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Sac 10?
F.K.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
January 16, 1968

Confidential

File Memorandum

SACATON PROSPECT - PROPERTY ACQUISITION

This is further to my memorandum headed as above and dated January 10, 1968.

I visited Mrs. Cron at her apartment in Glendale, California, on Thursday, January 11. She confirmed that Dr. Cron is hospitalized, with a male nurse in constant attention. He suffered one or several serious strokes nearly a year ago. She has little hope that he will ever improve enough to leave the hospital. Mrs. Cron's other close relative is her orphaned grandson who is graduating in Law from Stanford this quarter.

In my previous memorandum, I reported that Mrs. Cron might have emphasized "sale" of her property of interest to us - the SE of Section 25, T-5S, R-5E, when we spoke on the telephone. This apparently was not the case. She opened our interview by stating she is not interested in a sale. She went on to explain that she has considerable property in her own right as a result of inheritances, including that when she was previously widowed. Because of Dr. Cron's condition, she has traded their house for a 20 unit apartment house and has another sizeable apartment where she now lives. Her reason for trading of property was to avoid cash and taxes. She and Dr. Cron apparently have important investments in securities and real estate.

However, at the close of our conversation, probably because of my explanation of the location of her Casa Grande property immediately adjacent to a mine (if further work develops the property to that stage), she indicated that, in all probability, she would sell - and only to ASARCO. I had suggested three alternatives: an option, with reasonable extensions; an outright sale - with a low initial payment, 25-30%, and balance over, say, a ten year period with conventional interest on unpaid balance; and an option leading to the sale just outlined. No price was mentioned, but she indicated that a reasonable price would be satisfactory. I did say that property had recently sold in the area from $425 to $500 an acre.

She will discuss my visit with her grandson and indicated she would like to bring him to the area "one of these weekends." She promised to contact me shortly, in any event.

There may be some legal complications. The property is recorded in Dr. Cron's name. Mrs. Cron says he gave her the parcel several years ago (the transfer was not recorded) at a time when

he sold "his" half (probably to Herbert and Naomi Bloom.) Mrs. Cron reports that Dr. Cron's condition is such that it is unlikely he can understand any explanation and do more than mark an 'X' (which apparently he has done in connection with other transactions of business nature.)

Regarding Section 33, T-5S, R-6E, I wrote Mr. Richard Fulton, Manager of Transamerica in Casa Grande, - on January 10. It was suggested that he inquire from the owners as to the availability of th entire Section 33; and authorized him to offer $425 an acre as an initial gesture. In the event that he considered said suggested price unrealistic, he was asked to contact me, prior to talking with the owners. As yet, he hasn't replied.

ORIGINAL SIGNED BY
A. C. HALL

A. C. Hall

ACH:cmr

cc: TASnedden

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 30, 1954

FILE MEMORANDUM

AERIAL RECONNAISSANCE
Santan and Sacaton Mts.

On June 15th Mr. Evans and I took off from Tucson airport at 9:25 A.M. Pilot Palen Hudgin. Visibility only fair due to haze. Air rough.

Over Silver Bell: Circled alteration zone north of El Tiro at elevation about 1000 feet above ground. Color contrasts in zone of stronger mineralization not distinctive.

Flew North over Picacho Peak and along West side of Picacho Mountains. Barren-looking schist.

Over East end of Blackwater District - elevation 3300 feet - sharp contract between bright orange-colored pyritic alteration zones and dull grey-colored chalcocite-limonite zones. Alteration continues to the West - but spotty. (It appeared to go under volcanics, but later ground-check showed this was not the case.)

Along the Northeast side of the Sacaton Mountains (about 12 miles from the Blackwater alteration zone, on its Southwest projection) - barren pre-Cambrian granite.

In the West end of the Sacaton Mountains, a prominent black dike strikes North 60° East directly toward the Blackwater district. At the Northwest end of the Sacaton Mountains, a small patch of dull orange color. Possibly this should be ground-checked.

Circled West and Southwest end of Blackwater alteration zone again. Then Northwest along Santan Mountains -- barren schist. Circled North end of range, then to East toward Gila River.

About one mile North of Gila River, at Cochran - small patch of alteration at edge of volcanic cover - shouldbe ground-checked.

Flew North - small mines in volcanics. Near Picket Post Mountain turned South back to Gila River, then East to Ray. Turned South and flew along East side of Tortillita Mountains - no evidence of "color". Landed Tucson airport 12:25 P.M.

KENYON RICHARD

cc: W.R.Landwehr
enc.: Flight Map

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

February 8, 1954

FILE MEMORANDUM

AIR RECONNAISSANCE
Southwest of Casa Grande
East of Ajo

Took off from Tucson Municipal Airport at 9:58 A. M. Flew past Silver Bell to southeast Vekol Mts.

(1) Possible intrusive in pre-Cambrian schist in southeast Vekol Mts. not shown on State geologic map. No coloration of interest noted. 10:30 A. M. 5000'. Clear skies.

(2) 10:30 A. M. 5000 feet. Large number of prospect holes near Reward mine noted in westward dipping sedimentaries low on east flank of Vekol Mts. (T 9 S, R 3 E, Sec. 34).

(3) Continued north on east side of range. 10:40 A. M. very pale reddish tones southeast of Table Top peak - spotty coloration. (Table Top capped by post-mineral, Quaternary basalt.) This is possible discoloration from weathering of pre-Cambrian rocks. This area should be field-checked for alteration in low-lying outcrops in pediment east of main range. This area is bordered on the east by alluvium and on the west by low basalt hills at the base of Table Top mountain and SE of this landmark. Area probably reached via dirt road south from Casa Grande Highway down west side of Santa Rosa wash.

(4) 10:50 A. M. 5200 feet flying south down west flank of Table Top-Vekol Mts. Slight red coloration noted in volcanics (?) on pediment at western base of Table Top Mt. - between mountains and volcanic cones on east side of Vekol Valley.

(5) 11:00 A. M., 5200 feet. About two miles southwest of Vekol Mine is patch of yellow alteration on western base of Vekol Mts. Fifteen to twenty parallel north-south trenches in vicinity of Papago mine in Copperosity Hills.

(6) 11:00 A. M. - Mine in outcrop of volcanics surrounded by alluvium southwest of Vekol mine between Vekol and Cimarron Mts. This area is west of Greenback mine in Cimarron Mts.

(7) 11:15 A. M. - 5100 feet. Cross Vekol Valley to east side of Sand Tank Mts. and north of Cimarron Mts. Yellow soil from Quaternary basalt (?) on E-W road eight miles south of Squaw Tit.

(8) 11:20 A. M. 4800 feet. One and one-half miles west of Squaw Tit is pale yellow-red alteration high on west side Sand Tank Mts. probably

File Memorandum

in pre-mineral volcanics; doesn't appear to be of significance. Ranch House northwest of Squaw Tit one-half to one mile.

Land at A. A. F. field near Gila Bend 11:35 A. M. Gunnery ranges on both sides of R. R. from Gila Bend to Ajo are restricted. Permission may be obtained to fly these areas on week-ends if call Operations Officer in advance — Telephone Gila Bend 4-331.

Took off from A. A. F. field 12:35 P. M. Flew south to Ajo 1:15 P. M. — overcast.

(9) Continued south on east side of Growler Mts. 1:20 P. M. 4000 feet — overcast. Pale pink, low-relief hills in schist about one mile north of Sonoita. Needs ground check.

(10) Flew north on west side Ajo Mts. 1:30 P. M. — Overcast. Brick-red color in Ajo Mts. one-half to one mile east of Sonoita Highway, and north 15 Mi.± from Sonoita. Possible intrusive in east-dipping pre-mineral (?) volcanics. Needs ground check.

(11) 1:35 P. M. — Overcast — prospect in pre-Cambrian Gunsight Hills south of Ajo-Tucson highway 86. Flew northwest across valley to east side Growler Mts.

(12) 1:40 P. M. Overcast. Red coloration in Growler Pass probably area reported to have copper-oxides in Tertiary (?) intrusive granitic rocks.

1:45 P. M. Overcast. Circled Ajo and New Cornelia open pit and flew south down west side of crest of Ajo Mts.

(13) 2:05 P. M. Overcast. 5000 feet. Ten to 15 miles north of Sonoita is yellow-brown alteration in pre-mineral (?) volcanics of central Ajo Mts. southeast of area (10). This yellow-brown alteration is south of an area of faulted, yellow-green tuffaceous beds on a steep west-facing slope in the central Ajo Mts. These tuffaceous beds are sub-horizontal to westerly-dipping, and are apparently resting unconformably on older, easterly-dipping volcanics. Faults paralleling the range appear to step-fault the volcanics down to the west. A faintly discernible dirt road leads easterly from the Sonoita Highway into the Ajo Range near the described area.

Continued south on west side of Ajo Mts. to Mexican border. Circled to east side of Ajo Mts. and then north.

(14) 2:15 P. M. — Overcast. East side Ajo Mts. 15-20 Mi. north of border and west of Gu Ve (?) 2 Mi. ±. Intrusive hill ± 100 feet high and also possible intrusive to northwest probably in vicinity of alteration noted earlier at areas (10) and (13). A road entering Ajo Mts. from east is probably best approach to this area, and may connect across range with road noted earlier at area (13).

(15) 2:25 P. M. — Overcast. 4800 feet. Prospects in basalt, northeast end Ajo Mts.

(16) 2:25 P. M. - Overcast. Gunsight mine in pre-Cambrian granite one-half

T-10.6.0
February 8, 1954

[illegible] Memorandum

mile south of Ajo-Tucson Highway 86.

2:25 P. M. — Overcast. Flew east, parallel to Highway 86.

(17) 3:05 P. M. Clear skies. South Roskruge Mts. on west side. Three to four miles north of Highway 86 and north of basalt hill is red hill. Needs ground check.

Landed at 3:25 P. M.
Flying time — 4 hrs. 25 min.
Plane — Tripacer
Pilot — Felon Hudgins
Weather — Clear, windy in A. M.; overcast, windy 1:00 P. M. to 3:00 P. M.; clear, windy 3:00 P. M. to 5 P. M.

J. H. Courtright

Byron S. Hardie

JHC, BSH:ar
cc: WRLandwehr
TASneiden

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
September 30, 1965

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. H. W. Grose, General Auditor
American Smelting and Refining Company
120 Broadway
New York, New York 10005

SACATON PROSPECT

Dear Sir:

Attached is signed original of Real Estate Holding Trust Agreement, Trust No. 16038, dated September 22, 1965, between American Smelting and Refining Company, and Phoenix Title and Trust Company, Trustee, for property in Pinal County, Arizona, described as:

> "All of Section Twenty-six (26), Township Five (5) South, Range Five (5) East, and the North half (1/2) of Section Thirty-five (35), Township Five (5) South, Range Five (5) East of the Gila and Salt River Base and Meridian."

This document supercedes the Title of Insurance Policy or Declaration of Trust (Trust No. 16038) for property covered by Documents 1, 2, 4, 5 and 21.

A Document Book and file copy for each of the above are attached and numbered as listed below.

Doc. 1-D	Section 26		East Half	T-5S, R-5E, G&SRB&M
Doc. 4-D	Section 26	E2W2	West Half	T-5S, R-5E, G&SRB&M
Doc. 5-D	Section 26	W2W2	West Half	T-5S, R-5E, G&SRB&M
Doc. 2-D	Section 35	NE4	North Half	T-5S, R-5E, G&SRB&M
Doc. 21-F	Section 35	NW4	North Half	T-5S, R-5E, G&SRB&M

Very truly yours,

ORIGINAL SIGNED BY
R. B. MEEN

R. B. MEEN
Manager

cmr
Attachments

cc: TASnedden-Doc. Book & File Copy of each
TAWegener- " " " " " "

bcc: SIBowditch

Aa-16.0.01

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 2, 1959

FILE MEMORANDUM

TOLTEC CLAIMS
Lobo Peak Area
Pima County, Arizona

Mr. Landis Wood, 851 West Lincoln, called at the office on December 13 with samples of lead and copper ore from a prospect in the south Sierrita Mountains. Mr. Wood described the vein as being from 3 to 20 feet wide, and provided assay results of two samples, No. 1 showing considerable galena in a dark matrix, and No. 2 black material showing minor pyrite, as follows:

	Ag(oz)	Cu(%)	Pb(%)
(1)	5.1	4.78	27.6
(2)	3.40	2.20	16.8

Kenyon Richard and I examined the prospect on December 30, and found it to be a very small occurrence with no appreciable tonnage potential. A description follows.

The prospect is located in Frame Canyon about 1 1/4 miles north of Lobo peak and can be reached by driving 5.6 miles west from the Kingsley ranch on the Arivaca road, then northerly 12 miles to a point about 1/2 mile northeast of Lobo peak. From here it is a 3/4 mile hike up Frame canyon. Development work consists of a few shallow pits and open cuts on either side of the canyon bottom. These workings expose partially oxidized galena and chalcopyrite in a black matrix that appears to be made up largely of tourmaline. The width of this irregular, vein-like occurrence in places is 10 feet or more; however, it pinches out rather abruptly in both directions and the total strike length is not much more than 150 feet. Mr. Wood's samples came from a 6 inch vein exposed in an open cut in the east end of the deposit. The lead-copper mineralization there appeared to be much richer than elsewhere along the vein.

The rock in the vicinity is largely a light gray felsite porphyry which appears to grade into a thin bedded argillite 1/2 mile south of the prospect.

During reconnaissance of the general area, an alteration zone was noted in andesite porphyry on the south slope of Red Boy Peak, around 1/2 mile north of Lobo peak. The more strongly altered portions of this zone, which is possibly 1000 feet in diameter, are made up of a dense flinty rock containing disseminated pyrite. Oxidation is quite superficial. No evidence of copper was seen. Reportedly some gold mining was carried on here in the early days.

Original signed by
J. H. Courtright
J. H. COURTRIGHT

JHC/ds
cc: KERichard

Ab-16A.3.16
& Ab-16A.3.17B

CASA GRANDE AREA
POTTS RANCH

File Summary

Aug. 6, 1941

K. S. Twitchell[1] wrote to Goodwin, AS&R in New York. Stated "Mr. Hatchet, the Peerless Pump Co. representative, told me that in 1919 he supervised the drilling of a 16" diameter well 487 feet deep on a ranch 60 miles southeasterly from Phoenix. The last 30 ft., was in copper ore, which assayed 6% Cu, he said." The well was abandoned due to insufficient flow for irrigation.

(1) Consulting engineer to Saudi Arabia Mining Syndicate

Aug. 9, 1941

Twitchell wrote Hatchet in Phoenix for more specific location, and referred to area as "Potts Ranch near Casa Grande".

Aug. 23, 1941

Ben Hill reported to Guess in New York.

Found from Pinal County records that Frank L. Potts, deceased, owned NE 1/4 Sec. 10, and W 1/2, SW 1/4, Sec. 11, both in T6S, R5E.

Sept. 3, 1941

Ben Hill, report to Guess, New York.

Well, NW 1/4 Sec. 12. At 82' "black rock" was penetrated.

Well, NE 1/4 SE 1/4, Sec. 12, 70' to bedrock.

Sept. 5, 1941

Ben Hill, report to Guess.

Field trip w/Stevens -

A well on Potts Ranch -- confirmed that it is 49' and stopped in bedrock. (Loc. W 1/2 SW 1/4 Sec. 11).

A well 7 miles W of Casa Grande in Santa Cruz River was 900', no bedrock reported. Other wells- NE Cor Sec 7, 178' TD. 15-20' granite on bottom.
NW 1/4 Sec 4 160' BR? at bottom
SE Cor of NE 1/4 NE 1/4 Sec 11 - 150 to BR.

J. E. KINNISON

JEK/ds

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
May 25, 1961

MEMORANDUM FOR A. C. HALL

SACATON PROSPECT
Land Status - N½ Section 27

An incomplete review of the parcels comprising the above tract is given. As this tract was outside the centralized area necessary details were not checked in the recorder's office, and my notes are not complete.

Section 27, T5S, R5E

The NE 1/4

This parcel, surface and mineral, is owned by William L. English, address not available. In June, 1958 a vendor's deed and assignment was transacted from Phoenix Title and Trust, Trustee No. L-6534 to English for the W½ NE¼. A later docket, 200/19, however earlier date (February, 1958), showed a similar transaction(?) from Phoenix Title to English for the E½NE¼.

The NW¼ NW¼

This parcel is listed as Surety Title and Trust, Trustee. However, the last transaction, docket 212/11, was a sales agreement from Surety Title and Trust, Trustee T-1006 to Arizona Land Title & Trust, Trustee 5371-T, August, 1958. A purchase price of $11,800 was given.

The NE¼ NW¼

My incomplete notes from the Tract File list the parcel as controlled by Surety Title and Trust; no other data.

The S½ NW¼

This parcel, surface and mineral, is listed in the tax roll as Phoenix Title & Trust, Trustee. The last transaction, May, 1960, was a contract of sale from Tucson Title Insurance Co., Trustee, to Sol Cohen and Sarah. A price of $44,000 was stipulated with a down payment of $12,760 and $5,206.66 annual payments. This sale also included the E½, SE¼ Section 28. If a further study was made a sale or a connection with Phoenix Title may be found.

Original Signed By
K. Richard

J. V. DESVAUX

JVD/ds
cc: KERichard

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 27, 1961

FILE MEMORANDUM

SACATON PROSPECT
Federal Claims - W-1/2 Section 17
T 5 S, R 6 E

Eighteen Federal mining claims, S29 to S46 (inclusive) have been located to cover the W-1/2 Section 17, T-5S, R-6E.

These claims are full size and the long dimension is east-west. The common end line is also the north-south sixteenth line of the W-1/2. An overlap of 25 feet was established at the north end of this line to avoid fractions. Mr. Bob Green completed the necessary transit-tape surveys for these locations.

Location pits, corner posting and recordation should be completed by September 18th to complete the necessary steps for validation.

SURFACE OWNERSHIP

This has been reported in my memorandum of June 12th. Briefly, an application for recreational and public purposes has been filed by the Casa Grande Memorial Foundation, Inc.

J. V. Desvaux

JVD:cmr
cc: KRichard
File copy routed to: TAS
ACH

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 30, 1961

Memorandum for Mr. B. G. Thompson, Sr.

Sacaton Area - Pinal County, Arizona

Yesterday negotiations were concluded separately on the following two parcels in the area of interest. Details are given in each instance. At your earliest convenience, kindly draw the necessary lease option form for each parcel as well as covering letters of instructions to Surety Title and Trust Company, Casa Grande Branch, who is Trustee in each instance in which different groups participate. This is by way of confirmation of our discussion today.

E-1/2, W-1/2, Section 26, T-5S, R-5E, G.&S.R.B.&M.

This is a bit more complicated than previous transactions in this area. As I understand it, Mr. Jack Nutter of Pinal County Land Co. reserved the mineral rights when entering into a sale contract hereinafter identified as Trust 2096. Mr. Nutter is a 40% participant in Trust 2096. Obviously, our arrangement includes all rights including mineral. This is clearly understood by Mr. Nutter.

The price per acre is $500. When the transaction clears title search, an amount of $9,000 is payable which will provide for an option until April 1, 1962. If the Company wishes to extend the option period, an additional amount of $8,000 must be paid on or before March 15, 1962. The additional option term will expire January 1, 1963, a total of 18 months.

W-1/2, W-1/2, Section 26, T-5S, R-5E, G.&S.R.B.&M.

This situation is similar to that noted above except that in this case Mr. Nutter holds no interest in the new trust which is 2095. He reserved the mineral rights when entering into the corresponding sales contract. (It is my guess that Nutter will simply option the surface directly and thus be in a position to convey to us the mineral rights along with the surface.)

Terms are: $525 an acre; initial payment of $1,000; this option will expire March 1, 1962 and there is no provision for renewal.

In either transaction, all option payments shall apply against the final cost if the options are exercised, otherwise to be forfeited.

It is my understanding that Trust 2052 is that under which the mineral rights were reserved by Mr. Nutter.

ACH:cmr
ccKERichard

A. C. HALL cmr

Aa-16A. 3.19B

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
June 19, 1962

MEMORANDUM TO MR. R. J. LACY

GRAVITY SURVEY
SACATON PROSPECT
PINAL COUNTY, ARIZONA

A gravity survey was made over a 16½ square mile area which includes our Sacaton Prospect during the period April 5 - May 22, 1962. The survey was conducted in an effort to locate shallow bedrock in connection with the current drilling program. A relative gravity contour map is attached.

Interpretations & Conclusions

A northwesterly trending bedrock ridge is the major feature indicated by the relative gravity contours. The ridge joins the mineralized outcrop in Section 35, T.5S. - R.5E. with the Sacaton mountains to the northwest and with the schist outcrops to the southeast in Section 1, T.6S. - R.5E.

This ridge apparently continues south beyond our gravity coverage, passing about one mile west of Casa Grande. Drill logs on file at the Tucson Groundwater Branch of the USGS indicate a hydrologic barrier exists about one mile west of Casa Grande. The barrier is elongated north-south, damming the subsurface flow along the Santa Cruz drainage. The present water table is below the crest of this barrier, dividing the Casa Grande basin into two reservoirs.

Within the area surveyed the gravity contours suggest alternating peaks and saddles along the main ridge with related transverse ridges and drainages along either flank. Interpreted topographic highs on the bedrock surface are shown on the map as anticlinal axes. This representation should not be confused with the conventional usage of folding.

The only other indication of relatively shallow bedrock is the gravity high in Section 28, T.5S. - R.5E., which is probably outside our present area of interest.

The interpreted saddles and drainages on the bedrock surface are indicated by synclinal axes on the map.

It should be noted that hole 33, where the bedrock depth exceeds 2000 ft., is located on one of the gravity troughs. Deep bedrock intersections should be expected in the future when holes are located within the indicated gravity troughs.

Memo to R. J. Lacy
Gravity Survey
Sacaton Prospect
Pinal County, Ariz.

June 19, 1962

Depths to bedrock cannot be calculated because of the superimposed effect of the overlying conglomerate. Variations in the depth to the top of the conglomerate and its specific gravity produce large changes in the gravitational attraction measured at the surface. The high gravity gradients observed in the northeast corner of the survey area and again to the southwest (in the W½ of Section 4, for example) are attributed to the conglomerate. The conglomerate may be down faulted or it may grade laterally into unconsolidated alluvium. In any event, these high gradients are not related to any change in bedrock depth.

Recommendations

Several drill locations where relatively shallow bedrock can be anticipated are plotted on the gravity map. At least one location is given for each parcel of State land where expenditures are required to maintain existing leases.

If it is desirable to alter the recommended locations, shifts should be made along the indicated axes in contrast to a normal direction whenever possible.

Technical Considerations

Primary elevation control was obtained by precise leveling. From this control the gravity station elevations were determined by stadia using a Wild T-2 Theodolite. All stadia calculations were corrected for refraction and curvature with a resulting absolute accuracy of ± 0.7 feet. Surface elevations can be contoured from this data in the event the prospect is developed to a stage where preliminary engineering studies are warranted.

Raw gravities were established to an accuracy of 0.06 milligals. The maximum error of computed relative gravities should not exceed 0.1 milligals---- or one-half a contour interval.

Calculation of the second vertical derivative of gravity was considered. this treatment would emphasize the shallow, local density contrasts. Since there would be no advantage gained where the bedrock is below the conglomerate, the second derivative computation was abandoned.

W. E. Seegart

Attach
WES/kw
cc: CPPollockw/attach
KERichardw/attach

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 25, 1961

FILE MEMORANDUM

SACATON, PINAL COUNTY, EXPLORATION

This is to provide an up-to-date status report regarding the acquisition of property in the Sacaton area.

Pinal County, T-5S, R-5E
Surface and Mineral Rights

Section	Parcel No.	Acres	Option Terms: Price Acre	Cost	Until	Recoverable To	Status
E/2, 26	4A	320	$425	$18,000	4/1/62		Finalized
			425	8,000	(4/1/62)	12/1/62	
E/2,W/2, 26	4B	160	500	9,000	4/1/62		Escrow
			500	8,000	(3/15/62)	1/1/63	
W/2,W/2, 26	4C	160	525	1,000	3/1/62	No	Escrow
N/2, 34	10	320	400	8,000	6/1/62		To Escrow
			400	5,000	(5/1/62)	12/1/62	
NW/4, 35	13	160	400	7,500	12/1/61		Finalized
			400	4,500	(12/1/61)	6/1/62	
			425	3,000	(6/1/62)	12/1/62	
NE/4, 35	14	160	425	9,000	5/12/62		Finalized
			425	4,000	(5/12/62)	11/12/62	

Note: Parenthesized dates indicate those on which further payments are due.

Total expended as of July 21, 1961 in the form of early option payments - $52,500 of the $60,000 estimated for this purpose. The essential area appears to be covered.

In addition to the above, the following land has been claimed under:

Federal Mining Claim

Section	Parcel No	Acres	Location Notice	Recorded	Discovery Work
T-5S, R-5E					
N/2, 33	8	320	4/27/61	7/20/61	Now being done
SE/4, 22	-	160	5/31/61	-	" " "
T-5S, R-6E					
W/2, 17	-	320	6/20/61	-	-

State Mineral Lease Application

Section	Parcel No.	Acres	Date Application
T-5S, R-5E			
NW/4, 32	-	160	4/13/61
SE/4, 34)	12	160	"
SW/4, 35)		160	"
All 36	16	640	"
T-6S, R-5E			
N/2, 2	24	320	"
NW/4, 1	-	160	"
T-5S, R-6E			
All 16	-	640	6/7/61
N/2, 15	-	320	6/20/61
All 14	-	320	6/20/61
E/2, 22	-	320	6/20/61
E/2, 23	-	320	"
SW/4, 23	-	160	"
SW/4, 29	-	160	4/13/61
All 32	-	640	"

While other negotiations have been initiated, presently no effort is being made to acquire additional land. Should this situation change as a result of current field work, it is apparent that additional funds should be requested as the indicated balance remaining is $7,500. A payment will become due on or before 12/1/61 if the option on the NW/4, Section 35, is to be renewed.

ORIGINAL SIGNED BY
T. A. SNEDDEN
A. C. HALL

ACH:cmr

Copies to: D. J. Pope
C. P. Pollock
K. E. Richard
T. A. Snedden, J. V. Desvaux, K von den Steinen

Ak.16 a. 3-19B

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
November 4, 1963

FILE MEMORANDUM:

LEACHING SACATON

On October 31 and November 1, 1963, samples of diamond drill core from the Sacaton Project were selected for permeability-leaching tests. The selection was made by Mr. Darrell Bush of Core Laboratories, Inc., and myself. A summary of this sampling is presented in tabulated form, followed by a list of samples taken in the individual holes.

Hole No.	Footage Sampled Cgl Core	DD Core	Total	No. Samples
S-3	11	58	69	16
S-37	--	822	822	22
S-49A	--	333	333	10
S-50	9	392	401	18
S-53	--	654	654	39
S-55	5	143	148	13
S-58 & S-58D	4	59	63	6
Totals	29	2461	2490	124

This represents approximately one sample per 20.1 feet of hole.

Hole No. S-3: 808-813, 1175-1181, 1863-1865, 1865-1867, 1874-1877, 1885-1887, 1901-1903, 1903-1905, 1905-1906, 1907-1908, 1908-1910, 1910-1910.4, 1910.4-1913, 1913-1916, 1916-1920, 1920-1921,

Hole No. S-37: 1024-1026, 1031-1038, 1148-1151, 1183-1187, 1454-1455, 1455-1460, 1460-1463, 1463-1466, 1466-1470, 1470-1473, 1473-1482, 1500-1505, 1527-1531, 1540-1549, 1583-1588, 1646-1650, 1694-1699, 1751-1755, 1790-1794, 1810-1815, 1841-1846, 1690-1692.

Hole No. S-49A: 1513-1519, 1538-1543, 1543-1552, 1567-1572, 1666-1670, 1675-1679, 1743-1746, 1796-1800, 1820-1824, 1841-1846.

Hole No. S-50: 1030-1035, 1336-1340, 1383-1387, 1488-1493, 1499-1514, 1520-1524, 1539-1543, 1554-1559, 1564-1569, 1579-1582, 1602-1606, 1626-1643, 1658-1660, 1667-1668, 1672-1674, 1691-1698, 1706-1707, 1727-1731.

Hole No. S-53: 1108-1113, 1143-1147, 1153-1159, 1159-1161, 1164-1169, 1183-1188, 1193-1198, 1203-1208, 1208-1212, 1218-1222, 1227-1231, 1246-1250, 1260-1265, 1281-1286, 1290-1294, 1298-1305, 1318-1322, 1332-1334, 1339-1343, 1356-1360, 1364-1369, 1413-1417, 1423-1426, 1426-1431, 1449-1454, 1496-1500, 1538-1540, 1540-1545, 1545-1549, 1549-1550, 1554-1558, 1584-1588, 1608-1611, 1650-1654, 1678-1682, 1686-1691, 1716-1721, 1735-1740, 1756-1762.

Hole No. S-55: 1670-1675, 1751-1756, 1759-1764, 1775-1778, 1790-1795, 1799-1803, 1805-1810, 1832-1837, 1846-1850, 1859-1863, 1875-1880, 1887-1891, 1891-1894.

Hole No. S-58D: 1442-1446, 1452-1458, 1469-1474, 1474-1483, 1503-1508, 1664-1667,
+S-58

NORMAN P. WHALEY

NPW/jk
cc: JHCOURTRIGHT
NWEISS
JEKINNISON

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

October 29, 1963

Mr. W. G. Kellogg, re: Tucson Office
Mr. D. C. Manoz, re: Ground Hog Unit
Mr. G. K. Means, re: Mission Unit

Federal Unemployment Insurance Tax

Comptroller's Circular Letter No. 19-63 instructed that net Federal Unemployment Insurance Tax accruals be adjusted from 0.8% to 0.65% on taxable salaries and wages earned during 1963 and on accrued salaries and wages at December 31, 1962.

Tucson Office, Ground Hog Unit, and Mission Unit made the adjustment on salaries and wages earned in 1963, but did not do so on the accrued salaries and wages at December 31, 1962.

Please book the adjustment pertaining to the accrued wages at December 31, 1962, in your October accounts. You should show this adjustment separately in red in items 19 and 24 on your 4th Quarter Forms SSA.

At the end of the year, when you transfer your 1963 accruals to New York, the amount transferred should include the credit applicable to the accrued wages at December 31, 1962.

K. v. d. Steinen

Kvd:/mm
cc: M.Goodenough
McGrose
AEVMiller

T-1.3.1

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

December 7, 1962

FILE MEMORANDUM

LARGE DIAMETER CORES
FOR METALLURGICAL SAMPLES

Kennecott recently completed 8 diamond drill holes with 6-inch coring bits in an area east of the Ray pit. The purpose of this program was the provision of a representative metallurgical sample of the diabase ore. Various data on the drilling are summarized below:

Total 6" coring	2205'
Core Recovery	85%
Weight of 6" core per ft.	31 lbs.
Total weight of core	29 tons
Maximum hole depth	450'
Average distance cored per 8 hr. shift	14'
Cost per foot of coring	$15.50
Total cost (exclusive of overburden drilling)	$34,100.00

Joy contracted the job for $12.00 per foot plus bit costs which amounted to $3.50 per foot. The drilling was carried out with a Joy 22 heavy duty rig, 10' swivel barrels and mud circulation. Kennecott rotary drilled through the overburden with their own equipment and cased the holes 8" ID.

Art Eklund of Joy stated that in drilling characteristics the diabase would closely approximate a well altered porphyry. He estimated that diamond consumption in formations such as the tactites and hornfels at the Mission would be somewhat higher than in diabase -- possibly 25%, or $4.00 to $5.00 per foot bit cost. The ore bearing formations of the Imperial area at Silver Bell are comparable to those at the Mission, although possibly somewhat less abrasive.

J. H. COURTRIGHT

JHC/hw
cc: CFPollock
O.Pope
RMason
DAJameson
JEKleinlein
RJojola

T-10.6
1

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
November 23, 1962

FILE MEMORANDUM

AIR RECONNAISSANCE
West of Phoenix - Casa Grande

On a flight (A.A.) to Los Angeles in April, 1962, I saw a bright red area in the early morning sun (8:30 AM) in a basin rimmed by post-ore(?) volcanic ridges, about 50 miles west or southwest of Phoenix. The following described flight was to locate this spot and make a general reconnaissance in the process.

Took off from Tucson Municipal Airport at 10:35 AM, Nov. 16, 1962, Comanche-250 chartered from Hudgin Air Service. This is a bottom-wing plane, well powered, with good front and right hand visibility. Refer to Army map service Tucson, Ajo, and Phoenix map sheets for geographic names. The new Arizona Bureau of Mines geologic maps of individual counties will be abbreviated ABM.

Day bright and clear north of Tucson. No wind. Maintained 4500 feet altitude through most of trip. Smog appeared heavy at Picacho Peak and grew very bad west of Phoenix, obscuring distant views.

Flew over east side Tucson Mt., over Conzten Pass and then over the hills known as Picacho de Calera where the limestone quarry is. The volcanics of the Tucson Mt. present varied colors of tan and red-brown. Passed on by the west side of Picacho Peak - could see what may be stratification in the lower rim of the peak. Various shades of colors in the low hills west of the peak. ABM shows mine symbol here but did not see any workings. Flew NW and passed over south end of Casa Grande Mtns. No alt. colors or bedrock outliers on the south or west.

Turned west and passed south of Stanfield. Table Top Mt. to the south. Antelope Pk. to the south is capped by basalt(?). Flying about ¼ mile south of highway.

Crossed VeKol valley 11:20 AM. Flew west and passed about 4 miles north of the White Hills - grey to white colored. (I have been in VeKol Wash near the White Hills and saw no altered float, on a previous auto recon.) There appears to be a breach in the super-highway fence, north of the White Hills, which may afford access to this general area south of the road.

Continued west nearly to Squaw Tits Pk., then turned north and passed a railroad track where it cuts through the Maricopa Mts. Crossed diagonally across Maricopa Mts. about along W line of R 2W. Flew gap between Sierra Estrella and Eagle Mt. This route all in grey colored granitics. Passed over Buckeye. Turned NW to SE edge of White Tank Mts., then flew west along their south edge, along a main graded road. There are muted brown color tones in the south foothills and pediment(?), and scattered prospect holes. This area should be field checked. There are numerous dirt roads in the area.

Flew west above a paved road, which changes to graded dirt about N. of Palo Verde. Continued to where Luke AF 7 airport appeared a mile to the south. Turned NW flying above dirt road which follows NE flank of Palo Verde hills, which appear

to be basalt buttes, as shown by ABM. Flew on past north side of Saddle Mtn. where the road crosses a pass between the ragged peaks of Saddle Mtn. on the south and some low hills on the north. In this pass on both sides appear various small mine diggings, and the area for about 3/4 miles diameter is red colored. This area is shown as schist by ABM. The red color most likely is an altered zone and should be field checked. (Courtright 3/4/54 mentions flying over the Palo Verde mine in schist, which may be the same location, but no red colors were noted in the rock.) Saddle Mtn. is a bedded volcanic series, tilted slightly and eroded to craggy peaks, of which one in the center is the highest point -- about 3000 feet elev. Volcanics weather grey, purple, and red.

Flew west to the central east side of the Eagle Tail Mtn of bedded volcanics, where a prominent spire arises from the bajada slope, which appears to be a volcanic rock. Turned N-20-E and flew into a pass in the Big Horn Mtn in T 4N, R 9W, through the pass and turned and flew SE along the NE flank of the ridge which forms the SW portion of the Bighorns. ABM shows this whole region as principally "Cretaceous volcanics". The Bighorn peaks to the south of flight line are gently dipping, highly colored volcanics, and to the north are rolling hills and buttes of volcanics. Along flight line I noted some possible alteration in what might be a large basement window, in the NW¼ of T 3N, R 8W. The Army map series shows a prospect symbol in the area, but I did not see the diggings. This should probably be field checked. Turned SW along pass north of Burnt Mt., which is a basalt remnant with a long "tail" running out to near the road to Salome. Turned SE and flew back toward Saddle Mtn, and there turned south and flew over top of high peak. Turned E. and flew over Palo Verde hills and then back to Buckeye.

There turned SW along SPRR track to station called "Crag". About 3 miles further SW along the track, on the N. side where the RR bends more SW, is a low butte of black basalt, marked with elev. 1590 on Army map series. Just to NW of this butte is a lower ridge with a slight but prominent erosional scarp circling its SW edge, and with a very red color. To the west and south lie the Gila Bend Mtns. About 5 miles south is the high peak of Signal Mt. Signal Mt. is a series of nearly flat volcanics eroded to scarps and peaks. In a basin between the RR and Signal Mt, and about a mile east of a station named "Harqual", is the area which I saw on the Los Angeles flight. The colors are not as pronounced as they were in the early morning, but red and brown tones are clearly evident over a large area. ABM shows schist to crop out in this area, and maps the volcanics of Signal Mt. as "Cretaceous". This area should be field checked. Turned SE, Webb Mtns. on the east. Three mines are shown on the map in that area - Hercan, Buckeye Copper, and Idazona. ABM shows schist and gneiss. Continued due S., opposite Woolsey Peak, a large flat-topped basalt butte. Turned E. and flew over Peak. Low on W. side is a small patch of tan-colored rock, possibly a basement window.

Turned NE and flew north of Gillespie Dam on the Gila River. Flew E. along north side of Buckeye Hills. Beginning at about the center of T 2S, R 5W, and extending N 70°E into the NW corner of T 2S, R 4W, is a belt of spotty, subdued brown alteration(?) colors in the otherwise grey granite. A few mine diggings are present. This belt appears to be about 4 miles long and 1½ miles wide. It should possibly be field checked -- unless this is the area of the "Holt Columbite placer", which has already been checked.

Continued N 70°E, crossed new highway to Gila Bend which runs south, one mile west of west line of R 3W. About 1½ or 2 miles east of highway is a narrow zone

of bright red alteration, striking north, and appears to be about 1½ or 2 miles long. This is about along the E. contact of "Laramide granite" shown on ABM. (I recently drove along this highway and looked at the fresh granite in road cuts -- it is similar to coarse-grained Coolidge granite, but the biotite is more "leafy"). This area deserves field checking.

Flew on across north end of Eagle Mtn, across low hills and valley and then across N. end Sierra Estrella and turned east along the G.& S.R. Base line for about 6 miles, then curved SE into gap in Salt River Mts, where "Laramide granite" is shown ABM. Flew south across gap. Apparently fresh grey granite with strong jointing. Came out over International Truck testing road work (I have previously been along east margin of this testing ground, and saw fresh gneiss -- no alt. float).

Flew SE to Sacaton Mts. Followed Hwy 387 (Phoenix to Casa Grande) where it cuts SE across Sacaton Mtns, and saw scattered outcrops NE of the Hwy, far out from the Mtn, and muted brown and tan colors.

(I field checked this area the following day -- the area is north of the Sacaton Hills and north of where Blucher stopped his map. For about 3 miles there is a pediment cut on granite with very small scattered outcrops level with the surface. I doubt that more than 10 feet of soil anywhere covers bedrock. The pediment extends north to the first big canal which crosses approximately the center of T 4S. The colors seen from the air result from the contrast of white coarse-grained granite(Coolidge?), fresh monzonite dikes which are brown, and tan soil.)

Flew around the south edge of mountains and passed the small altered outcrop at Sacaton from the north and east. It is notable that this outcrop is not colored when viewed from the air. First flew over at about 2000 feet above surface, then circled at 400 feet above surface. Hill is barely visible as a grey blob. Time a little past 1 PM. The hill is mildly to bright yellow when viewed from the ground level, even at 3 to 4 miles distant, depending on light conditions; and it was this color which first attracted Blucher and me to it. It would not have been recognized in air reconnaissance.

Flew directly back to Tucson, landing at 1:45 PM.

Att: Map JOHN E. KINNISON
JEK/kw
cc: KERichard, w/att.
JHCourtright, "

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

November 23, 1962

FILE MEMORANDUM

Summary of Overlap of
Air Reconnaissance
(Courtright & Richard
3/3-4/54 - Western Ariz)
(Kinnison 11/16/62)

Overlap Coverage: SW flank Gila Bend Mtns. Woolsey Peak to the east. Flew W. over Clanton Hills. No alteration noted. 3/11/54

: Flew northerly from Gila Bend around SE end of Gila Bend Mtns. Flew along NE flank Gila Bend Mtns(?) -- not specifically stated. Continued W or NW over Cemetary Ridge. Circled and flew SE along SW flank Eagle Tail Mtns. Circled SE end of Eagle Tail Mtns and flew NW along NE face. Saw grey colors of pre-Cambrian windows under volcanics..., Flew SE along SW flank Big Horn Mtns. "Passed over Palo Verde Mine; appears to be small prospect in schist. Continued over Palo Verde hills, basalt flows; over Gila River and turned west over Buckeye hills. Circled right over Stripped Mountain .... Holt Columbite Placer prospect."

JOHN E. KINNISON

JEK/kw
cc: KERichard
JHCourtright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

October 22, 1962

CONFIDENTIAL

FILE MEMORANDUM

SACATON PROPERTY

Re Mr. D. J. Pope's attached note, the entire situation is in such a preliminary stage that one can only guess-timate!

35 million tons 0.85% Cu , 88%

Recovery	524 million pounds
28¢ Cu price incl. Ag, etc.	$147 million

Each 1¢ change in Cu price worth $5.2 million

24¢ Cost	(San Manuel	20¢)	
	(	)	1961
	(Magma	29.97¢)	
plus 5¢ for D. & D.			
giving a total of		29¢	
plus 10% contingency		2.9	
		31.9¢	

With sufficient additional tonnage of equal grade and recovery, probably break-even would be about 30¢.

ORIGINAL SIGNED BY
A. C. HALL

A. C. HALL

ACH:cmr

MR. WES

READ AND RETURN

PREPARE ANSWERS ___ HANDLE ___

FILE ✓ INITIALS

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

October 17, 1969

J. H. C.

OCT 17 1969

TO: J.H. Courtright

FROM: N.P. Whaley

Sacaton Project-Comparisons of Check Assay Data

The attached table is an updated summary of all assay comparisons run on pulps from the Sacaton Project.

It is similar in format to the one directed to you on June 16, but incorporates the averages of two addition groups of pulps sent to El Paso to check assaying done by Jacobs Assay Office in the early 1960's.

This should provide you with a single sheet tabulating all broad comparisons that we are able to make at this date.

N. P. Whaley

N.P. Whaley

NPW:ir
ATTACHMENT

SACATON PROJECT
Comparison of Averaged Total Copper Values
From Laboratories Involved in Assaying

Drilling Early 1960's- Comparisons shown apply only to those drill holes used in the April 1969 ore reserves estimate(s).

Individual Check Assays- Total of 301 samples involved.

No. Samples Compared	Total Cu (%) Jacobs	H&H	Silver Bell	El Paso(1969)	Variation Range
61	1.30	---	1.46	1.44	11%-12%
130	0.79	---	----	0.89	13%
110	0.31	---	----	0.38	22%

Composite Check Assays-Total of 24 samples involved.

No. Samples Compared	Total Cu (%) Jacobs (Calculated)	H&H	Silver Bell	El Paso(1969)	Variation Range
22	0.84	0.92	----------	----------	10%
12	1.12	1.23	1.22	----------	9%-10%
14	1.05	----	1.14	----------	8%

Drilling 1968-69'- Comparisons shown involve a total of 364 individual samples

No. Samples Compared	H&H and/or AARI	Silver Bell	El Paso	Variation Range
131	0.99	0.94	---	4%
83	1.56	1.53	---	2%
161	0.99	1.00	---	1%
50	0.91	0.88	0.90	2%-3%

10/17/69
NPW

JHCourtright

J. H. C.

SEP 12 1969

EL PASO ORE TESTING AND ASSAY LABORATORY

El Paso, Texas
Sept. 11, 1969

Mr. N. P. Whaley
American Smelting and Refining Co.
P. O. Box 5795
Tucson, Arizona 85703

Dear Sir:

I am returning to you via Braswell motor freight the 111 assay pulps from the Sacaton Project referred to in your letter of August 19th.

Yours very truly,

ORIGINAL SIGNED BY

T. D. Henderson, Jr.

TDH/cb

cc: JHCourtright

JHCourtright

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

J. H. C.

SEP 12 1969

DATE Sept. 10 1969

MARKED SACATON PROJECT

NPWhaley 8/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	[redacted]	Cu %	Pb %	[redacted]	[redacted]	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
Sample No.			% Cu			Sample No.				% Cu					
	S-6-515		.35			S-10-631				.31					
	S-6-520		.31			S-10-642				.33					
	S-6-530		.46			S-10-646				.25					
						S-10-657				.34					
	S-8-351		.19			S-10-661				.36					
	S-8-358		.37			S-10-665				.34					
	S-8-363		.30			S-10-675				.25					
	S-8-370		.47			S-10-678				.37					
	S-8-381		.39			S-10-687				.24					
	S-8-389		.32			S-10-692				.31					
	S-8-397		.55			S-10-697	---	no sample	---						
	S-8-405		.36			S-10-701				.21					
	S-8-415		.49			S-10-706				.27					
	S-8-418		.41			S-10-711				.41					
	S-8-427		.42			S-10-720				.28					
	S-8-434		.31			S-10-729				.34					
	S-8-441		.39			S-10-734				.25					
	S-8-446		.32			S-10-742				.42					
	S-8-453		.34			S-10-752				.55					
	S-8-459		.28			S-10-756				.48					
						S-10-761				.38					
	S-10-571		.40			S-10-766				.32					
	S-10-576		.22			S-10-775				.32					
	S-10-585		.25			S-10-783				.35					
	S-10-593		.45			S-10-788				.29					
	S-10-604		.36			S-10-793				.47					
	S-10-611		.35			S-10-801				.38					
	S-10-621		.55			S-10-807				.37					

HILL PRINTING CO.—EL PASO

cont'd page 2

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE Sept. 10 196 9

MARKED SACATON PROJECT

NPWhaley 8/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	[redacted]	Cu %	Pb %	[redacted]	[redacted]	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
Sample No.			% Cu			Sample No.				% Cu					
	S-10-812		.52			S-10-1111				.30					
	S-10-817		.57			S-10-1116				.45					
	S-10-824		.51			S-10-1121				.34					
	S-10-829		.48			S-10-1125				.41					
	S-10-838		.31												
	S-10-842		.51			S-13-688				.40					
	S-10-851		.25			S-13-697				.39					
	S-10-861		.25			S-13-706				.61					
	S-10-869		.31			S-13-711				.29					
	S-10-873		.24			S-13-714				.40					
	S-10-879		.17			S-13-724				.65					
	S-10-889		.17			S-13-733				.29					
	S-10-898		.44			S-13-738				.42					
	S-10-1013		.33			S-13-743				.49					
	S-10-1022		.38			S-13-751				.46					
	S-10-1027		.23			S-13-755				.49					
	S-10-1030		.39			S-13-766				.37					
	S-10-1037		.40			S-13-806				.38					
	S-10-1042		.31			S-13-816				.42					
	S-10-1052		.20			S-13-819				.48					
	S-10-1060		.31			S-13-823				.36					
	~~XXXXXXXX~~					S-13-825				.73					
	S-10-1065		.25			S-13-836				.52					
	S-10-1069		.13			S-13-842				.45					
	S-10-1078		.30			S-13-844				.28					
	S-10-1088		.26			S-13-849				.34					
	S-10-1096		.23												
	S-10-1106		.25												

HILL PRINTING CO.—EL PASO

cont'd page 3

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE Sept. 10 196 9

MARKED SACATON PROJECT

NPWhaley 8/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	[redacted]	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
Sample No.			% Cu												
	S-17-710		.49												
	S-17-715		.34												
	S-17-720		.63												
	S-17-726		.46												
	S-17-728		.55												

JHCourtright 2x
VKudryk
GWBossard
File

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

J. H. C.

AUG 19 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

August 19, 1969

Mr. T.D. Henderson
El Paso Ore Testing & Assay Laboratory
American Smelting and Refining Company
P.O. Box 895
El Paso, Texas

Dear Mr. Henderson:

I am sending to you via Braswell Motor Freight Lines, Inc. five boxes containing 111 assay pulps from the Sacaton Project group. These are also old pulps and should be thoroughly rolled prior to assaying.

A list of these samples is attached. As with the previous Sacaton samples, we require an assay for total copper only.

Please return the pulp rejects to me and direct the assay returns to Mr. J.H. Courtright of this office.

N. P. Whaley

Very truly yours,

N.P. Whaley

NPW:ir
Attachment
cc: JHCourtright w/att.

To: Mr. T.D. Henderson
El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N.P. Whaley

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

Assay for Total Cu only

Roll all samples prior to assaying

Please direct assay returns to

Mr. J.H. Courtright of this office.

19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-6-515					X				
S-6-520					X				
S-6-530					X				
S-8-351					X				
S-8-358					X				
S-8-363					X				
S-8-370					X				
S-8-381					X				
S-8-389					X				
S-8-397					X				
S-8-405					X				
S-8-415					X				
S-8-418					X				
S-8-427					X				
S-8-434					X				
S-8-441					X				
S-8-446					X				
S-8-453					X				

Mr. T.D. Henderson
El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
To: P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N.P. Whaley

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

19 August 196 69

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-8-459					X				
S-10-571					X				
S-10-576					X				
S-10-585					X				
S-10-593					X				
S-10-604					X				
S-10-611					X				
S-10-621					X				
S-10-631					X				
S-10-642					X				
S-10-646					X				
S-10-657					X				
S-10-661					X				
S-10-665					X				
S-10-675					X				
S-10-678					X				
S-10-687					X				
S-10-692					X				

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- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

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19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
5289 S-10-697					X				
S-10-701					X				
S-10-706					X				
S-10-711					X				
S-10-720					X				
S-10-729					X				
S-10-734					X				
S-10-742					X				
5290 S-10-752					X				
S-10-756					X				
S-10-761					X				
S-10-766					X				
-10-775					X				
-10-783					X				
-10-788					X				
-10-793					X				
10-801					X				
10-807					X				
10-812					X				

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- [ ] Spectrographic Analysis

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19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-10-817					X				
S-10-824					X				
S-10-829					X				
S-10-838					X				
5291 S-10-842					X				
S-10-851					X				
S-10-861					X				
S-10-869					X				
S-10-873					X				
S-10-879					X				
S-10-889					X				
5292 S-10-898					X				
S-10-1013					X				
S-10-1022					X				
S-10-1027					X				
S-10-1030					X				
S-10-1037					X				
S-10-1042					X				
S-10-1052					X				

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19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-10-1060					X				
S-10-1065					X				
S-10-1069					X				
S-10-1078					X				
S-10-1088					X				
S-10-1096					X				
S-10-1106					X				
S-10-1111					X				
5293 S-10-1116					X				
S-10-1121					X				
S-10-1125					X				
S-13-688					X				
S-13-697					X				
S-13-706					X				
S-13-711					X				
S-13-714					X				
S-13-724					X				
S-13-733					X				

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- [x] Verified Analysis*
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19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-13-738					X				
S-13-743					X				
S-13-751					X				
S-13-755					X				
S-13-766					X				
S-13-806					X				
S-13-816					X				
S-13-819					X				
S-13-823					X				
S-13-825					X				
S-13-836					X				
S-13-842					X				
S-13-844					X				
S-13-849					X				
S-17-710					X				
S-17-715					X				
S-17-720					X				
S-17-726					X				

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- [ ] Spectrographic Analysis

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19 August 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
S-17-728					X				

JHC Desk
Assays given to NPW
7/8/69

JHCourtright

J.H.C.
AUG 8 - 1969

EL PASO ORE TESTING AND ASSAY LABORATORY

W.E.S.
JUL 8 1969

El Paso, Texas
July 7, 1969

Mr. N. P. Whaley
American Smelting and Refining Co.
P. O. Box 5795
Tucson, Arizona 85703

Dear Sir:

I am returning to you via Braswell Motor Freight the ~~129~~ 130 assay pulps referred to in your letter of June 19th from the Sacaton Project, which we have assayed for copper. The assays are being reported today.

Yours very truly,

ORIGINAL SIGNED BY
T. D. Henderson, Jr.

TDH/cb

cc: JHCourtright

JHC [illegible]

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 7 1969

MARKED SACATON / Tucson Office

NPWhaley 6/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
S-6-303				.05											
S-6-305				.56											
S-6-311				1.41											
S-6-314				.21											
S-6-315				8.12											
S-6-325				2.54											
S-6-335				.18											
S-6-345				.85											
S-6-355				.65											
S-6-359				.77											
S-6-365				2.68											
S-6-372				.17											
S-6-382				.49											
S-6-392				.58											
S-6-402				1.15											
S-6-406				1.69											
S-6-417				1.30											
S-6-422				.52											
S-6-433				.45											
S-6-435				.32											
S-6-445				.44											
S-6-449				.43											
S-6-452				.55											
S-6-455				.30											
S-6-460				.48											
S-6-465				.47											
S-6-475				.51											
S-6-485				.44											
S-6-491				.46											

cont'd page 2

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 7 196 9

MARKED SACATON / Tucson Office

NPWhaley 6/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
S-6-500				.45											
S-6-506				.75											
S-10-473				.47											
S-10-486				.70											
S-10-493				.46											
S-10-495				.63											
S-10-499				1.03											
S-10-501				.50											
S-10-506				.47											
S-10-512				.52											
S-10-521				.78											
S-10-530				.38											
S-10-534				.60											
S-10-542				.38											
S-10-549				.52											
S-10-557				.45											
S-10-566				.49											
S-13-559				.51											
S-13-560				.68											
S-13-562				.66											
S-13-569				.77											
S-13-579				.48											
S-13-589				.77											
S-13-594				.59											
S-13-606				.65											
S-13-608				.52											
S-13-614				.84											
S-13-621				.81											
S-13-628				.83											

HILL PRINTING CO.—EL PASO

cont'd page 3

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 7 196 9

MARKED SACATON / Tucson Office

NPWhaley 6/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
S-13-633				.79											
S-13-640				.70											
S-13-645				1.21											
S-13-660				.51											
S-13-665				.49											
S-13-669				.87											
S-13-676				.53											
S-13-682				.53											
S-13-771				.58											
S-13-778				.38											
S-13-784				.50											
S-13-789				.48											
S-13-796				.60											
S-17-734				.92											
S-17-742				.46											
S-17-752				.43											
S-30-661				3.18											
S-30-665				3.53											
S-30-680				3.63											
S-30-684				.94											
S-30-693				2.03											
S-30-782				.76											
S-30-788				1.22											
S-30-795				1.13											
S-30-803				.10											
S-30-810				1.46											
S-30-815				2.97											
S-30-819				.11											
S-30-825				1.38											

HILL PRINTING CO.—EL PASO

cont'd page 4

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 7 196 9

MARKED SACATON / Tucson Office

NPWhaley 6/10/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
S-30-830				1.22											
S-30-835				1.10											
S-30-842				1.33											
S-30-846				1.78											
S-30-858				1.09											
S-30-865				1.10											
S-30-873.5				1.09											
S-30-883				1.21											
S-30-902				1.67											
S-30-912				1.38											
S-30-922				2.55											
S-30-932				1.39											
S-30-942				1.49											
S-30-952				1.64											
S-30-961				.86											
S-30-970				1.20											
S-30-981				.55											
S-30-1072				.44											
S-30-1097				.49											
S-30-1104				.30											
S-30-1113				.34											
S30-1123				.52											
S-30-1130				.29											
S-30-1138				.26											
S-30-1142				.30											
S-30-1151				.30											
S-30-1160				.25											
S-30-1163				.35											
S-30-1167				.46											

HILL PRINTING CO.—EL PASO

cont'd page 5

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE July 7 196 9

MARKED SACATON / Tucson Office

NPWhaley 6/19/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	S-30-1173			.40											
	S-30-1179			.34											
	S-30-1186			.46											
	S-30-1196			.24											
	S-30-1203			.32											
	S-30-1212			.50											
	S-30-1216			.20											
	S-30-1227			.44											
	S-30-1238			1.11											
	S-30-1242			.72											
	5294			1.41											
	5295			1.70											
	5296			1.13											
	5297			.77											

JHCourtright-3x
VKudryk
GWBossard
File

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

J. H. C.
JUN 19 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 19, 1969

Sacaton

Mr. T. D. Henderson
El Paso Ore Testing & Assay Lab.
American Smelting and Refining Co.
P. O. Box 895
El Paso, Texas 79999

Dear Mr. Henderson:

I am sending to you via Braswell Motor Freight Lines, Inc. five more boxes containing 129 assay pulps from the Sacaton Project group. Again, these are all old pulps and should be thoroughly rolled prior to assaying.

A list of these samples is attached. As with the previous Sacaton samples, we require an assay for total copper only.

Please direct the assay returns to Mr. J. H. Courtright of this office.

Thank you for the copy of the sample routing guide prepared by our Traffic Department and the prompt return of our previous pulp rejects. Would you please continue this procedure by returning the rejects from the current shipment?

Very truly yours,

N. P. Whaley

N. P. Whaley

NPW:lab
Attachment
cc: JHCourtright, w/att.

Mr. T.D. Henderson
El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
To: P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N.P. WHALEY

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

ASSAY FOR TOTAL Cu ONLY.
ROLL ALL SAMPLES PRIOR TO ASSAYING.

PLEASE DIRECT ASSAY RETURNS TO MR. J.H. COURTRIGHT OF THIS OFFICE.

19 JUNE 1969

Page 1 of 7 pages

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-6-303				X				
	S-6-305				X				
	S-6-311				X				
	S-6-314				X				
	S-6-315				X				
	S-6-325				X				
	S-6-335				X				
	S-6-345				X				
	S-6-355				X				
	S-6-359				X				
	S-6-365				X				
	S-6-372				X				
	S-6-382				X				
	S-6-392				X				
	S-6-402				X				
	S-6-406				X				
	S-6-417				X				
	S-6-422				X				
	S-6-433				X				

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Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-6-435				X				
	S-6-445				X				
	S-6-449				X				
	S-6-452				X				
	S-6-455				X				
	S-6-460				X				
	S-6-465				X				
	S-6-475				X				
	S-6-485				X				
	S-6-491				X				
	S-6-500				X				
	S-6-506				X				
					X				
	S-10-473				X				
	S-10-486				X				
	S-10-493				X				
	S-10-495				X				
	S-10-499				X				
	S-10-501				X				

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19 JUNE 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-10-506				X				
	S-10-512				X				
	S-10-521				X				
	S-10-530				X				
	S-10-534				X				
	S-10-542				X				
	S-10-549				X				
	S-10-557				X				
	S-10-566				X				
					X				
	S-13-559				X				
	S-13-560				X				
	S-13-562				X				
	S-13-569				X				
	S-13-579				X				
	S-13-589				X				
	S-13-594				X				
	S-13-606				X				
	S-13-603				X				

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19 JUNE 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-13-614				X				
	S-13-621				X				
	S-13-628				X				
	S-13-633				X				
	S-13-640				X				
	S-13-645				X				
	S-13-660				X				
	S-13-665				X				
	S-13-669				X				
	S-13-676				X				
	S-13-688				X				
	S-13-771				X				
	S-13-778				X				
	S-13-784				X				
	S-13-796				X				
					X				
	S-17-734				X				
	S-17-742				X				
	S-17-752				X				

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19 JUNE 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-30-661				X				
	S-30-665				X				
	S-30-680				X				
	S-30-684				X				
	S-30-693				X				
	S-30-782				X				
	S-30-788				X				
	S-30-795				X				
	S-30-803				X				
	S-30-810				X				
	S-30-815				X				
	S-30-819				X				
	S-30-825				X				
	S-30-830				X				
	S-30-835				X				
	S-30-842				X				
	S-30-846				X				
	S-30-853				X				
	S-30-865				X				

Mr. T.D. Henderson
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- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

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19 JUNE 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-30-833				X				
	S-30-883				X				
	S-30-902				X				
	S-30-912				X				
	S-30-922				X				
	S-30-932				X				
	S-30-942				X				
	S-30-952				X				
	S-30-961				X				
	S-30-970				X				
	S-30-931				X				
	S-30-1072				X				
	S-30-1097				X				
	S-30-1104				X				
	S-30-1113				X				
	S-30-1123				X				
	S-30-1130				X				
	S-30-1138				X				
	S-30-1142				X				

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- [ ] Spectrographic Analysis

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19 JUNE 1969

Interval	Sample No.	Au	Ag	Pb	Cu	Zn	Mo		
	S-30-1151				X				
	S-30-1160				X				
	S-30-1163				X				
	S-30-1167				X				
	S-30-1173				X				
	S-30-1179				X				
	S-30-1186				X				
	S-30-1196				X				
	S-30-1203				X				
	S-30-1212				X				
	S-30-1216				X				
	S-30-1227				X				
	S-30-1238				X				
	S-30-1242				X				
	5294				X				
	5295				X				
	5296				X				
	5297				X				

J.H.C.

JUN 16 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 16, 1969

TO: J.H. Courtright

FROM: N.P. Whaley

Sacaton Project-Comparisons
of Check Assay Data

Returns for our final group of assay checks sent to the El Paso Ore Testing and Assay Laboratory were received on certificates dated June 11. These samples were original pulps of individual assay checks run in the early 1960's.

The attached table is a condensed summary of comparisons of averaged total copper values for this group and all other groups check assayed by various laboratories over the last two or so months.

More detailed comparisons of all but this final group are presented in my two memos on the same subject dated May 8 and May 19.

N. P. Whaley

N.P. Whaley

NPW:ir
Attachment
cc: RHLuning
SEZelenkov

SACATON PROJECT
Comparison of Averaged Total Copper Values
From Laboratories Involved in Assaying

Drilling Early 1960's- Comparisons shown apply only to those drill holes used in the April 1969 ore reserves estimate(s).

Individual Check Assays- Total of 61 samples involved.

No. Samples Compared	Total Cu (%)				Variation Range
	Jacobs	H&H	Silver Bell	El Paso(1969)	
61	1.30	---	1.46	1.44	11%-12%

Composite Check Assays- Total of 24 samples involved.

No. Samples Compared	Total Cu (%)				Variation Range
	Jacobs (Calculated)	H&H	Silver Bell	El Paso(1969)	
22	0.84	0.92	-----	-----	10%
12	1.12	1.23	1.22	-----	9%-10%
14	1.05	---	1.14	-----	8%

Drilling 1968-69'-Comparisons shown involve a total of 364 individual samples.

No. Samples Compared	Total Cu (%)			Variation Range
	H&H and/or AARI	Silver Bell	El Paso	
131	0.99	0.94	-----	4%
83	1.56	1.53	-----	2%
161	0.99	1.00	-----	1%
50	0.91	0.88	0.90	2%-3%

6/16/69
NPW

6-17-69

SACATON-ORE RESERVES

SACATON WEST

The Current ore reserves estimate is based on an estimated 661 assays.

Of these:

Drilling 1968-'69: 486 assays ≈ 73.5% of data
Drilling, early 1960's: 175 assays ≈ 26.5% of data

Comparisons of check assay data from 43 samples run (24% of the 175 assays) suggests Jacobs assays should probably be upgraded by 16%.

If this done:

SACATON WEST 22.1 mil tons @ 0.90% total Cu

SACATON EAST

Data insufficient - Prob'ly very little upgrading could be justified even if data were adequate.

TOTAL SACATON

WEST	22.1 mil tons @ 0.90	Total Cu
EAST	14.6 mil tons @ 1.36	" "
	37.0 mil tons @ 1.03	Total Cu

NPW

40016 - 1.03
37

JHCourtright

J. H. C.

JUN - 6 1969

EL PASO ORE TESTING AND ASSAY LABORATORY

El Paso, Texas
June 11, 1969

Mr. N. P. Whaley
Tucson Office

Sacaton Project Assay Pulps

We are reporting today the copper assays on the 64 assay pulps from the Sacaton Project that are referred to in your letter of May 28th.

I am sending you the pulp rejects under separate cover, as you requested. The first group of 50 Sacaton assay pulps was shipped to you on June 2nd.

T. D. Henderson, Jr.

TDH/cb

cc: JHCourtright

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE June 11 1969

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5205			3.53											
	5206			.86											
	5207			1.12											
	5208			2.75											
	5209			1.76											
	5214			1.54											
	5215			.80											
	5216			1.31											
	5217			1.15											
	5218			1.34											
	5219			.84											
	5220			2.12											
	5221			1.27											
	5222			.79											
	5223			.79											
	5224			2.11											
	5371			1.14											
	5372			2.11											
	5373			2.53											
	5374			1.64											
	5375			1.02											
	5376			1.45											
	5377			.68											
	5378			.58											
	5379			.61											
	5380			1.46											
	5381			2.85											
	5382			2.19											
	5383			.94											

HILL PRINTING CO.—EL PASO

cont'd page 2

BY _____

A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE June 11 196 9

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5384			1.08											
	5385			1.11											
	5386			1.33											
	5387			1.24											
	5388			1.31											
	5389			.97											
	5390			1.30											
	5391			1.27											
	5392			1.65											
	5393			.82											
	5394			.47											
	5395			1.61											
	5396			.55											
	5397			.82											
	5398			.39											
	5399			3.42											
	5400			5.74											
	5401			1.79											
	5402			1.09											
	5403			.80											
	5404			.63											
	5405			.92											
	5406			1.89											
	5407			1.52											
	5408			1.66											
	5409			1.14											
	5410			1.02											
	5411			1.61											
	5412			1.30											

HILL PRINTING CO.—EL PASO

cont'd page 3

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE June 11 196 9

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5413			1.12											
	5414			1.45											
	5415			1.32											
	5419			2.24											
	5420			.95											
	5421			.95											
			JHCourtright-3x VKudryk GWBossard File												

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

J Hoovinland

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE June 11 1969

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5205			3.53											
	5206			.86											
	5207			1.12											
	5208			2.75											
	5209			1.76											
	5214			1.54											
	5215			.80											
	5216			1.31											
	5217			1.15											
	5218			1.34											
	5219			.84											
	5220			2.12											
	5221			1.27											
	5222			.79											
	5223			.79											
	5224			2.11											
	5371			1.14											
	5372			2.11											
	5373			2.53											
	5374			1.64											
	5375			1.02											
	5376			1.45											
	5377			.68											
	5378			.58											
	5379			.61											
	5380			1.46											
	5381			2.85											
	5382			2.19											
	5383			.94											

HILL PRINTING CO.—EL PASO

cont'd page 2

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

PAGE #2

DATE June 11 196 9

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5384			1.08											
	5385			1.11											
	5386			1.33											
	5387			1.24											
	5388			1.31											
	5389			.97											
	5390			1.30											
	5391			1.27											
	5392			1.65											
	5393			.82											
	5394			.47											
	5395			1.61											
	5396			.55											
	5397			.82											
	5398			.39											
	5399			3.42											
	5400			5.74											
	5401			1.79											
	5402			1.09											
	5403			.80											
	5404			.63											
	5405			.92											
	5406			1.89											
	5407			1.52											
	5408			1.66											
	5409			1.14											
	5410			1.02											
	5411			1.61											
	5412			1.30											

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cont'd page 3

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE June 11 196 9

MARKED SACATON / TUCSON OFFICE

NPWhaley 5/28/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	5413			1.12											
	5414			1.45											
	5415			1.32											
	5419			2.24											
	5420			.95											
	5421			.95											

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VKudryk
GWBossard
File

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

J.H.C
JUN 3 - 1969

EL PASO ORE TESTING AND ASSAY LABORATORY

El Paso, Texas
June 2, 1969

Mr. N. P. Whaley
American Smelting and Refining Co.
Tucson, Arizona 85703

Dear Sir:

As requested in your letter of May 28th, I am returning to you under separate cover the 50 Sacaton pulps sent to El Paso for copper assays on May 9th (E. P. Sample Numbers 3175-3224). These assays were reported on May 29th.

I will send this shipment by Braswell Motor Freight.

Yours very truly,

ORIGINAL SIGNED BY

T. D. Henderson, Jr.

TDH/cb
cc: JHCourtright

JH COURTRIGHT

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

J.H.C.

DATE May 29 JUN 2- 1969 196 9

MARKED SACATON PROJECT

NPWhaley 5/9/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	6247			1.66											
	6265			.10											
	6374			.88											
	6412			.97											
	A7795			.69											
	A7717			1.64											
	6431			.04											
	6461			1.88											
	6477			.88											
	6490			.71											
	A7655			.44											
	A7673			.39											
	A7698			.39											
	A7780			.03											
	A7727			.51											
	6765			2.65											
	6796			.81											
	6537			.06											
	6653			2.37											
	6656			.80											
	6570			.62											
	A7877			.92											
	A7919			.60											
	A7941			2.25											
	A8058			2.19											
	A8060			1.70											
	A8281			.72											
	A8223			.42											

cont'd page 2

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE May 29 196 9

MARKED SACATON PROJECT

NPWhaley 5/9/69

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
	A8242			.40											
	A8490			.83											
	A8388			.06											
	A8412			3.97											
	A8667			.96											
	A8685			.60											
	A8574			.72											
	A9084			.39											
	A9149			.51											
	A8305			.17											
	A9234			.33											
	A8617			1.21											
	A8713			.16											
	A8802			.91											
	A8813			.80											
	A9127			.45											
	A8781			.69											
	A8736			.83											
	A8815			1.17											
	A8759			.88											
	A8944			1.11											
	A8880			.59											

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VKudryk
GWBossard
File

HILL PRINTING CO.—EL PASO

BY _____ A. Jiménez S. CHIEF CHEMIST

J.H.C.

MAY 19 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 19, 1969

TO: J.H. Courtright

FROM: N.P. Whaley

Sacaton Project - Assay Data
Comparisons of Check Assays
1968 - 1969.

In my memo on this same subject dated May 8, I concluded with the statement that an additional 161 original pulps had been delivered to the Silver Bell Unit on April 30. The assay returns from these check samples were received on certificates dated 15 of April. A comparison of the averaged total copper values with the original assay averages is given below:

Sacaton East

Type of Sample	No. Samples	Total Cu (%) H & H	AARL	Mission	Silver Bell
Original assay pulps not previously used in any check assaying	91	1.06		----	1.07
Above 91 samples compared by Laboratory:	27	0.99	----	----	1.01
	64	----	1.09	----	1.10

Sacaton West

Original assay pulps not previously used in any check assaying	70	0.90		----	0.90
Above 70 samples compared by Laboratory:	10	1.15	----	----	1.04
	60	----	0.86	----	0.87

Our Silver Bell Unit stated that many of the original pulps in the above group (s) were poorly pulverized, implying that this could be one of the problems involved in former attempts to duplicate results from different laboratories. Their assay certificates indicated that for 122 pulps reported on out of the above 161, approximately 38% were

poorly pulverized, i.e., not all -100 mesh. A comparison of the averaged original assays with those from Silver Bell after repulverizing is again given below.

Sacaton East

No. Samples	Total Cu (%) Original assay	Silver Bell
23	1.02	1.03

Sacaton West

No. Samples	Total Cu (%) Original assay	Silver Bell
23	0.82	0.83

N. P. Whaley

N.P. Whaley

NPW:lzb

cc: RHLuning
SEZelenkov

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 9, 1969

J. H. C.
MAY 9 1969

Mr. T.D. Henderson
El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
P.O. Box 895
El Paso, Texas 79999

Dear Mr. Henderson:

I am sending to you via Braswell Motor Freight Lines, Inc, two boxes containing 50 assay pulps from the Sacaton Project group.

These are to be assayed for total copper as directed on the attached list.

Please direct the assay returns to Mr. J.H. Courtright of this office.

Very truly yours,

N. P. Whaley

N.P. Whaley

NPW:ir
Attachment
cc: JHCourtright w/att.

El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
To: P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N. P. WHALEY

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

ASSAY FOR TOTAL Cu ONLY.
PLEASE DIRECT ASSAY RETURNS TO MR. J. H. COURTRIGHT OF THIS OFFICE.

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

8 MAY 1969

Interval	Sample No.	Au	Ag	Pb	TOTAL Cu	Zn	Mo		
	6247				x				
	6265				x				
	6374				x				
	6412				x				
	A7795				x				
	A7717				x				
	6431				x				
	6461				x				
	6477				x				
	6490				x				
	A7655				x				
	A7673				x				
	A7698				x				
	A7780				x				
	A7727				x				
	6765				x				
	6796				x				
	6537				x				
	6653				x				
	[illegible]				x				

El Paso Assaying and Refining Company
American Smelting and Refining Company
To: P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N. P. WHALEY

ASSAY FOR TOTAL Cu ONLY

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

8 MAY 1969

Interval	Sample No.	Au	Ag	Pb	TOTAL Cu	Zn	Mo		
	6570				X				
	A 7877				X				
	A 7919				X				
	A 7941				X				
	A 8058				X				
	A 8060				X				
	A 8281				X				
	A 8223				X				
	A 8242				X				
	A 8490				X				
	A 8388				X				
	A 8412				X				
	A 8667				X				
	A 8685				X				
	A 8574				X				
	~~A 9405~~				X				
	A 9084				X				
	A 9149				X				
	A 8305				X				
	A 8324				X				

Mr. T.D. Henderson
El Paso Ore Testing and Assay Laboratory
American Smelting and Refining Company
To: P.O. Box 895
El Paso, Texas 79999

(For Customer's Use)

From: N. P. WHALEY

ASSAY FOR TOTAL Cu ONLY

Exploration Department
American Smelting and Refining Company
P.O. Box 5795
Tucson, Arizona 85703

- [ ] Single Analysis
- [x] Verified Analysis*
- [ ] Geochemical Analysis
- [ ] Spectrographic Analysis

*Verified Analysis will be run unless otherwise specified

8 MAY 1969

Page 3 of 3 pages

Interval	Sample No.	Au	Ag	Pb	TOTAL Cu	Zn	Mo		
	A 8617				X				
	A 8713				X				
	A 8802				X				
	A 8113				X				
	A 9127				X				
	A 8781				X				
	A 8736				X				
	A 8815				X				
	A 8759				X				
	A 8880				X				
	A 8944				X				

J. H. C.
MAY 9 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 8, 1969

TO: J.H. Courtright

FROM: N.P. Whaley

Sacaton Project-Assay Data
Sources and Comparisons of
Check Assays 1964-69.

The following memorandum may help to clarify the rather confusing background that exists re the sources, use, and comparisons of assay data for the Sacaton Project.

Your ore reserves estimate of April 4, 1969 incorporated computer derived sulfide reserves programed by Carl E. Williams. The tonnages and grades calculated in this program were the products of computer scanning of 43 drill holes. These drill holes can be divided into two broad categories with respect to source of basic assay data; the so-called old holes which were completed in the early 1960's, and the new or current holes drilled in 1968 and 1969. A list of these holes is attached and their distribution is as follows:

SACATON WEST		SACATON EAST	
6	Old DDH	2	Old DDH
20	New DDH	15	New DDH
26	Total DDH	17	Total DDH

For the old drill holes two sources of basic assay data were available: the original Jacobs' assays for each individual assay interval and the composite assay returns from Hawley & Hawley and/or Silver Bell. Carl Williams was given a set of the old Geologic-Assay Logs which showed only the original Jacobs' assays, and these were used in his programming. The initial ore reserve and outcome report for Sacaton (Wojcik, Feb. 5, 1964) contains the following statement regarding the source, comparison, and use of these data at that time.

"Assays were run by Jacobs Assay Office in Tucson and checks run by Hawley and Hawley and ASARCO's Silver Bell unit. Checks were selected from individual assays and composites. In all, 274 checks were run, 58 of which were composites. Jacobs assays were erratic and averaged about .04% Cu (total) below the checks. Hawley and Hawley and Silver Bell assays agreed closely. In ore calculations, composite assays were used for the most part. Where individual assays from Jacobs were used, they were adjusted and upward. This adjustment never exceeded .05% Cu and averaged .04% Cu. The assay comparison curve (Attachment G) shows a plot in .01% copper increments of the number of samples assayed by Hawley and Hawley or Silver differing from Jacobs at each interval from .08% copper below Jacobs to .25% copper above Jacobs. It is apparent from this plot that most of Jacobs assays are on the low side."

In contrast to Williams' use of the original Jacobs' assays in the calculations, the graphic cross sections show data taken from the composite assays. There are approximately 268 individual assay intervals involved in these composite intercepts.

Basic assay data from the new drill holes which were used in both the computer derived reserves and on the cross sections were the original assays run by Hawley & Hawley or American Analytical and Research Laboratories. The so-called significantore-grade intercepts developed in the current drilling contained roughly 926 individual assays.

During the drilling phase original pulps and a limited number of original coarse rejects were crossed back and forth between these two laboratories to serve as checks.

The results are tabulated below:

Type of Sample	No. of Samples	H & H Average total Cu (%)	AARL Average total Cu (%)
Pulps	131	0.98	1.00
Coarse Rejects	31	1.12	1.14

On January 10 five groups of samples, crudely composited from the original coarse rejects on a hole-by-hole basis and intended for metallurgical testing, were shipped to the El Paso Ore Testing and Assay Laboratory. The assay returns for these composites dated March 20, showed a consistent bias toward lower values for total copper when compared with the weighted, calculated values for the intercepts represented. A tabulated summary appears below:

Ore Body	No. of Composites	Calc. total Cu (%)	El Paso Composite Assay total Cu (%)
Sacaton West	14	0.92	0.85
Sacaton East	7	1.50	1.44

In an attempt to further check composite assay values v.s. calculated values, and hopefully establish validity for the original assays used in the calculations, eighty three (83) original pulps were selected at random from the intervals composited and submitted to the Mission Unit on April 3. The returns, on a certificate dated April 9, were averaged and compared with the averages of the original assays both as a whole and by laboratory. The comparison is given below:

No. of Pulps	Original Assays Averaged total Cu (%) (combined H&H and AARL)	Mission Unit Check Assays Total Cu (%)
83	1.56	1.45

If these 83 pulps are compared by Laboratory:

No. of Pulps	Original Assays		Mission Unit Check Assays Total Cu (%)
	H&H Total Cu (%)	AARL Total Cu (%)	
28	1.70	----	1.67
55	----	1.48	1.33

These comparisons presented an even more dismal picture and further check assaying was continued.

On April 16 the above 83 pulps were delivered to the Silver Bell Unit and the decision made to reassay all of the original 131 pulps used in the earlier check assaying between Hawley & Hawley and American Analytical and Research Laboratories. By mere chance the random selection of the 83 pulps had included 11 of these. Over April 17 and 18 the balance of the 131 pulps was delivered to the Silver Bell Unit. The returns were reported on certificates dated April 24. The above comparisons, expanded to include the average from these certificates, are shown below:

Type of Sample	No. Samples	Total Cu (%)			
		H&H	AARL	Mission	Silver Bell
Pulps from original check assay samples	131*	0.98	1.00	-----	0.94
Pulps from Metallurgical composite intervals (H&H and AARL combined)	83*	1.56		1.45	1.53
Above 83 pulps compared by lab.	83* 28	1.70	---	1.67	1.70
	83* 55	----	1.48	1.33	1.44

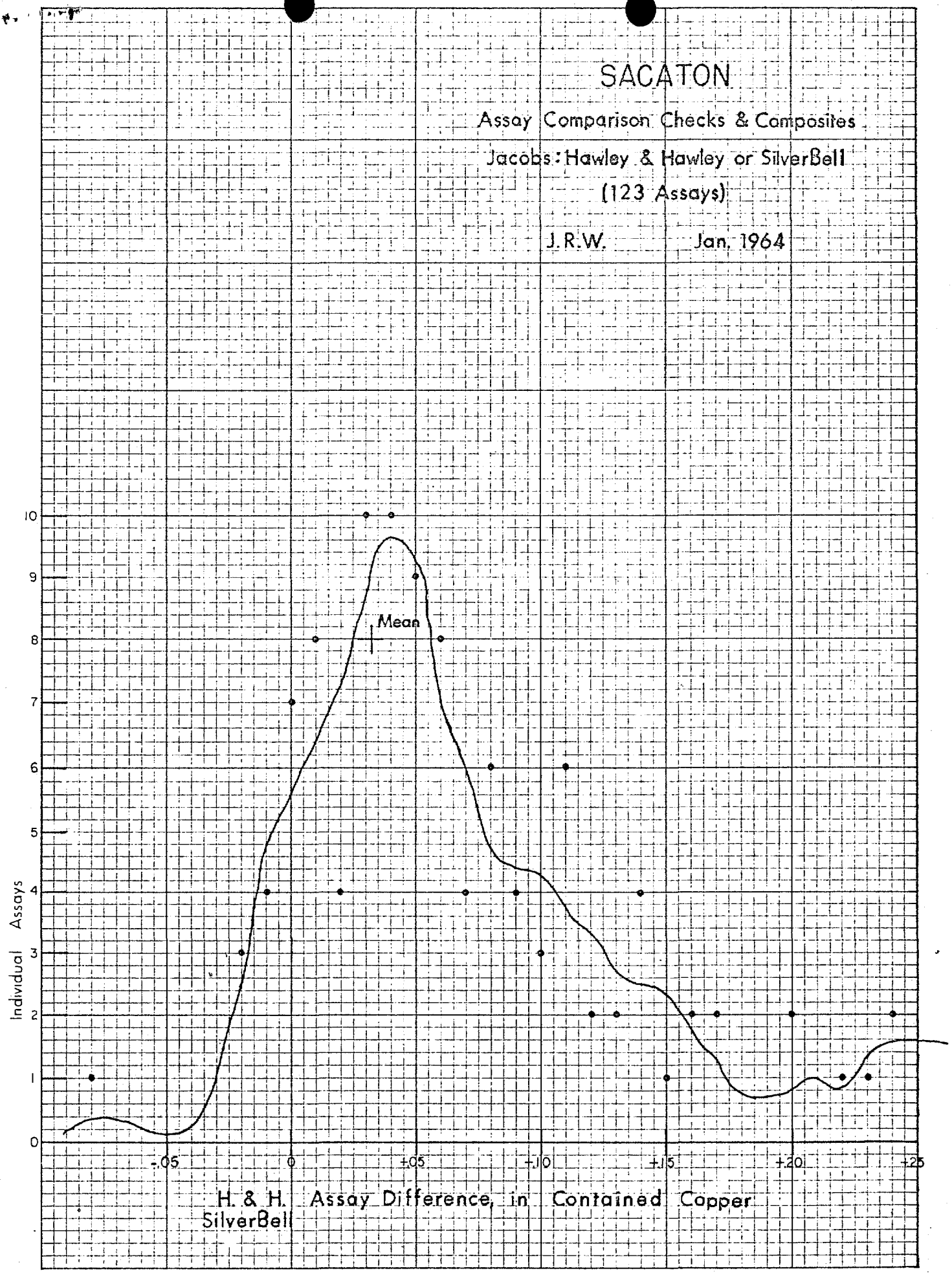
*There are 11 pulps common to both groups. The above comparisons do not exclude these from either.

To further increase the number of comparisons possible an additional 161 original pulps were delivered to the Silver Bell Unit on April 30. To date the returns have not been received.

N. P. Whaley

N.P. Whaley

NPW:ir
Attachments
cc: RHLuning w/att
SEZelenkov w/att
WESargent



K&E 10 X 10 TO THE INCH KEUFFEL & ESSER CO. 359-5 MADE IN U.S.A.

SACATON DRILL HOLES-ESTIMATE OF APRIL 1969

SACATON WEST	SACATON EAST
S-6	S-37
S-8	S-53
S-10	S-89
S-13	S-92
S-17	S-96
S-30	S-98
S-90	S-99
S-91	S-100
S-93	S-104
S-94	S-105
S-95	S-108
S-97	S-113
S-101	S-118
S-102	S-119
S-103	S-120
S-106	S-121
S-107	S-123
S-109	
S-110	
S-111	
S-112	
S-114	
S-115	
S-116	
S-124	
S-125	

J.H.C
MAY 8 1969

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 5, 1969

Mr. T.D. Henderson, Supervisor
Asarco
P. O. Box 895
El Paso, Texas 79999

Dear Mr. Henderson:

Hawley and Hawley Assayers and Chemists, Inc. will be sending you twenty eight pulps (prefixed with a PR-) which are to be assayed for gold and silver. Please send the original copy of the results to Mr. J.H. Courtright and a copy to me. Thank you.

Very truly yours,

S.E. Zelenkov

S.E. Zelenkov

SEZ:lab

cc: JHCourtright
HERichard (H&H)

Salator

	Conc	Rec
West Deposit	36.1 × 23% = 830.3	84.6 × 23% 1944.9
	26.3 × 77% = 2025.1 / = 855.4	80.8 × 77% 6222.6 / 81.665

Ave Conc. 28.55 % Ave Rec. 81.67 %

Early drilling 268 samples - west / East 26% HH
Later " 926 " 74% AA

Union, Hank Abbots, Chas Parker, Denver
Bloom Lab (Lempire, between company plants) El Paso.

MONTHLY COMPOSITES

Mission Samples

	Silver Bell	Mission
July, 1968	.810	.794
Aug.	.735	.770
Sept.	.722	.720
Oct.	.702	.714
Nov.	.750	.738
Dec.	.631	.635
Jan, 1969	.680	.673
Feb.	.687	.676
	5.717	5.720
Average	.715	.715

Silver Bell Samples

	Silver Bell	Mission
Feb., 1968	.852	.845
March	.735	.737
April	.764	.759
May	.746	.749
June	.743	.753
July	.855	.843
Aug.	.698	.699
Sept.	.70	.709
Oct.	.651	.670
Nov.	.694	.679
Dec.	.828	.818
Jan., 1969	.741	.743
Feb.	.735	.715
	9.742	9.719
Average	.749	.748

4/24/69
cc: JHCourtright

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below. Complete

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-90-6226	1.49						
	-6228	1.95						
	-6243	1.50						
	-6247	1.76						
	-6248	.47						
	-6252	.67						
	-6257	.63						
	-6265	.12						
	S-91-6360	3.57						
	6365	2.12						
	6372	1.28						
	6374	.75						
	6376	2.12						
	6381	.82						
	6398	1.65						
	6412	1.01						
	6426	1.88						

Signed: T.D. White Chief Metallurgist

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-92-A 7787	1.26						
	7791	1.10						
	7795	.72						
	7801	.73						
	7805	.62						
	S-93-A 7714	.91						
	7717	1.72						
	7719	1.47						
	7722	2.58						
	7730	.68						
	S-94 - 6431	.02						
	6442	.30						
	6454	.10						
	6458	1.05						
	6461	5.85						
	6463	.84						
	6471	.75						
	6472	1.20						
	cont. next page							

Signed: RWhite

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer:

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-94- 6477	.90						
	6484	.77						
	6485	.94						
	6489	.49						
	6490	.73						
	6500	.02						
	S-95-A 7652	3.91						
	7654	1.08						
	7655	.45						
	7656	1.71						
	7669	1.09						
	7672	.30						
	7673	.40						
	7679	.77						
	7682	.60						
	7697	.54						
	7698	.36						
	7702	.27						

Signed: [illegible]

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-92-A 7772	.85						
	7775	1.20						
	7780	.03						
	7792	.81						
	S-93-A 7712	.53						
	7721	1.62						
	7727	.52						
	7728	.36						
	7734	.76						
	7763	.20						
	S-96-6765	2.61						
	6781	1.17						
	6785	1.28						
	6790	1.45						
	6796	.82						
	S-97-6513	.57						
	6529	.60						
	6532	.10						
	6537	.04						

Signed: F. White

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-98-6634	3.14						
	6638	3.09						
	6649	2.11						
	6653	2.42						
	6622	.70						
	6641	3.53						
	6647	2.83						
	6656	.53						
	6665	.48						
	S-99-6561	.08						
	6565	2.04						
	6570	.64						
	6580	.01						
	S-101-A 7870	3.50						
	7875	2.71						
	7877	.89						
	7888	1.90						
	7892	3.51						

Signed: R. White

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-102-A 7918	.05						
	7919	.58						
	7930	.95						
	7931	.40						
	7935	1.45						
	7941	2.19						
	7947	.62						
	S-104-A 8047	4.18						
	8052	.94						
	8058	1.94						
	8065	2.88						
	8072	1.03						
	8078	1.09						
	8060	1.71						
	8061	1.75						
	S-105-A 8268	3.10						
	8274	2.45						
	8281	.78						
	8284	1.86						

Signed: PWhite

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-107-A 8219	.98						
	8220	1.10						
	8223	.41						
	8225	.51						
	8232	.85						
	8726	.50						
	8242	.38						
	8199	.19						
	S-108- A 8477	2.20						
	8483	1.09						
	8490	.90						
	S-109-A 8342	1.28						
	8379	2.60						
	8376	.91						
	8388	.06						
	S-108-A 8475	2.19						
	8485	.62						
	8516	.55						

Signed: P.M. White

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-110-A 8412	3.98						
	8396	1.67						
	8432	.64						
	8436	.25						
	S-111-A 8667	1.00						
	8669	.98						
	8673	.72						
	8678	.68						
	8685	.61						
	S-112-A 8535	2.32						
	8553	.65						
	8557	.07						
	8574	.73						
	S-111-A 8665	3.13						
	8655	.42						
	8674	.52						
	8685	.61						

Signed: J.M. White

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-123-A 9020	1.99						
	9033	3.00						
	9072	.45						
	9084	.38						
	9086	.03						
	S-125-A 9143	2.25						
	9144	.97						
	9149	.55						
	9169	.07						
	S-105-A 8279	1.06						
	8297	.59						
	8305	0.18						
	S-126-A 9205	1.50						
	9224	4.00						
	9227	1.01						
	9234	.33						
	9235	.01						
	S-121-A 8859	1.21						

Signed: D. White

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-113-A 8600	2.27						
	8617	1.11						
	8642	.60						
	S-114-A 8703	.60						
	8708	.46						
	8713	.17						
	8719	.50						
	S-118-A 8792	2.23						
	8796	1.21						
	? 8802	.94						
	8807	1.24						
	8818	1.00						
	S-106-A 8103 8108??	1.32						
	8113	.83						
	8136	.65						
	8135	.85						
	S-124-A 9122	.75						
	9127	.44						
	9129	.29						
	9130	.18						

Signed: RWhite

Form S-108

AMERICAN SMELTING AND REFINING COMPANY
Silver Bell Unit

Date April 24, 1969

Instructions to Assayer: SACATON

Please make determinations as indicated below.

Sample No.	PRODUCT	Total Cu.	N.S.Cu.	MoS_2	Fe	Insol.	S	
	S-115-A 8779	1.50						
	8781	.72						
	8594	.28						
	8769	.04						
	S-116-A 8733	1.58						
	8736	.81						
	8747	.11						
	8749	.33						
	S-118-A 8814	2.67						
	8815	1.09						
	8819	.64						
	8844	.27						
	S-119-A 8757	1.10						
	8759	.90						
	8756	.49						
	8764	.01						
	S-121-A 8854	2.39						
	8880	.59						
	8884	.06						

Signed: [illegible]

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
April 23, 1969

SACATON- Early 1960's Drill Holes Used In The Ore Estimate By Computer Feb-Mar, 1969. (Sulfide Only)

Hole No.

GRADE DATA FROM

S-6

Composite Assays: S-6-C-1
S-6-C-2

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
136.0'	296.6' - 432.6'	S-6-C-1	0.89 (+8%)	--	0.96 (-7%)	--	----	.26
73.4'	432.6' - 506.0'	S-6-C-2	0.39 (+15%)	--	0.45 (-13%)	--	----	.04

Wt'ed from Jacobs' original assay

S-8

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
8.2'	337.5' - 345.7'	NONE	0.67 (+46%)	0.06	0.98 (-32%)	--	----	----

S-10

Composite Assays: S-10-C-1
S-10-C-2

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
113.0'	353.0'- 466.0'	S-10-C-1	1.70 (+12%) (+3%)	--	1.90 (-10%) (+8%)	.07	1.75 (-3%) (-8%)	----
100.0'	466.0'- 566.0'	S-10-C-2	0.52 (+21%) (+15%)	--	0.63 (-17%) (+5%)	.07	0.60 (-13%) (-5%)	----

S-13

Composite Assays: S-13-C-1
S-13-C-2
& Wt'D Intercept

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
110.9'	442.1'-553.0'	S-13-C-1	1.44 (+22%)	--	1.75 (+3%)	.29	1.70 (-3%)	.01
129.1'	553.0'-682.1	S-13-C-2	.63	--	.74	.05	.69	.01
30.3'	765.9'-796.2'	NONE	.45	--	(+7%)		(-7%)	
167.1'	682.1'-849.2'	S-13 NOT	.36 USED		1.14 1969		.48 EST.	.01(15).

Hole No. GRADE DATA FROM

S-17

Wt'ed from Jacobs' original assays:

Int.	From- To	Composite	Jacobs' Total Cu	Wt'D OX	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
23.8'	728.2'-752.0'	NONE	0.51	--	-----	--	-----	---

NO CK ASSAYS RUN

S-30

Composite Assays: S-30-C-1
S-30-C-3
S-30-C-5
S-30-C-6

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
41.0'	651.6'-692.6'	S-30-C-1	2.23	--	2.40	.03	2.45	.11
209.9'	771.4'-981.3'	S-30-C-3	1.15	--	1.26	.14	1.27	.09
95.2'	1067.7'-1162.9'	S-30-C-5	0.39	--	.46	.04	.47	.02
78.6'	1162.9'-1241.5'	S-30-C-6	0.40	--	.49	.02	.62	.07

S-37

Composite Assays: S-37-C-2
S-37-C-3
S-37-C-4
S-37-C-5

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
93.5'	1516.0'-1609.5'	S-37-C-2	1.95	--	1.93	.24	1.94	.18
94.1'	1609.5'-1703.6'	S-37-C-3	1.28	--	1.26	.14	1.32	.08
81.7'	1703.6'-1785.3'	S-37-C-4	0.78	--	----	----	.80	.03
38.7'	1795.9'-1834.6'	S-37-C-5	0.42	--	----	----	.48	.02

S-53

Composite Assays: S-53-C-2
S-53-C-4

Int.	From- To	Composite	Jacobs' Wt'D Total Cu	Jacobs' Wt'D Ox	H & H Total Cu	H & H Ox	Silver Bell Total Cu	Silver Bell Ox
96.5'	1276.1'-1372.6'	S-53-C-2	0.98	--	1.08	--	----	.06
184.1'	1466.0'-1650.1'	S-53-C-4	0.46	--	0.47	--	----	----

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

April 16, 1969

Mr. T.A. Snedden, Manager
U.S. Mining Department
Building

Sacaton Copper Assays

Shortly after the Sacaton Ore Estimate Report was completed, we received from El Paso assay results on individual drill hole composites made up of crushed core rejects for metallurgical test work. On comparing the average assay of the composites (derived from individual samples run by American Analytical and checked by Hawley & Hawley) with El Paso results a substantial difference was found to exist, as follows:

	Hawley & Hawley	El Paso
East Deposit	1.50% Cu (4% high)	1.44% Cu
West Deposit	.92% Cu (7.6% high)	.85% Cu

Although a cut of the coarse rejects cannot be expected to closely check the original pulp, the above variances indicate an error in analysis on one side or the other.

Currently, selected groups of the original pulps are being run at Mission and Silver Bell. In the meantime outcome calculations should be deferred pending resolution of the assay problem.

J.H. Courtright
J.H. Courtright

JHC:lzb

cc: JJCollins
RBMeen
CEWilliams
WGBossard
WESaegart

± 1400 samples in 2nd program.

~~3-21-69~~

SACATON - CHECK ASSAYS FOR METALLURGICAL SAMPLES

CHECK ASSAYS REPRESENT MISSION UNIT ASSAYS OF ORIGINAL PULP REJECTS FROM DIAMOND DRILL CORE. THESE WERE RUN AFTER EL PASO COARSE REJECT COMPOSITES FOR METALLURGICAL TESTING WERE ASSAYED BY EL PASO AND FOUND TO DEVIATE FROM WEIGHTED, CALCULATED VALUES FOR INTERCEPTS INVOLVED.

GROUP A - MIXED OX-SUL

HOLE NO.	SAMPLE NO. *	TOTAL Cu (%) ORIG. ASSAY *	TOTAL Cu (%) CK ASSAY MISSION	SB ASSAYS OF 4-9-69
S-90	6247	1.59	1.68	+ 1.76
	6248	0.46	0.469	○ .47
	6252	0.65	0.662	+ .67
S-91	6360	3.70	3.47	- 3.57
	6365	2.13	2.12	- 2.12
	6372	1.17	1.20	+ 1.28
	6374	0.83	0.871	+ .75
	6376	2.07	2.14	+ 2.12
S-93	A 7714	0.89	0.882	○ .91
	A 7717	1.63	1.62	○ 1.72
S-94	6458	5.74	5.86	+ 5.85 ?
	6461	1.89	1.89	○ ?
	6463	1.05	1.06	○ .84 ?
S-101	A 7870	3.30	1.89 ?	? 3.50
	A 7875	2.74	2.68	- 2.71
	A 7877	0.90	0.900	○ .89
	A 7888	1.89	1.83	- 1.90
	A 7892	3.65	3.46	- 3.51

GROUP B - SULFIDES

S-91	6381	0.73	0.747	+ .82
	6398	1.59	1.59	○ 1.65
	6412	1.02	0.766	- 1.01
	6426	0.74	0.943	+ 1.88 ?
S-93	A 7719	1.40	1.40	○
	A 7722	2.58	2.56	○
	A 7730	0.68	0.666	○
S-94	6472	1.17	1.08	- 1.20
	6477	1.00	0.895	- .90
	6484	0.84	0.764	- .77
	6490	0.78	0.734	- .73
S-95	A 7652	3.94	3.91	○ 3.91
	A 7656	1.65	1.62	- 1.71
	A 7669	1.05	1.02	-
	A 7679	0.77	0.744	-
	A 7682	0.62	0.603	-

* The four digit number w/out an alphabetical prefix indicates that the original assay was run by Hawley & Hawley.
A four digit number with an "A" prefix indicates that the original assay was run by Arizona Analytical and Research Laboratories

Hole No.	Sample No.	Total Cu (%) Orig Assay	Total Cu (%) Ck Assay	
S - 102	A7935	1.44	1.42	- 1.45
	A7941	2.20	2.14	- 2.19
	A7947	0.59	0.583	0
S - 106	A8108	1.35	1.11	- 1.32
	A8113	0.81	0.631	- .83
	A8126	0.64	0.594	- .65
	A8135	0.87	0.746	- .85
Group D - Sulfides				
S - 107	A8219	1.02	1.00	-
	A8220	1.14	1.11	-
	A8223	0.42	0.407	0
	A8225	0.53	0.521	0
	A8232	0.80	0.786	-
S - 111	A8667	0.97	1.02	±
	A8669	0.94	0.806	
	A8673	0.69	1.25	?+ .72
	A8678	0.65	2.23	?+ .68
	A8685	0.58	0.911	?+ .61
S - 115	A8779			PULPS MISSING
	A8781			
Group C - Sulfides				
S - 92	A7787	1.28	1.24	- 1.26
	A7791	1.13	1.10	- 1.10
	A7795	0.78	0.705	- .72
	A7801	0.80	0.717	- .73
	A7805	0.67	0.601	- .62
S - 96	6765	2.86	2.64	-
	6781	1.13	1.11	-
	6785	1.31	1.24	-
	6790	1.33	1.41	+
	6796	0.74	0.790	+
S - 98	6634	3.29	3.05	-
	6638	3.28	3.00	-
	6649	2.11	2.09	-
	6653	2.56	2.40	-
S - 104	A8047	4.23	4.14	-
	A8052	2.95	0.980	?-
	A8058	2.15	2.12	-
	A8065	3.10	2.69	-
	A8072	1.06	0.843	?-
	A8078	1.11	0.743	?-

GROUP E -SULFIDES

HOLE NO	SAMPLE NO.	TOTAL Cu (%) ORIG ASSAY	TOTAL Cu (%) CK ASSAY	
S-105	A8268	3.05	2.55	?- 3.10
	A8274	2.54	1.86	?- 2.45
	A8281	0.74	0.342	?- .78
	A8284	1.85	1.38	- 1.86
S-108	A8477	2.23	1.21	?- 2.20
	A8483	1.03	0.869	?- 1.09
	A8490	0.80	0.934	+ .90
S-118	A8792	2.34	0.672	?- 2.23
	A8796	1.19	0.650	? 1.21
	A8802	0.84	0.541	- .94
	A8807	1.21	2.30	?+ 1.24
	A8814			PULP MISSING
	A8818	1.22	1.17	- 1.00
AVERAGE OF 83 SAMPLES:		1.56	1.45	7%

29
52

1.51 - 51B comp.

AMERICAN SMELTING AND REFINING COMPANY
Sahuarita Arizona

April 10, 1969

J. H. C
APR 11 1969

Mr. J. H. Courtright, Supervisor
Exploration Department
Southwestern United States Division
American Smelting and Refining Company
P. O. Box 5795
Tucson, Arizona 85703

Re: Sacaton Assays

Dear Sir:

Attached please find a copy of the assay results on the 83 Sacaton Metallurgical samples.

These were all run by the long iodide method (single determinations).

Very truly yours,

P. A. Lewis

P. A. LEWIS
Superintendent

PAL:mlc
attach

cc: RBMeen, w/attach

AMERICAN SMELTING AND REFINING COMPANY

MISSION UNIT

SACATON METALLURGICAL SAMPLES Work Sheet

Samples APRIL 9 1969

HOLE No.	SAMPLE No.	% Cu		HOLE No.	SAMPLE No.	% Cu
90	6247	1.68		94	6458	5.86
	6248	.469			6461	1.89
	6252	.662			6463	1.06
					6472	1.08
91	6360	3.47			6477	.895
	6365	2.12			6484	.764
	6372	1.20			6490	.734
	6374	.871				
	6376	2.14		95 A	7652	3.91
	6381	.747			7656	1.62
	6398	1.59			7669	1.02
	6412	.766			7679	.744
	6426	.943			7682	.603
92 A	7787	1.24		96	6765	2.64
	7791	1.10			6781	1.11
	7795	.705			6785	1.24
	7801	.717			6790	1.41
	7805	.601			6796	.790
93 A	7714	.882		98	6634	3.05
	7717	1.62			6638	3.00
	7719	1.40			6649	2.09
	7722	2.56			6653	2.40
	7730	.666				

R Barber

cc: RBM

AMERICAN SMELTING AND REFINING COMPANY

MISSION UNIT

SACATON METALLURGICAL SAMPLES Work Sheet

Samples APRIL 9 1969

HOLE No.		SAMPLE No.	% Cu		HOLE No.		SAMPLE No.	% Cu
101	A	7870	1.89		107	A	8219	1.00
		7875	2.68				8220	1.11
		7877	.900				8223	.407
		7888	1.83				8225	.521
		7892	3.46				8232	.786
102	A	7935	1.42		108	A	8477	1.21
		7941	2.14				8483	.869
		7947	.583				8490	.934
104	A	8047	4.14		111	A	8667	1.02
		8052	.980				8669	.806
		8058	2.12				8673	1.25
		8065	2.69				8678	2.23
		8072	.843				8685	.911
		8078	.743					
					118	A	8792	.672
105	A	8268	2.55				8796	.650
		8274	1.86				8802	.541
		8281	.342				8807	2.30
		8284	1.38				8818	1.17
106	A	8108	1.11					
		8113	.631					
		8126	.594					
		8135	.746					

R. Barber

M-97

SACATON METALLURGICAL SAMPLES - WEST ORE BODY

			CALC.		ASSAYS OF 3-20-69				
HOLE No.	FROM - TO	1 INT. (ft.)	2 CALC. TOTAL Cu (%)	3 CALC OXIDE Cu (%)	4 EL PASO TOTAL Cu (%)	5 EL PASO OXIDE Cu (%)	6 EL PASO Mo (%)	7 EL PASO Au (OZ/TON)	8 EL PASO Ag (OZ/TON)
GROUP A - MIXED OX-SUL									
S-90	409.7 - 513.7	104.0	1.03	0.32	1.04	0.31	.014	.0025	.14
S-91	283.7 - 443.8	160.1	1.66	0.20	1.34	0.41	.0076	.005	.11
S-93	242.1 - 313.6	71.5	0.92	0.57	0.92	0.56	.0097	.005	.11
S-94	375.0 - 448.3	73.3	1.82	0.27	1.44	0.41	.027	.005	.14
S-101	566.6 - 678.0	206.4	1.92	0.16	1.80	0.54	.013	.005	.15
	725.2 - 820.2								
	WT'ED TOTAL	615.3 @	1.57	0.26	1.41	.45	.013	.004	.13
GROUP B - SULFIDES									
S-91	443.8 - 868.6	424.8	0.60	0.09	0.58	0.03	.014	.0025	.11
S-93	313.6 - 458.0	144.4	0.96	0.06	0.82	0.13	.013	.0025	.11
S-94	448.3 - 739.7	291.4	0.65	0.03	0.62	0.02	.019	.0025	.11
S-95	385.7 - 723.2	337.5	0.92	0.04	0.84	0.08	.027	.0025	.29
S-102	519.0 - 670.8	151.8	1.11	0.02	1.06	0.15	.025	.005	.10
S-106	276.8 - 558.5	281.7	0.69	0.03	0.67	0.04	.013	.0025	.08
	WT'ED TOTAL	1,631.6 @	0.77	0.05	0.72	0.06	.018	.0027	.14
GROUP D - SULFIDES									
S-107	308.8 - 390.6	168.8	0.63	0.02	0.64	0.10	.022	.0025	.10
	429.1 - 516.1								
S-111	358.3 - 573.2	214.9	0.56	0.03	0.52	0.03	.0070	.0025	.10
S-115	312.2 - 393.1	80.9	0.61	0.13	0.56	0.18	.0097	.0025	.11
	WT'ED TOTAL	464.6	0.60	0.04	0.57	0.08	.013	.0025	.10
SUMMARY - WEST ORE BODY		2,711.5	0.92	0.10	0.85	0.15	.016	.003	.13

7.6% high

SACATON METALLURGICAL SAMPLES – EAST ORE BODY

			1	CALC 2	CALC 3	ASSAYS OF 3-20-69 4	5	6	7	8	9
	HOLE NO.	FROM – TO	INT (ft.)	CALC TOTAL Cu (%)	CALC OXIDE Cu (%)	EL PASO TOTAL Cu (%)	EL PASO OXIDE Cu (%)	EL PASO Mo (%)	EL PASO Au (OZS/TON)	EL PASO Ag (OZS/TON)	
1	GROUP C – SULFIDES										
2	S-92	1412.0 – 1632.7	220.7	.70	0.03	.66	0.04	.0084	.0025	.09	
3	S-96	1422.4 – 1698.8	276.4	1.36	0.05	1.02	0.12	.039	.005	.04	
4	S-98	1489.7 – 1713.5	223.8	2.76	0.13	2.56	0.30	.033	.0025	.05	
5	S-104	1400.2 – 1764.7	364.5	1.64	0.04	1.80	0.29	.029	.005	.09	
6											
7		WT'ED TOTAL	1,085.4	1.61	0.06	1.53	0.20	.028	.004	.07	
9	GROUP E – SULFIDES										
10	S-105	1579.4 – 1761.8	182.4	1.57	0.07	1.56	0.41	.023	.0025	.10	
11	S-108	1609.8 – 1771.3	161.5	1.25	0.04	1.15	0.22	.022	.0025	.08	
12	S-118	1371.8 – 1657.2	285.4	1.20	0.04	1.20	0.22	.032	.0025	.08	
13											
14		WT'ED TOTAL	629.3	1.32	0.05	1.29	0.28	.027	.0025	.08	
15											
16											
17	SUMMARY – EAST ORE BODY		1,714.7	1.50	0.06	1.44	0.23	.028	.003	.07	
18											
19				4% high							
20											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											

SACATON

Sheet 1 of 1

Date 8/6/68

Hole No. CHECK ASSAYS - ORIGINAL HAWLEY & HAWLEY PULPS SENT TO AMER. ANALYTICAL & RESEARCH LABORATORIES

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				OART.		H & H	
ORIGINAL SAMPLE				CHECK ASSAY		ORIGINAL ASSAY	
				TOTAL	CuO	TOTAL Cu.	CuO.
S-90	6226	— —	SAME	1.46	1.41	1.41	1.35
	6228	— —	"	1.93	1.90	1.96	1.87
	6243	— —	"	1.44	0.12	1.36	0.38
	6247	— —	"	1.65	0.19	1.59	0.61
	6252	— —	"	0.60	0.03	0.65	0.09
	6257	— —	"	0.73	0.02	0.61	0.02
	6265	— —	"	0.12	0.02	0.11	0.01
S-94	6431	— —	SAME	0.04	0.01	0.05	0.02
	6442	— —	"	0.30	0.24	0.57	0.27
	6454	— —	"	0.16	0.08	0.11	0.08
	6458	— —	"	5.93	0.39	5.74	0.72
	6471	— —	"	0.76	0.04	0.77	0.05
	6477	— —	"	0.91	0.03	1.00	0.06
	6485	— —	"	0.92	0.06	0.96	0.06
	6489	— —	"	0.48	0.02	0.49	0.03
	6500	— —	"	0.04	0.02	0.03	0.01
S-97	6513	— —	SAME	0.55	0.50	0.53	0.48
	6529	— —	"	0.58	0.55	0.55	0.53
	6533	— —	"	0.11	0.07	0.11	0.09
	6537	— —	"	0.10	0.03	0.06	0.05
S-99	6561	— —	SAME	0.11	0.07	0.13	0.05
	6565	— —	"	2.04	2.04	2.07	1.81
	6570	— —	"	0.63	0.07	0.60	0.05
	6580	— —	"	0.04	0.01	0.02	0.02
S-98	6622	— —	SAME	0.73	0.51	0.75	0.71
	6635	— —	"	3.05	0.07	3.28	0.22
	6641	— —	"	3.45	0.05	3.54	0.09
	6647	— —	"	2.84	0.05	2.84	0.12
	6656	— —	"	0.79	0.03	0.74	0.07
	6665	— —	"	0.45	0.02	0.49	0.02
			AVERAGE OF 30 SAMPLES	≈ 1.10 %	0.03%	1.11 %	0.08 %

SACATON

Sheet 1 of 1

Date 8/6/68

Hole No. CHECK ASSAYS - ORIGINAL AARL PULPS SENT TO HAWLEY & HAWLEY

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				H & H		AARL	
ORIGINAL SAMPLE				CHECK ASSAY		ORIGINAL ASSAY	
						TOTAL CU.	CU.O.
S-95	A7654	— —	SAME	1.05	0.17	1.13	0.03
	A7655	— —	"	0.46	0.13	0.51	0.03
	A7672	— —	"	0.29	< 0.01	0.32	0.02
	A7673	— —	"	0.39	0.03	0.45	0.03
	A7697	— —	"	0.51	0.02	0.53	Tr.
	A7698	— —	"	0.38	0.02	0.38	Tr.
	A7702	— —	"	0.26	< 0.01	0.27	NIL
S-93	A7712	— —	SAME	0.76	0.75	0.82	0.78
	A7721	— —	"	1.43	0.48	1.63	0.03
	A7722	— —	"	2.11	0.40	2.58	0.04
	A7727	— —	"	0.49	0.10	0.52	0.03
	A7728	— —	"	0.36	0.04	0.36	0.10
	A7734	— —	"	0.25	0.02	0.26	0.01
	A7763	— —	"	0.19	0.01	0.20	0.02
S-92	A7772	— —	SAME	0.83	0.78	0.88	0.74
	A7775	— —	"	1.13	1.06	1.20	1.09
	A7780	— —	"	0.04	0.03	0.03	0.01
	A7791	— —	"	1.04	0.09	1.13	0.02
	A7792	— —	"	0.80	0.25	0.90	0.10
S-102	A7918	— —	SAME	0.05	0.04	0.05	0.03
	A7919	— —	"	0.58	0.18	0.63	0.02
	A7930	— —	"	0.90	0.35	0.95	0.03
	A7931	— —	"	0.40	0.38	0.37	0.25
			OF 23 SAMPLES	0.64 %	0.23 %	0.70 %	0.15 %

SACATON

Sheet 1 of 1

Date 8/23/68

Hole No. CHECK ASSAYS — ORIGINAL AARL PULPS RERUN BY AARL

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				CHECK ASSAY		ORIGINAL ASSAY	
S-104	A8060	— —	SAME	1.71	0.03	1.73	0.02
	A8061	— —	"	1.76	0.03	1.73	0.02
			2 samples Avg	1.73	0.03	1.73	0.02

SACATON

Sheet 1 of 1

Date 12/11/68

Hole No. CHECK ASSAYS - original AARL pulps sent to Hawley and Hawley

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				H & H Check Assay		AARL Original Assay	
S-115				Total Cu	CuO	Total Cu	CuO
1			A 8779	1.52	0.35	1.57	0.15
2			A 8781	0.70	0.12	0.71	0.05
3			A 8594	0.27	0.04	0.29	0.01
4			A 8769	0.05	0.05	0.05	0.03
S-116							
5			A 8733	1.60	1.52	1.70	1.62
6			A 8736	0.81	0.75	0.81	0.77
7			A 8747	0.10	0.00	0.11	0.07
8			A 8749	0.33	0.29	0.34	0.27
S-117			Not core drilled				
S-118							
9			A 8814	2.71	0.19	2.71	0.11
10			A 8815	1.12	0.09	1.14	0.03
11			A 8819	0.65	0.04	0.66	0.01
12			A 8844	0.28	0.01	0.27	Trace
S-119							
13			A 8757	1.10	0.02	1.10	0.02
14			A 8759	0.01	0.02	0.00	0.02
15			A 8756	0.51	0.05	0.49	0.02
16			A 8764	0.01	<0.01	0.01	Trace
S-120			INCOMPLETE				
S-121							
17			A 8854	2.48	0.31	2.58	0.12
18			A 8859	1.21	0.27	1.25	0.03 Not C
19			A 8880	0.56	0.73	0.59	0.01
20			A 8884	0.06	0.01	0.05	0.01
			20 Samples Avg:	0.85	0.21	0.87	0.17
				10.08/10	4.25/20	17.35/20	3.49/20

SACATON

Sheet 1 of 2

Date 10/7/68

Hole No. CHECK ASSAYS - ORIGINAL AARL pulps sent to Hawley and Hawley

	Interval FROM TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				H & H		AARL	
	S-105			CHECK ASSAY		ORIGINAL ASSAY	
				Total Cu	CuO	Total Cu	CuO
1	A 8268			3.05	0.37	3.05	0.13
2	A 8279			1.73	0.18	1.75	0.08
3	A 8297			0.57	0.13	0.60	0.02
4	A 8305			0.17	0.07	0.17	0.03
	S-107						
5	A 8220			1.12	0.08	1.14	0.04
6	A 8226			0.51	0.02	0.54	0.02
7	A 8242			0.38	0.01	0.40	0.01
8	A 8199			0.19	0.01	0.20	0.01
	S-109						
9	A 8342			1.23	0.15	1.10	0.03
10	A 8379			2.59	0.38	2.59	0.13
11	A 8376			0.85	0.78	0.88	0.77
12	A 8388			0.05	0.04	0.06	0.05
	S-110						
13	A 8412			3.86	0.75	3.84	0.07
14	A 8396			1.28	0.36	1.30	0.05
15	A 8432			0.64	0.02	0.66	0.01
16	A 8436			0.30	0.02	0.31	0.01
	S-108						
17	A 8475			2.50	0.43	2.37	0.22
18	A 8483			1.04	0.08	1.03	0.03
19	A 8485			0.66	0.06	0.65	0.03
20	A 8516			0.56	0.02	0.53	0.01
	S-112						
21	A 8535			2.56	2.43	2.58	2.25
22	A 8553			0.65	0.54	0.70	0.45
23	A 8557			0.03	0.01	0.04	0.01
24	A 8574			0.74	0.07	0.76	0.02

SACATON

Date 11/11/68

Hole No. CHECK ASSAYS - ORIGINAL AARL PULPS SENT TO HAWLEY & HAWLEY

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				H & H CHECK ASSAY		AARL ORIGINAL ASSAY	
S-111				Total Cu			
25	A 8655			0.43	0.39	0.45	0.41
26	A 8665			3.33	2.47	3.35	2.44
27	A 8674			0.53	0.01	0.56	0.02
28	A 8685			0.54	0.01	0.58	0.02
S-113							
29	A 8600			2.73	0.13	2.60	0.05
30	A 8617			1.17	0.03	1.24	0.01
31	A 8642			0.60	0.02	0.63	0.01
32	A 8474			0.70	0.02	0.73	0.01
S-114							
33	A 8703			0.59	0.10	0.61	0.04
34	A 8708			0.46	0.07	0.46	0.05
35	A 8713			0.16	0.02	0.17	0.02
—	A 8719	NOT SENT. - PULP NOT BACK FROM AARL				0.49	0.01
			35 SAMPLES AVG.	1.10	2.79	1.10	0.33

SACATON

Sheet 1 of 1

Date 6/13/68

Hole No. CHECK SAMPLES - COARSE REJECTS
HAWLEY & HAWLEY ORIGINAL ASSAYS - RETURNED TO HAWLEY & HAWLEY

~~Interval~~ ~~FROM~~ ~~TO~~	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
ORIGINAL SAMPLE			CHECK ASSAY		ORIGINAL ASSAY	
					TOTAL Cu	CuO
1. S-90-6247		6736	✓ 1.56	✓ 0.60	1.59	0.61
2. S-90-6252		6737	✓ 0.69	✓ 0.14	0.65	0.09
3. S-90-6265		6738	✓ 0.15	✓ 0.02	0.11	< 0.01
4. S-91-6365		6739	✓ 1.68	✓ 0.11	2.13	0.25
5. S-91-6417		6740	✓ 0.29	✓ 0.01	0.28	0.02
6. S-91-6425		6741	✓ 0.55	✓ 0.01	0.56	0.03
7. S-94-6454		6742	✓ 0.57	✓ 0.51	0.11	0.08
8. S-94-6485		6743	✓ 0.78	✓ 0.03	0.96	0.06
9. S-94-6500		6744	✓ 0.02	✓ 0.01	0.03	0.01
10. S-97-6529		6745	✓ 0.66	✓ 0.62	0.55	0.53
11. S-97-6532		6746	✓ 0.11	✓ 0.09	0.11	0.09
12. S-97-6537		6747	✓ 0.06	✓ 0.05	0.06	0.05
13. S-98-6622		6748	✓ 0.62	✓ 0.60	0.75	0.71
14. S-98-6638		6749	✓ 2.83	✓ 0.14	3.28	0.22
15. S-99-6561		6750	✓ 0.12	✓ 0.08	0.13	0.08
			$\frac{10.69}{15} = 0.71$		$\frac{11.20}{15} = 0.75$	
	Average 15	15 samples	0.71%	0.20%	0.75%	0.18%

Date 7/17/68

Hole No. CHECK SAMPLES - ORIGINAL AARL ASSAYS TO HAWLEY & HAWLEY
COARSE REJECTS FROM S-95

~~Interval~~ ~~FROM~~ ~~TO~~	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
			H & H		AARL	
ORIGINAL SAMPLE			CHECK ASSAY		ORIGINAL ASSAY	
					TOTAL Cu	CuO
S-95 / A 7636	— —	SAME	0.25	0.17	0.26	0.14
2 A 7637	— —	"	0.10	0.04	0.08	0.04
3 A 7642	— —	"	0.29	0.23	0.33	0.21
4 A 7645	— —	"	0.07	0.04	0.07	0.01
5 A 7651	— —	"	3.50	0.39	3.70	0.13
6 A 7652	— —	"	3.95	0.57	3.94	0.23
7 A 7656	— —	"	1.58	0.09	1.65	0.02
8 A 7657	— —	"	0.92	0.03	1.05	0.01
9 A 7661	— —	"	0.59	0.06	0.72	Tr
10 A 7662	— —	"	0.37	0.07	0.35	Tr
11 A 7669	— —	"	1.04	0.04	1.05	Tr
12 A 7670	— —	"	0.75	0.01	0.79	0.32
13 A 7678	— —	"	0.51	0.01	0.50	0.02
14 A 7679	— —	"	0.68	0.03	0.77	0.02
15 A 7683	— —	"	0.61	0.04	0.63	0.23
16 A 7684	— —	"	0.40	0.03	0.44	0.05
			16.41	1.31	16.33	1.15
	AVERAGE OF 16 SAMPLES %		1.01%	0.13%	1.05%	0.07%

SACATON

Sheet 1 of 1

Date 8/10/68

Hole No. COURSE REJECT CHECK ASSAYS, AARL ORIGINAL ASSAYS - RETURNED TO AARL

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
						TO Cu	Cu
ORIGINAL CODE			NEW CODE	ORIGINAL ASSAY		CHECK ASSAY	
S-92	A7772		A7611	0.88	0.74	0.86	0.78
	A7775		A7612	1.20	1.09	1.22	1.17
	A7791		A7613	1.13	0.02	1.14	0.03
S-93	A7712		A7614	0.82	0.78	0.81	0.80
	A7722		A7615	2.58	0.04	1.31	0.05
	A7728		A7616	0.36	0.10	0.34	0.02
S-95	A7654		A7617	1.13	0.03	1.11	0.03
	A7655		A7618	0.51	0.03	0.56	0.06
	A7673		A7619	0.45	0.03	0.38	0.02
S-102	A7916		A7620	0.05	0.03	0.08	0.02
	A7930		A7621	0.95	0.03	0.84	0.06
	A7931		A7622	0.37	0.25	0.40	0.35
				[illegible]	3.17	[illegible]	[illegible]
		AVERAGE OF 12 SAMPLES VS		0.87%	0.35%	0.75%	0.38%

SACATON

Sheet 1 of 1

Date 8/22/68

Hole No. CHECK ASSAYS - ORIGINAL AARL COARSE REJECTS SENT TO HAWLEY & HAWLEY.

Interval FROM TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
			H&H		AARL	
S-101			CHECK ASSAY		ORIGINAL ASSAY	
			TOTAL CU.	CU O	TOTAL CU.	CU.O.
A 7839			2.30	2.24	2.18	2.08
A 7849			0.18	0.18	0.15	0.08
A 7870			3.08	1.85	3.30	0.20
A 7880			0.37	0.37	0.37	0.27
S-103						
A 8004			0.81	0.81	0.88	0.81
A 8026			0.74	0.16	0.79	0.12
A 8039			0.50	0.04	0.51	0.01
S-104						
A 8060			1.80	0.74	1.73	0.02
A 8061			2.05	0.81	1.73	0.02
A 8068			3.32	0.90	3.45	0.04
A 8077			0.93	0.31	0.92	0.03
S-106						
A 8117			1.05	0.08	1.37	0.02
A 8125			0.59	0.05	0.51	0.01
A 8127			0.51	0.05	0.45	0.01
A 8147			0.31	0.04	0.28	0.02
	AVERAGE	OF 15 SAMPLES	1.23 %	0.58%	1.24 %	0.25 %

SACATON

Sheet 1 of 1

Date 28/1/69

Hole No. CHECK ASSAYS - original AARL pulps sent to Hawley and Hawley

Interval FROM	TO	Sp. G.	SAMPLE CODE	TOTAL Cu	CuO	COMMENTS	
				H & H		AARL	
				Check Assay		Original Assay	
				Total Cu	CuO	Total Cu	CuO
S-120							
1 A 8929				3.21	2.73	3.09	3.00
2 A 8941				2.40	0.19	2.35	0.04
3 A 8944				1.64	0.08	1.14	0.01
4 A 8968				0.23	0.01	0.25	0.01
5 A 8983				0.02	0.01	0.02	Tr
S-123							
6 A-9020				2.07	1.91	2.13	2.09
7 A-9033				3.17	0.78	3.19	0.06
8 A-9072				0.47	[illegible]	1.85	0.01
9 A-9084				0.37	0.04	0.39	0.02
10 A-9086				0.01	0.01	0.03	0.01
S-124							
11 A-9122				0.75	0.79	0.83	0.11
12 A-9127				0.45	0.13	0.46	0.02
13 A-9129				0.27	0.04	0.27	0.01
14 A-9130				0.28	0.04	0.17	0.01
S-125							
15 A-9143				2.43	0.13	2.31	0.04
16 A-9144				1.70	0.08	0.99	0.02
17 A-9149				0.75	0.04	0.54	Tr
18 A-9169				0.17	0.04	0.08	0.04
S-126							
19 A-9205				1.47	0.15	1.52	0.04
20 A-9224				4.00	0.64	4.09	0.21
21 A-9227				0.90	0.12	0.92	0.02
22 A-9234				0.41	0.05	0.32	0.01
23 A-9235				0.01	0.01	0.01	Tr
			23 samples Avg:	1.11	0.31	1.13	0.25
				25.54/23	7.1/23	25.95/23	5.79/23

SACATON

2-A-69 RW

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

J. H. C.

FEB 4 1969

K.V.D.S. JAN 31 1969

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
CHECK ASSAYS									
A-8929				3.21			2.73		
A-8941				2.40			0.19		
A-8944				1.04			0.08		
A-8968				0.23			0.07		
A-8983				0.02			< 0.01		
A-9020				2.07			1.91		
A-9033				3.12			0.28		
A-9072				0.42			0.04		
A-9084				0.37			0.04		
A-9086				0.01			< 0.01		
A-9122				0.85			0.29		
A-9127				0.45			0.13		
A-9129				0.27			0.04		
A-9130				0.28			0.04		
A-9143				2.43			0.13		
A-9144				1.00			0.08		
A-9149				0.50			0.04		
A-9169				0.07			0.04		
A-9205				1.47			0.15		
A-9224				4.00			0.64		
A-9227				0.90			0.12		
A-9234				0.31			0.06		
A-9235				0.01			< 0.01		
23	Cu, single @ $1.75								$40.25
23	CuO, single @ $2.25								51.75

CC: American Smelting & Refining Company
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: N. P. Whaley
CITY:

REMARKS:

Singles
No prep

Analysis Cert. By

Preparation $
Analysis $ 92.00

ACC: AMERICAN SMELTING & REFINING CO.

Date Spl. Received 1/29/69

Date Compl. 1/30/69

TUC 3[illegible]2182

$ 92.00

12/16/68
RHL

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934
TUCSON, ARIZONA 85703

J.H.C.

SACATON

DEC 19 1968

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

K.V.D.S.
DEC 13 1968

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%	
Pulp check assay samples:								
A - 8769				0.05			0.05	
A - 8779				1.52			0.35	
A - 8781				0.70			0.12	
A - 8594				0.27			0.04	
A - 8733				1.60			1.52	
A - 8736				0.81			0.75	
A - 8747				0.10			0.09	
A - 8749				0.33			0.29	
A - 8814				2.71			0.19	
A - 8815				1.12			0.09	
A - 8819				0.65			0.04	
A - 8844				0.28			0.01	
A - 8756				0.51			0.05	
A - 8757				1.10			0.02	
A - 8759				0.91			0.02	
A - 8764				0.01			< 0.01	
A - 8854				2.48			0.31	
A - 8859				1.21			0.27	
A - 8880				0.56			0.03	
A - 8884				0.06			0.01	
	20 Cu, singles @ $1.75							$ 35.00
	20 CuO, singles @ $2.25							45.00

CC: American Smelting & Refining Co.
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: Mr. N. P. Whaley
CITY:

REMARKS:

Analysis Cert. By: [signature]

Preparation $
Analysis $ 80.0

ACC: AMERICAN SMELTING & REFINING CO. | Date Spl. Received 12/11/68 | Date Compl. 12/12/68 | TUC 341626 | $ 80.0

SACATON 11-25-68 NDD

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
PULP CHECK ASSAYS									
A-8268				3.05			0.37		
A-8279				1.73			0.18		
A-8297				0.57			0.13		
A-8305				0.17			0.07		
A-8220				1.12			0.08		
A-8226				0.51			0.02		
A-8242				0.38			0.01		
A-8199				0.19			< 0.01		
A-8342				1.23			0.15		
A-8379				2.59			0.38		
A-8376				0.85			0.78		
A-8388				0.05			0.04		
A-8412				3.86			0.75		
A-8396				1.28			0.36		
A-8432				0.64			0.02		
A-8436				0.30			0.02		
A-8475				2.50			0.43		
A-8483				1.04			0.08		
A-8485				0.66			0.06		
A-8516				0.56			0.02		
A-8535				2.56			2.43		
A-8553				0.65			0.54		
A-8557				0.03			0.01		
A-8574				0.74			0.07		
A-8655				0.43			0.39		

CC: American Smelting & Refining Company
ADD: P. O. Box 5795, Tucson, Arizona
CITY: Attn: N. P. Whaley
ADD:
CITY:

REMARKS:

Page 1
Singles

Analysis Cert. By

Preparation $
Analysis $

ACC: AMERICAN SMELTING & REFINING CO. | Date Spl. Received 11/12/68 | Date Compl. 11/15/68 | TUC 341245 | $

SACATON 11-25-68 ADW

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
PULP CK ASSAYS (CON'T.)									
A-8665				3.33			2.47		
A-8674				0.53			0.01		
A-8685				0.54			0.01		
A-8600				2.73			0.13		
A-8617				1.17			0.03		
A-8642				0.60			0.02		
A-8474				0.70			0.02		
A-8703				0.59			0.10		
A-8708				0.46			0.07		
A-8713				0.16			0.02		
	35 Cu, singles @ $1.75, $61.25 less 2% discount							$	60.03
	35 CuO, singles @ $2.25, $78.75 less 2% discount								77.17

CC: American Smelting & Refining Company
ADD: P.O. Box 5795, Tucson, Arizona
CITY: Attn: Mr. N. P. Whaley
ADD:
CITY:

REMARKS:
Page 2
Singles
7 samples re-pulverized

Analysis Cert. By

REGISTERED ASSAYER CERTIFICATE 6134 Date Signed Arizona U. S. A.

Preparation $
Analysis $ 137.20

ACC:	Date Spl. Received	Date Compl.		$
AMERICAN SMELTING & REFINING CO.	11/12/68	11/15/68	TUC 341245	137.20

SACATON

8-27-68 NLD

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
REJECT CHECK ASSAYS									
A7839				2.30			2.24		
A7849				0.18			0.18		
A7870				3.08			1.85		
A7880				0.37			0.37		
A8004				0.81			0.81		
A8026				0.74			0.16		
A8039				0.50			0.04		
A8060				1.80			0.74		
A8061				2.05			0.81		
A8068				3.32			0.90		
A8077				0.93			0.31		
A8117				1.05			0.08		
A8125				0.59			0.05		
A8127				0.51			0.05		
A8147				0.31			0.04		
	15 Cu @ $1.75, singles							$	26.25
	15 CuO, singles @ $2.25								33.75
	15 samples prepared @ $.85								12.75

CC: American Smelting & Refining Co.
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85705
ADD: Attn: N. P. Whaley
CITY:

REMARKS:

Singles

Analysis Cert. By

REGISTERED ASSAYER CERTIFICATE NO. 1730

Preparation $ 12.75
Analysis $ 60.00

ACC:	Date Spl. Received	Date Compl.		$
AMERICAN SMELTING & REFINING CO.	8/23/68	8/26/68	TUC 340304	72.75

3226 East 46th Street SACATON Phone 624-0049

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

8-26-68 NW

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

RERUN CHECK ASSAY PULPS

SAMPLE SUBMITTED BY American Smelting & Refining Company

DATE August 22, 1968

SAMPLE MARKED S-104	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Cx. Cu
A 8060 (1543.8' — 1554.2')			1.71					0.03
A 8061 (1554.2' — 1564.4')			1.76					0.03
	8080 - 8095	16 samples		64.00				
	8150 - 8159	10 samples		46.00				
	8060 & 8061	Rerun (2)		7.00				
	Total -			111.00				

REGISTERED ASSAYER
CERTIFICATE NO. 6852
PETE S. FLORES
8-27-68
Tucson, Arizona U.S.A.

CHARGES $ 111.00

Pete S. Flores
ASSAYER - CHEMIST

3226 East 46th Street

Phone 624-0049

SACATON

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

9-5-68 NPW

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

CHECK ASSAYS

SAMPLE SUBMITTED BY American Smelting & Refining Company

DATE Sept. 4, 1968

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Ox. Cu
A 7615 Pulp			1.30					0.08
A 7722 Pulp			2.57					0.21
A 7722 Rejects			1.36					0.06

9/4/68

CHARGES $

ASSAYER-CHEMIST

3226 East 46th Street

Phone 624-0049

SAGATON

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

8-9-68 NW

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

REJECT CHECK ASSAYS

SAMPLE SUBMITTED BY American Smelting & Refining Company

DATE August 9, 1968

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Oxide Cu
A 7611			0.86					0.78
A 7612			1.22					1.17
A 7613			1.14					0.03
A 7614			0.81					0.80
A 7615			1.31					0.05
A 7616			0.34					0.02
A 7617			1.11					0.03
A 7618			0.56					0.06
A 7619			0.38					0.02
A 7620			0.08					0.02
A 7621			0.84					0.06
A 7622			0.40					0.38

REGISTERED ASSAYER CERTIFICATE NO. 6852 PETE S. FLORES 8/9/68 ARIZONA U. S. A.

CHARGES $

Pete S. Flores
ASSAYER - CHEMIST

SACATON
8-9-68
NW

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

K.V.D.S.
AUG 8 1968

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO %		
PULP CHECK ASSAYS									
A7654				1.05			0.17		
A7655				0.46			0.13		
A7672				0.29			< 0.01		
A7673				0.39			0.03		
A7697				0.51			0.02		
A7698				0.38			0.02		
A7702				0.26			< 0.01		
A7712				0.76			0.75		
A7721				1.43			0.48		
A7722				2.11			0.40		
A7727				0.49			0.10		
A7728				0.36			0.04		
A7734				0.25			0.02		
A7763				0.19			0.01		
A7772				0.83			0.78		
A7775				1.13			1.06		
A7780				0.04			0.03		
A7791				1.04			0.09		
A7792				0.80			0.25		
A7918				0.05			0.04		
A7919				0.58			0.18		
A7930				0.90			0.35		
A7931				0.40			0.38		

REGISTERED ASSAYER CERTIFICATE NO. 6784 H. E. RICHARD Registered Arizona U. S. A.

CC: American Smelting & Refining Co.
ADD: Attn: Mr. H. P. Whaley
CITY: Box 5795
ADD: Tucson, Arizona 85703
CITY:

REMARKS:

Analysis Cert. By

Samples repulverized
Analyses verified - 'single' charge

Preparation $
Analysis $ 40.25

ACC: ASARCO Tucson | Date Spl. Received 8/5/68 | Date Compl. 8/7/68 | TUC 339790 | $ 40.25

SACATON

6-24-68 NPW

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

J. H. C.

JUN 28 1968

W. G. K.

JUN 19 1968

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
CHECK ASSAYS - M & M COARSE REJECTS									
6736				1.56			0.60		
6737				0.69			0.14		
6738				0.15			0.02		
6739				1.68			0.11		
6740				0.29			0.01		
6741				0.55			0.01		
6742				0.57			0.51		
6743				0.78			0.03		
6744				0.02			0.01		
6745				0.66			0.62		
6746				0.11			0.09		
6747				0.06			0.05		
6748				0.62			0.60		
6749				2.83			0.14		
6750				0.12			0.08		
	15 Cu, single @ $1.75, less .5% discount							$	26.12
	15 CuO, single @ $2.25, $33.75 less .5% discount								33.58
	15 samples prepared @ $.85								12.75

CC: American Smelting & Refining Company
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: N. P. Whaley
CITY:

REMARKS:

.5% discount given on total samples received 6/14/68

Analysis Cert. By

Preparation $ 12/75
Analysis $ 59.70

ACC: AMERICAN SMELTING & REFINING COMPANY | Date Spl. Received 6/14/68 | Date Compl. 6/18/68 | TUC 339205 | $ 72.45

3226 East 46th Street

Phone 624-0049

JHC

SACATON

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

8-8-68

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

PULP CHECK ASSAYS

SAMPLE SUBMITTED BY American Smelting & Refining Company

DATE August 5, 1968

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Oxide Cu
6226			1.46					1.41
6228			1.93					1.90
6243			1.44					0.12
6247			1.65					0.19
6252			0.60					0.03
6257			0.73					0.02
6265			0.12					0.02
6431			0.04					0.01
6442			0.30					0.24
6454			0.16					0.08
6458			5.93					0.39
6471			0.76					0.04
6477			0.91					0.03
6485			0.92					0.06
6489			0.48					0.02
6500			0.04					0.02
6513			0.55					0.50
6529			0.58					0.55
6532			0.11					0.07
6537			0.10					0.03
6561			0.11					0.07
6565			2.04					2.04
6570			0.63					0.07
6580			0.04					0.01
6622			0.73					0.51

ORIGINAL PULPS FR/H&H

8/5/68

CHARGES $

Peter S. Flores

ASSAYER-CHEMIST

3226 East 46th Street

Phone 624-0049

SACATON

8-8-68 NW

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

PULP CHECK ASSAYS

SAMPLE SUBMITTED BY American Smelting & Refining Company

DATE August 5, 1968

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Ox. Cu
6638			3.05					0.07
6641			3.45					0.05
6647			2.84					0.05
6656			0.79					0.03
6665			0.48					0.02
	30 Check Assays.							
Cu	1.50							
Ox Cu	2.00							

ORIGINA PULPS FR/ HAWLEY & HAWLEY

REGISTERED ASSAYER
ARIZONA U.S.A.
FLORES

CHARGES $ 105.00

ASSAYER - CHEMIST

SACATON

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

W.E.S.

JUL 23 1968

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Zinc %	Mo. %	CuO%		
SACATON									
S-95 A-7636				0.25			[illegible]		
A-7637				0.10			[illegible]		
A-7642				0.29			[illegible]		
A-7645				0.07			[illegible]		
A-7651				3.50			[illegible]		
A-7652				3.55			0.57		
A-7656				.58			0.09		
A-7657				0.9[illegible]			[illegible]		
A-7661				0.3[illegible]			[illegible]		
A-7662				0.07			0.07		
A-7669				1.04			0.04		
A-7670				0.75			0.04		
A-7678				0.5[illegible]			0.04		
A-7679				0.58			0.0[illegible]		
A-7683				0.61			0.0[illegible]		
A-7684				0.40			0.03		
APPROVED FOR PAYMENT N. P. Whaley									
	16 Cu, single @ $1.75								$ [illegible]
	16 CuO, single @ $2.25								[illegible]
	16 samples prepared @ $.85								13.60

CC: American Smelting & Refining Co.
ADD: P. O. Box 5795
CITY: Tucson, Arizona 85703
ADD: Attn: N. P. Whaley
CITY:

REMARKS: Singles

Analysis Cert. By

Preparation $ 13.60
Analysis $ [illegible].00

ACC: AMERICAN SMELTING & REFINING CO. | Date Spl. Received 7/17/68 | Date Compl. 7/[illegible] | $ 77.60

Aa-16A.3.19B

J.H.C

SEP 13 1968

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

W.E.S.

JUL 22 1968

July 9, 1968

To: J. H. Courtright

From: S. E. Zelenkov

Sacaton Project
Assays and Geology
June, 1968, Progress

Assay Intervals: Hole Number	From To	Interval	Total Cu	Oxide Cu
East S-96	~~Bottomed (At 1779.4') 7-3-68~~			
	1224.0' -1234.2'	10.2'	1.45%	1.33%
	1275.1' - 1370.7'	95.6'	1.60%	0.92%
	1422.4' - 1432.5'	10.1'	4.72%	0.24%
	1443.1' - 1453.8'	10.7'	1.46%	0.09%
	1459.3' - 1601.3'	142.0'	1.09%	0.04%
	~~All assays have not been received~~			
East S-98	~~Bottomed (At 1865.9') 6-3-'68~~			
	1489.7' - 1815.7	326.0'	2.20%	0.14%
East S-99	Bottomed (At 1883.0') 6-10-'68			
	1554.3' - 1627.1'	72.8'	0.71%	0.66%
East S-100	Bottomed (At 1919.0') 6-20-'68			
	1681.1' - 1717.7'	36.6'	0.76%	0.67%
	1726.3' - 1779.5'	53.2'	0.57%	0.11%
	1779.5' - 1860.0'	80.5'	0.48%	0.01%

Geology:

The following is a short summary of the Sacaton Geology over the past month from Mr. Norman Whaley's geologic logs.

S-99 Joy Manufacturing Co. Drilling to 6-13-'68

Granite & granite bx w/a few short intercepts of dp (?) and mp (?)	1195.1' - 1780.5'
Mixed breccia of Meta-gr (?), porph'ic andesite	1780.5' - 1852'
Shr'd andesite	1852' - 1883.0' (TD)

S-100	Joy Manufacturing Co. 6-4-'68 to 6-20-'68		
	Granite, granite bx, & a few short intercepts of porph	1341'	- 1860.0'
	Andesite & meta-gr	1860.0'	- 1919.0' (TD)
S-96	Joy Manufacturing Co. 6-13-'68 to 7-3-'68		
	Granite bx w/a few short intercepts of dp in upper portion of hole	1134'	- 1779.4' (TD)
S-95	Joy Manufacturing Co. 6-20-'68 to drilling		
	Monzonite porphyry breccia Basal portion st'ly silif.	190'	- 791.4'

Supplement and Maps:

Please find attached a supplement for the May Progress Report, which was submitted on June 7, and two maps. One map shows the drilling status at the end of June and the other map indicates the drilling status to date and the new proposed drill sites. J. O. Barnes plans to start Hole S-104 this week.

S. E. Zelenkov

S. E. Zelenkov

SEZ:kc - Attachments
cc: NPWhaley, w/att.
JRWojcik, w/att.

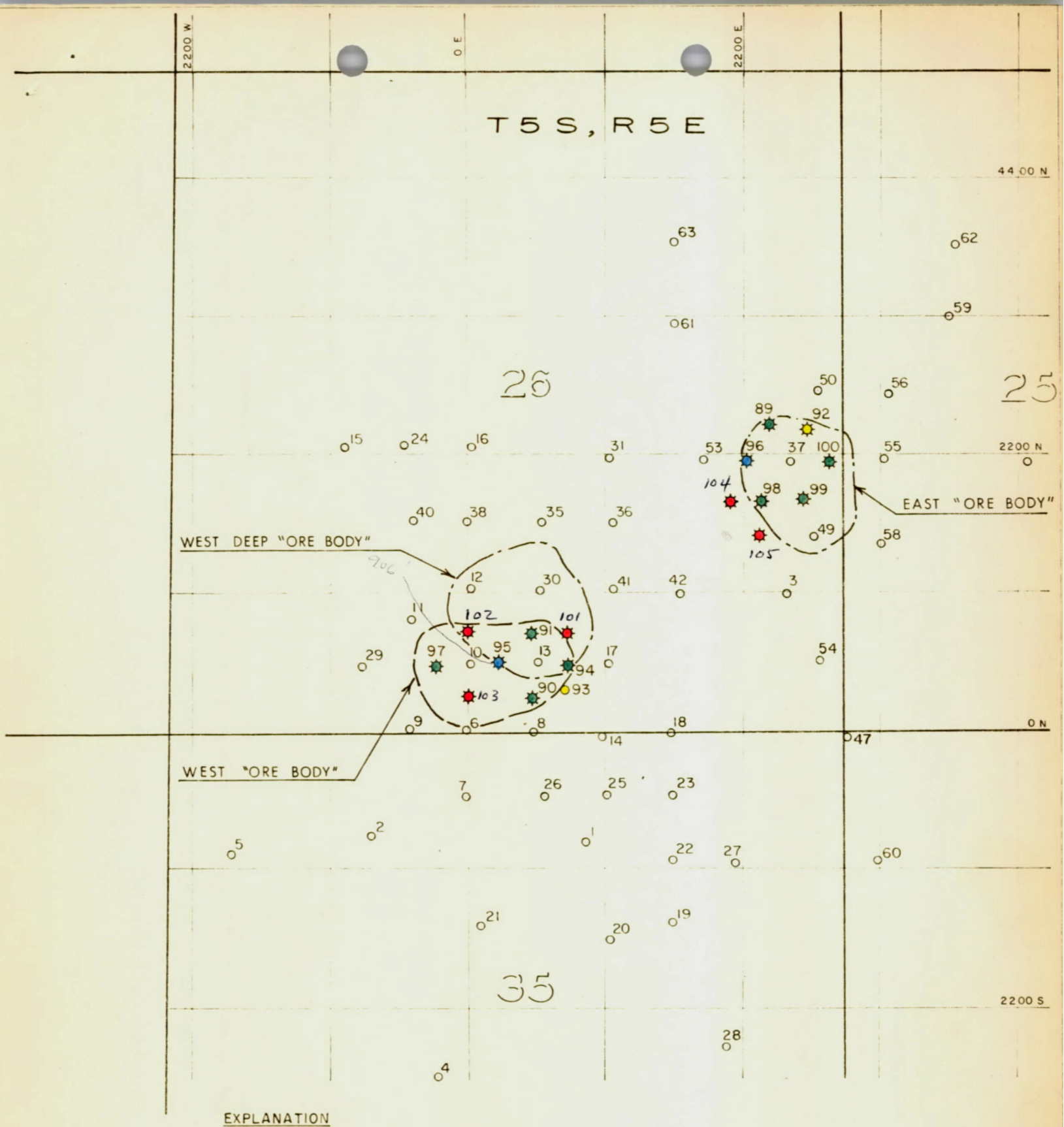
Supplement for May Progress 1968 for Sacaton Project

S-98:

The depth at the end of May was 1811.0 feet.

S-99:

The depth at the end of May was 1596.2 feet.

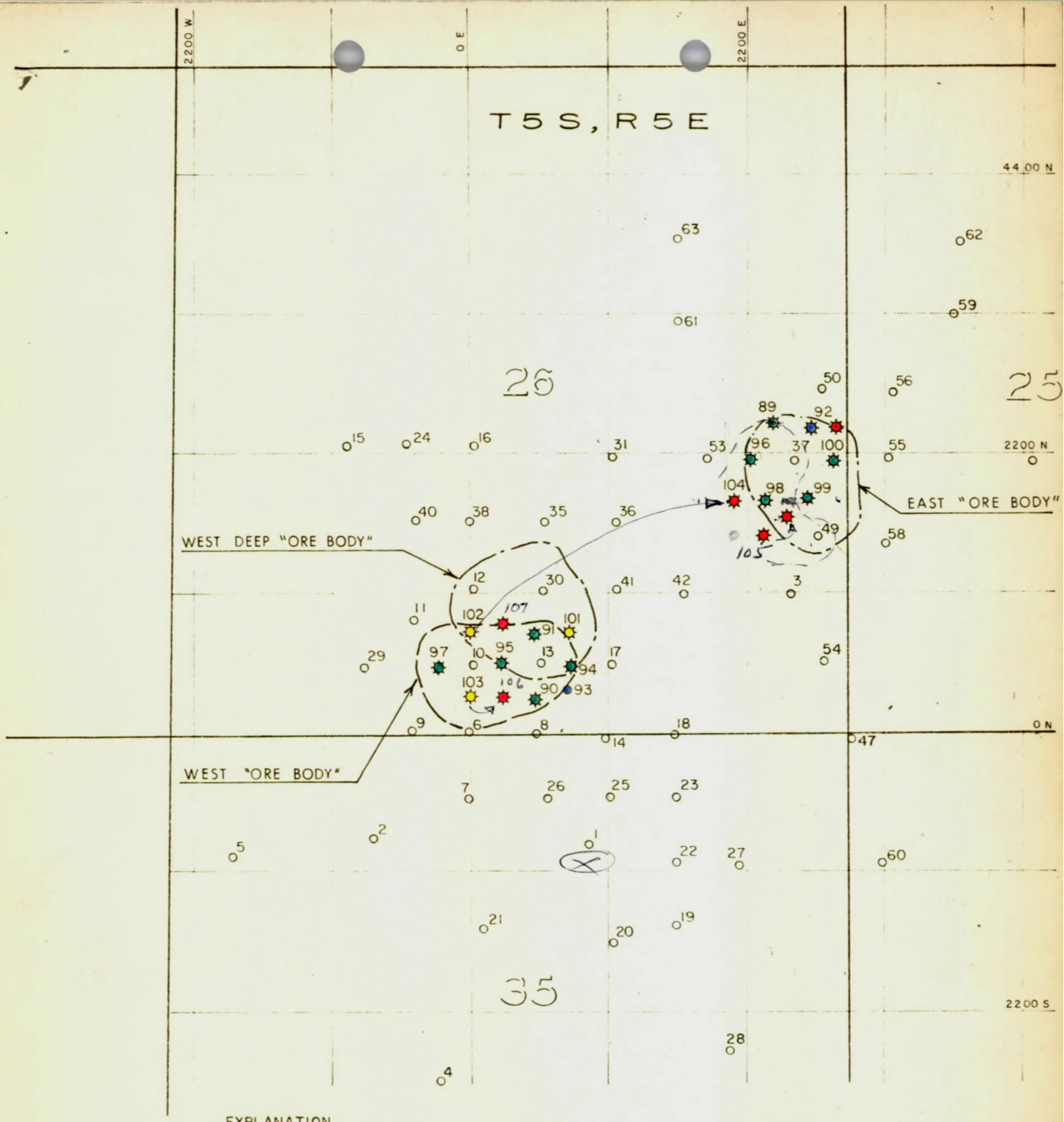


EXPLANATION

- ○ 37 Old, completed drill hole
- Proposed site (not yet drilled)
- Rotary drilling in progress
- Rotary drilling completed
- Diamond drilling in progress
- New, completed drill hole

STATUS OF DRILLING
MONTH OF JUNE
SACATON PROJECT
Pinal County, Arizona

SCALE: 1" = 1000'



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PROGRESS AS OF JULY 9, 1968

STATUS OF DRILLING
MONTH OF JULY
SACATON PROJECT
Pinal County, Arizona

SCALE: 1" = 1000'

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 9, 1968

To: J. H. Courtright

From: S. E. Zelenkov

Sacaton Project
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June, 1968, Progress

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Supplement for May Progress 1968 for Sacaton Project

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The depth at the end of May was 1596.2 feet.

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

Registered Assayers

Shippers' Representatives — Umpires — Weighers — Samplers

1800 WEST GRANT ROAD
P. O. BOX 5934
TUCSON, ARIZONA
622-4836

Representatives at Buyer's Plants: Phelps Dodge Corp., Douglas, Arizona and El Paso, Texas; ASARCO, El Paso, Texas and Hayden, Ariz.

IDENTIFICATION	Gold ozs	Silver ozs	Lead %	Copper %	Ox Copper % Non Sol. Cu.	Zinc %	MoS_2 %	S %	SO_4 %
S-5-C-1 1186-1364	trace	0.05 ~~0.05~~		0.60	0.02		0.010	1.10	0.07
S-5-C-2	trace	trace		0.23	0.02		0.024	0.31	0.05
S-30-C-1	trace	0.05		2.40	0.30		0.022	0.83	0.12
S-30-C-2 692-771	trace	trace		0.50	0.26		0.20	0.60	0.15
S-30-C-3	trace	trace		1.26	0.14		0.018	0.67	0.08
S-30-C-4	trace	trace		0.19	0.10		0.008	0.14	0.20
S-30-C-5	0.003	trace		0.46	0.04		0.010	0.82	0.11
S-30-C-6	0.002	trace		0.49	0.02		0.005	0.62	0.07
S-37-C-1	0.005	trace		1.55	1.54		0.018	0.24	0.15
S-37-C-2	trace	trace		1.93	0.24		0.043	0.14	0.14
S-37-C-3	trace	trace		1.26	0.14		0.055	0.64	0.12
S-42-C-1	trace	trace		0.19	0.02		0.004	0.71	0.08

CC: AMERICAN SMELTING & REFINING CO
ADD: Southwest Mining Division
CITY: 813 Valley National Bldg.
ADD: Tucson, Arizona
CITY

REMARKS:

Analysis Cert. By [signature]

Pick Up 1.00

Preparation $

Analysis $ 300.00

ACC: AMERICAN SMELTING & REFINING TUCSON

Date Spl. Received 9-4-62

Date Compl. 9-7-62

TKO 315442

$ 301.00