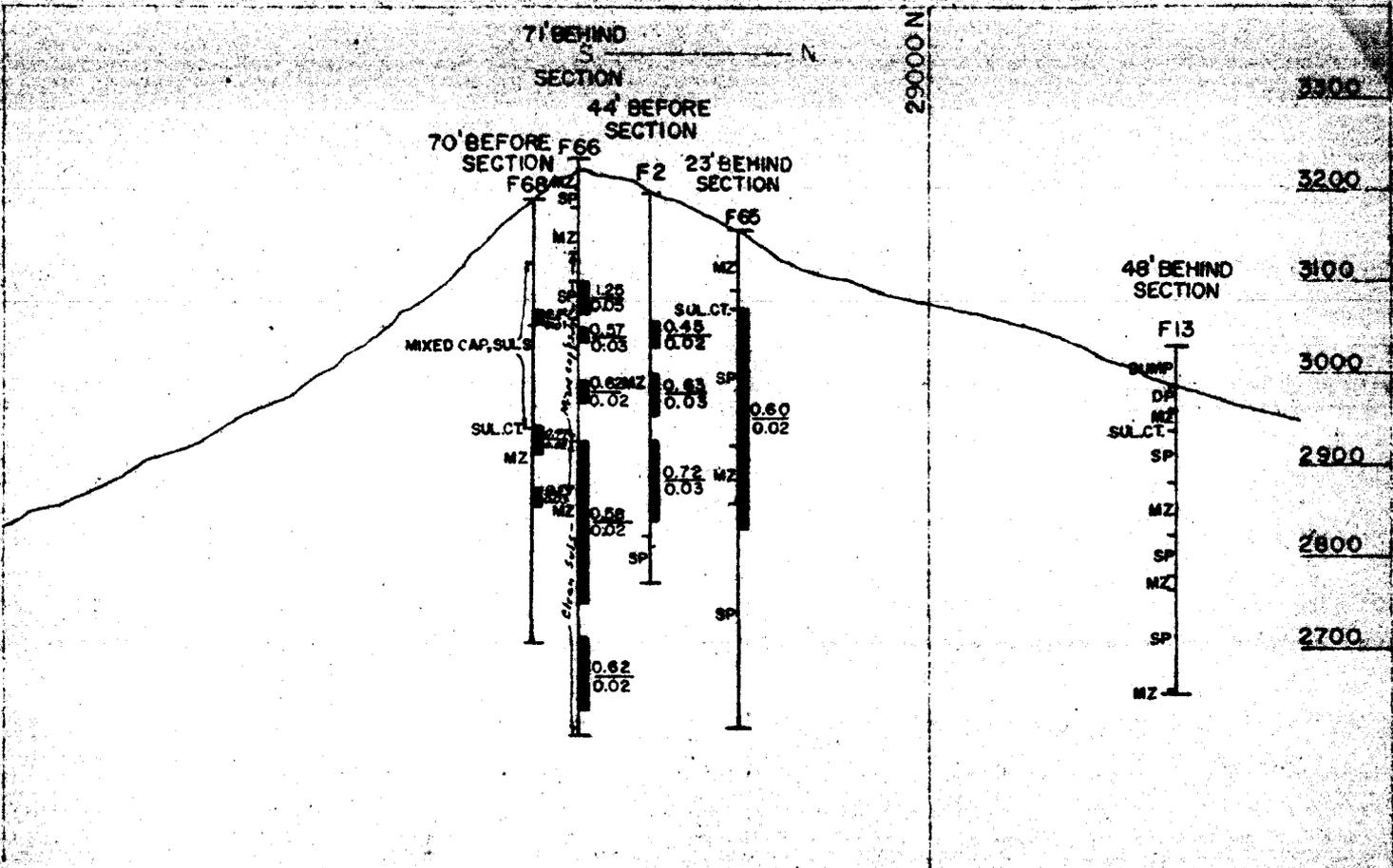


Charles W. Haynes
Resident Geologist

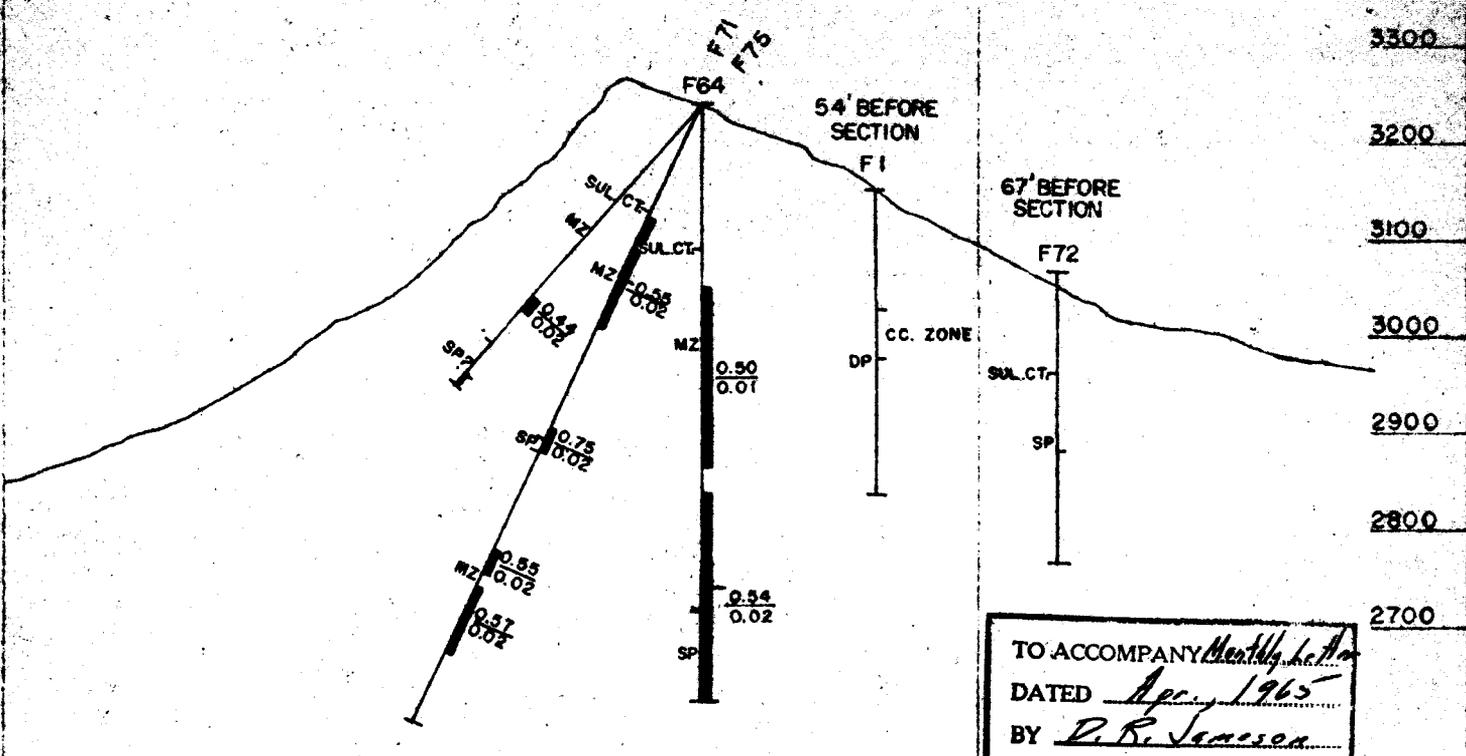
DIAMOND DRILLING IN THE OXIDE AREA

<u>Hole No.</u>	<u>Ground Elevation</u>	<u>Coordinates</u>		<u>+0.40% Copper Lenses</u>		<u>Avg. % Cu</u>		<u>Feet Drilled During Month</u>	<u>Depth End of Month</u>	<u>Final Depth</u>
		<u>North</u>	<u>East</u>	<u>Interval</u>	<u>Thickness</u>	<u>Total</u>	<u>N.S.</u>			
F-75*	3243.0	28,715	28,855	No ore runs this interval				14.1	386.4	386.4
F-76	3130.9	29,785	24,667	286.8 - 342.8	56.0	0.73	0.04			
				361.1 - 388.5	27.4	0.41	0.01			
				485.9 - 512.7	26.8	0.54	0.01	259.4	548.3	548.3
F-77**	3260.2	28,739	28,664	132.9 - 276.7	143.7	0.62	0.02			
				331.0 - 406.4	75.4	0.47	0.02			
				443.8 - 459.8	16.0	0.49	0.04	623.5	623.5	623.5
F-78	3082.5	29,917	25,146	9.0 - 36.9	27.9	0.83	0.70			
				104.5 - 137.4	32.9	0.47	0.03	321.8	321.8	321.8
F-79	3070.7	30,183	24,551	No ore runs in hole.				405.8	405.8	405.8
F-80	3007.9	30,285	24,854	16.3 - 34.7	18.4	0.56	0.24			
				62.2 - 95.5	33.3	0.50	0.26	372.5	372.5	372.5
F-81***	3260.2	28,739	28,664	136.8 - 154.9	18.1	0.53	0.04			
				181.5 - 199.3	17.8	0.55	0.02	310.4	310.4	
F-82	2935.0	30,209	25,364	No ore runs this interval				<u>28.2</u>	28.2	
Total								<u>2,335.7</u>		

* This is an angle hole. Bearing is due South. Declination is -49 degrees.
 ** " " " " " " " " " " " " -64 "
 *** " " " " " " " " " " " " -50 "



SECTION 29000 E
SECTION 28850 E



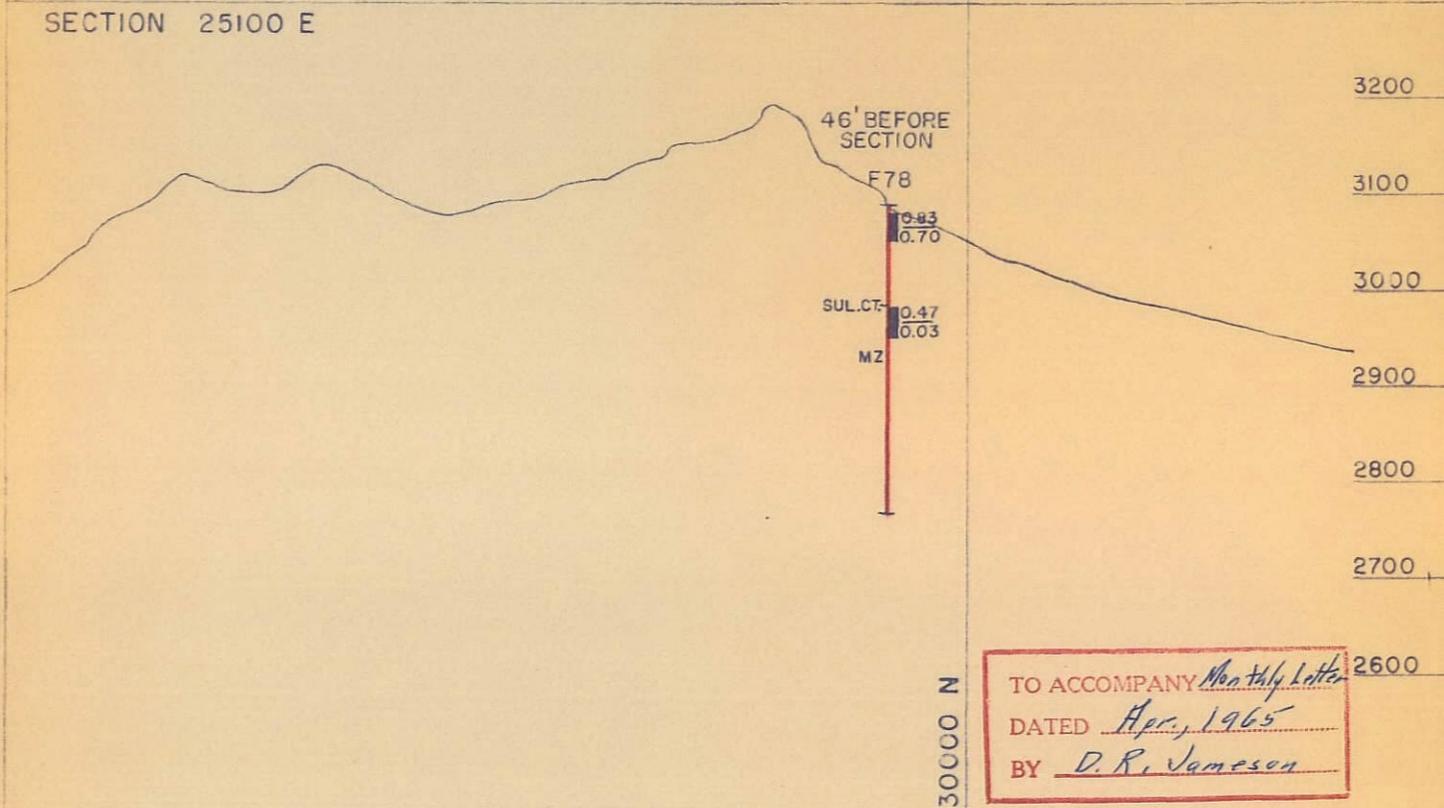
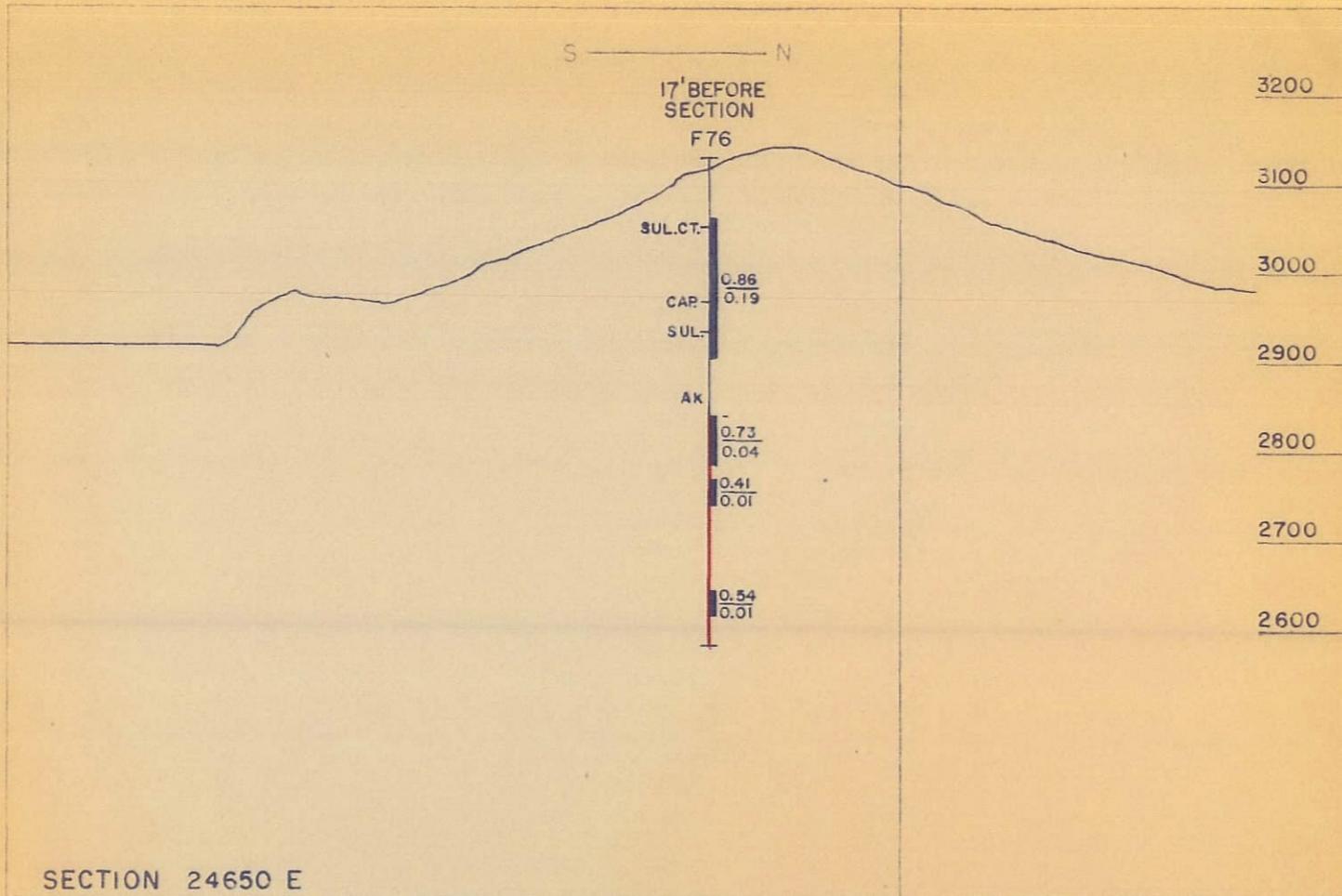
TO ACCOMPANY Monthly Report
DATED Apr. 1965
BY D. R. Jensen

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

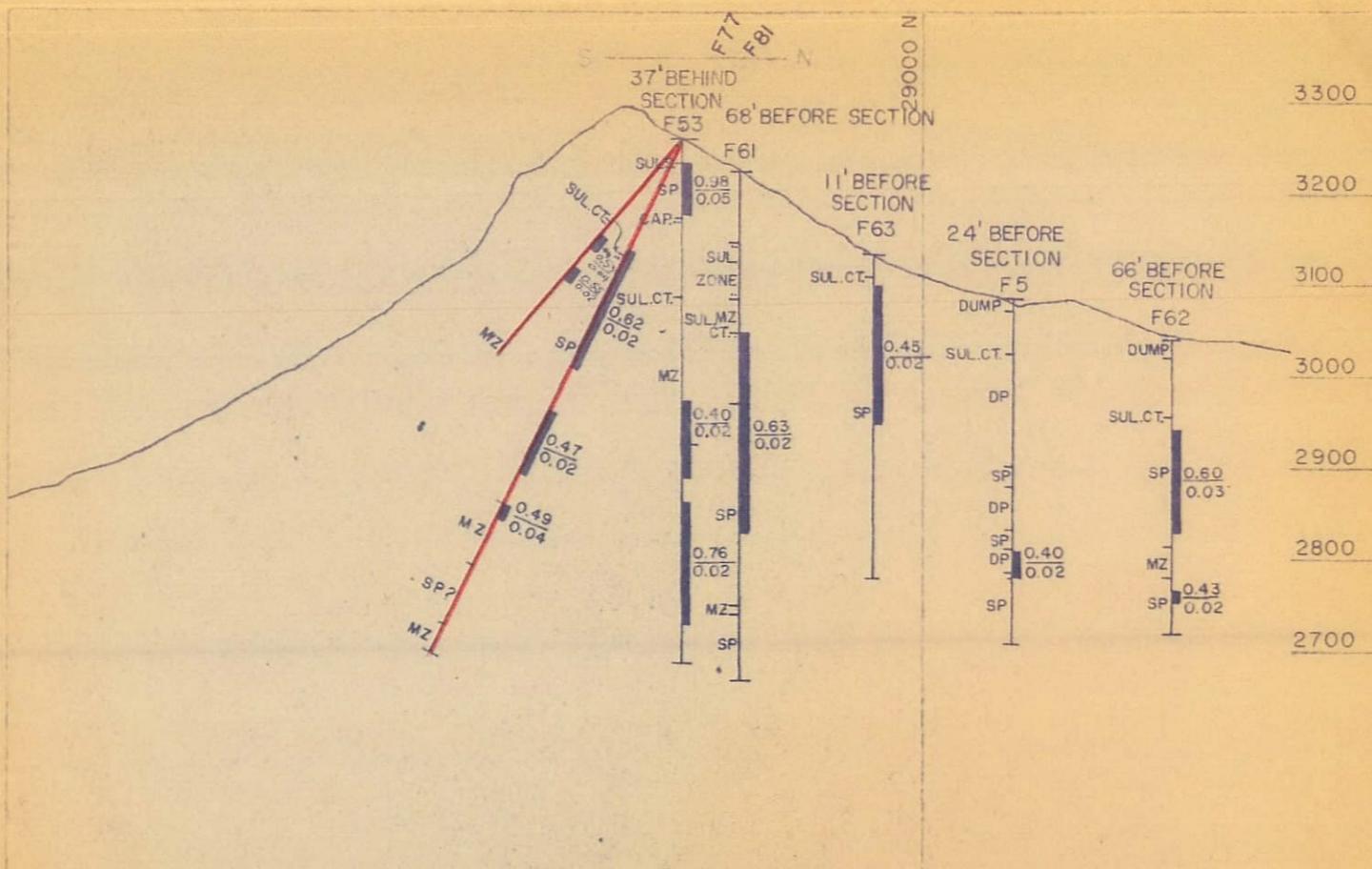
■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR 1965	S-121-A

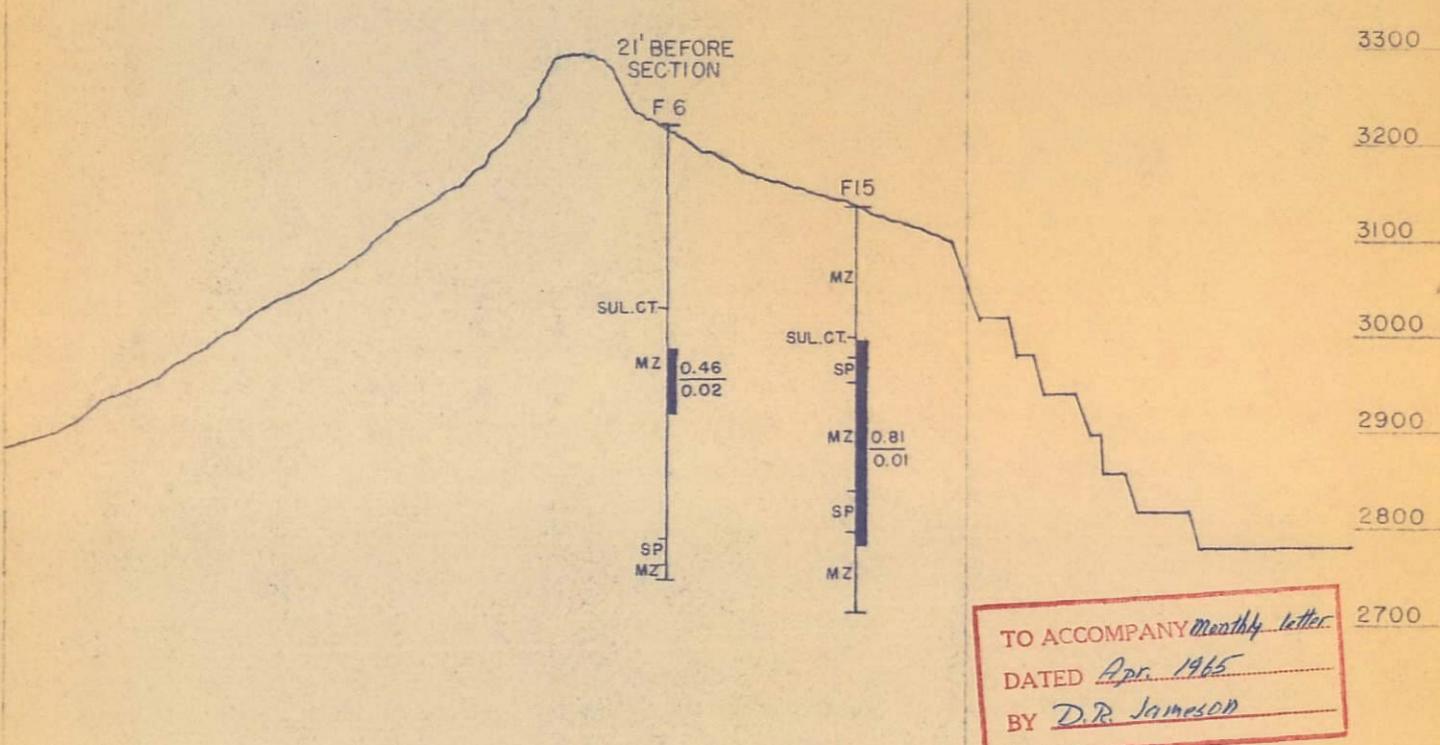


■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
OXIDE AREA DRILL HOLE PROJECTIONS			
SCALE 1" = 200'	DRAWN CWH	DATE APR 1965	FILE S-121- A



SECTION 28700 E
SECTION 28100 E



TO ACCOMPANY *Monthly letter*
 DATED *Apr. 1965*
 BY *D.R. Jameson*

■ +0.4% Total Copper
 | Advance for month
 Note: Rock Types Generalized.
 Cu Assay is Total Cu / Non Sul Cu

AMERICAN SMELTING & REFINING CO
 SILVER BELL UNIT

OXIDE AREA
 DRILL HOLE PROJECTIONS

SCALE 1"=200'	DRAWN CWH	DATE APR 1965	FILE S-121-A
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S ————— N

3200

3100

3000

2900

2800

2700

2600

51' BEFORE SECTION

F79

SULF.

MZ

SECTION 24500 E

SECTION 24800 E

3100

3000

2900

2800

2700

2600

54' BEFORE SECTION

F80

0.56
0.24

0.50
0.26

SP
SULF.

31000 N

TO ACCOMPANY *monthly letter*
DATED *Apr. 1965*
BY *D.R. Jameson*

AMERICAN SMELTING & REFINING CO.
SILVER BELL UNIT

OXIDE AREA
DRILL HOLE PROJECTIONS

■ +0.4% Total Copper
| Advance for month
Note: Rock Types Generalized
Cu Assay is Total Cu / Non Sul. Cu

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR	3-121-A

1965

S ————— N

21' BEHIND SECTION

F 74

QAL
 TT, HF
 MZ, SP
 SUL. CT.
 HF
 HF, AND $\frac{1.06}{0.04}$
 HF, TT
 AND
 HF
 MZ
 HF
 AND, HF
 QT?

3200
 3100
 3000
 2900
 2800
 2700
 2600

SECTION 25550 E
 SECTION 25400 E

36' BEHIND SECTION

F 82
 SP

3100
 3000
 2900
 2800
 2700
 2600
 2500

31000 N

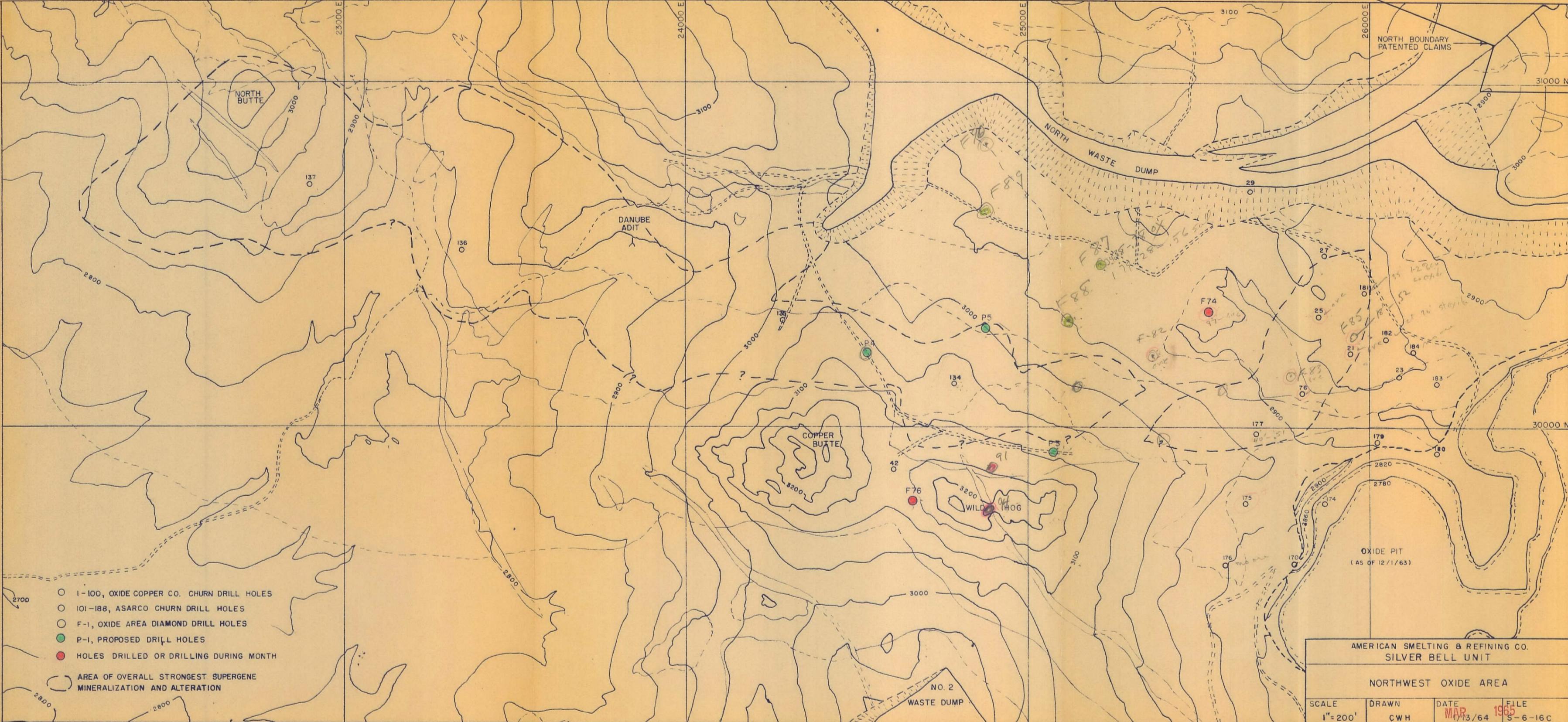
TO ACCOMPANY *Monthly letter*
 DATED *Apr. 1965*
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■ +0.4% Total Copper
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AMERICAN SMELTING & REFINING CO.
 SILVER BELL UNIT

OXIDE AREA
 DRILL HOLE PROJECTIONS

SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	APR 1965	S-121-A



- 1-100, OXIDE COPPER CO. CHURN DRILL HOLES
- 101-188, ASARCO CHURN DRILL HOLES
- F-1, OXIDE AREA DIAMOND DRILL HOLES
- P-1, PROPOSED DRILL HOLES
- HOLES DRILLED OR DRILLING DURING MONTH

○ AREA OF OVERALL STRONGEST SUPERGENE MINERALIZATION AND ALTERATION

AMERICAN SMELTING & REFINING CO. SILVER BELL UNIT			
NORTHWEST OXIDE AREA			
SCALE	DRAWN	DATE	FILE
1" = 200'	CWH	MAR 13/64	S-6-16C