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James Doyle Sell Mining Collection

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AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

April 2, 1963

MEMORANDUM FOR KENYON RICHARD

SACATON PROSPECT
DRILLING PROGRESS
MARCH, 1963

Drilling

During the month past J. O. Barnes continued 3-shift rotary drilling with the Mayhew 2000 and Franks drill rigs. Drilling progress has been good, with minimal down-time. Sprague & Henwood operated two diamond drills on a 3-shift basis with relatively minor down-time due to mechanical failure. Progress was generally slow due to bad ground, requiring in part conversion to conventional rather than wire-line techniques. Hole 66 was especially bad due to sandy conditions, and a tendency for the hole to cave and swell shut. Three separate fishing jobs were carried out. Oil base muds were tried by the Sprague people, under the direction of Bill Williams, their Salt Lake branch manager. The real reasons for the bad hole conditions are not readily apparent, for Boyles Bros. successfully cored similar rock, with much less attention to mud control and/or careful supervision. Penetration progress will likely improve with experience. Recovery of core has been satisfactory in some instances and very poor in others.

Refer to attached sketch map for location of holes.

Rotary holes drilled during March were:

69 - In progress at beginning of month, cased at 1400'
70 - In progress at beginning of month, cased at 1405'.
71 - Spudded in, bottomed at 2069, not cased
72 - Spudded in, bottomed at 1826, not cased
73 - Spudded in, drilling at 1340 (3/1/63)
74 - Spudded in, drilling at 750 (3/1/63)

Diamond drill holes drilled during March were:

66 - In progress at beginning of month. Bottomed at 2066'
67 - Entered, and bottomed at 1529'
69 - Entered, and drilling at 1923' (3/1/63)
70 - Entered, and bottomed at 1585'

Geology

Drill holes 66, 67, and 69, along with old hole 64, indicate that this block of ground -- which is interpreted as a highly crackled portion of the hanging wall of the Sacaton basement fault -- is leached of its former chalcocite content, and that this copper has been carried away. Hole 68 will be cored a short distance to determine if this represents a weaker alteration fringe bounding the zone on its north side. The small amount of rotary core suggests this to be the case but is insufficient in length to be evaluated

with certainty. If the upper portions of the hole appear favorable, it will be continued into the sulphide zone.

Hole 70 contained relatively better alteration and more limonite after chalcocite than the holes to the north of it, but the capping is cut-off in depth by the Sacaton fault, before sulphides were encountered. The dip and strike of the low-angle fault is not known in the area, but a possibility exists that alteration and chalcocite may exist to the southeast of this hole, above the fault (see sketch map).

Holes 71 and 72 drilled directly through conglomerate into the basement fault with barren gneiss below. Hole 73 farther east is drilling to test the possible existence of an up thrown block.

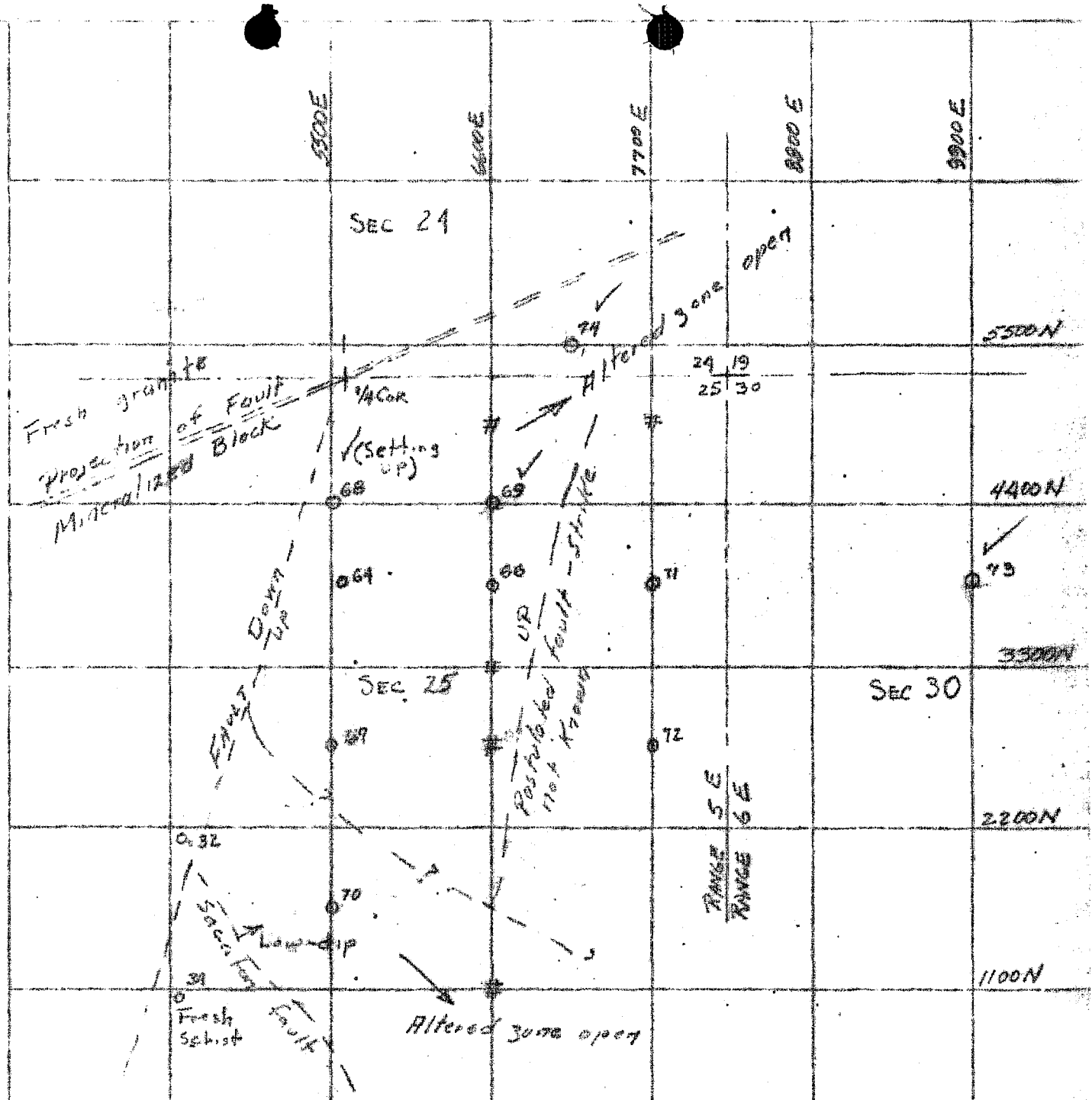
Geologic Notes

New formations: The peculiar rock termed "pebblestone" (see drilling report for Feb., 1963), first penetrated in 66, has been penetrated in 71 and 72, and cored with the rotary drill in 71. Its character in these holes and its widespread occurrence indicates it is certainly a conglomerate. Native Cu, present in hole 66, was absent in 71 but present in 72. The basaltic(?) fragments and propylitic alteration indicate nearby volcanic activity. This is evidently a local feature -- a conglomerate collected in a stagnant water basin during a time of volcanism. The copper was probably derived from the then exposed portion of the altered zone, and precipitated in a reducing environment.

Holes 71, 72, 73 and 74 penetrated several hundred feet of porous granite boulder conglomerate with very little clay binder. The upper portion, drilled in 74, correlates with a small outcrop along the line of Range 5-6 (El Paso Gas line road), where it may be seen to lap against the present granitic mountain slope, and contains distinctive boulders of andesite derived from dikes in the Sacaton mountains. I believe this formation probably correlates to the upper, water-bearing valley gravels of the main valley area to the east. It represents an age of filling older than the thin alluvial cover of the Sacaton bajada, and for convenience will be referred to as a separate formation - Gas line conglomerate.

JOHN E. KINNISON

JEK/kw
Attachment: sketch map
cc: CPPollock, w/att.
DJPope, w/att.


5500E
6600E
7700E
8800E
9900E
SEC 24
Altered zone open
5500N
Fresh granite
Projection of Fault
Mineralized Block
1/4 Cor
(Setting up)
24 19
25 30
4400N
Down Dip
UP
Postulated fault
Not known
Strike
SEC 25
SEC 30
3300N
5 E
6 E
RANGE
2200N
Low dip
Fault
1100N
Fresh Schist
Altered zone open
Summary:
68 - weak? alt. - not diamond drilled yet.
64 - leached Cu. No ore
67 - No Cu or protore
py only.
66 - leached Cu zone - low-grade values
near bottom of Cu zone.
69 - leached Cu weak cap. Poore.
70 - Capping w/ some hist lim. - cut off
by Socator basement fault
71 & 72 - Graben -
Cgl rests on base-
ment fault.
✓ Indicates hole drilling
MARCH 1963
GEOLOGIC PROGRESS MAP
1" = 1000'

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
SHOOTING
FOUNDATION TESTING
MINING
QUARRYING
SHAFT SINKING
TUNNEL DRIVING
MINE PLANT DESIGN AND FABRICATION

Davies Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS GEOLOGISTS

General Offices and Plant

1624 Pioneer Road P. O. Box 58 HUnter 7-7595

SALT LAKE CITY 10, UTAH

BRANCH OFFICES
PHOENIX
RENO
SPOKANE
DENVER
SACRAMENTO
ST. LOUIS

INVOICE DATE: September 30, 1962

ORDER NUMBER:

INVOICE NUMBER:

CONTRACT: 6-255

TERMS:

LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
513 Valley National Bank Bldg.
Tucson, Arizona

Page 1

HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-32	Washing in hole			13 hrs.	10.60	$ 137.80
	Cement time			31 hrs.	10.60	328.60
	Mud time			8 hrs.	5.30	42.40
	Materials used (Drill mud)			16 sacks	4.50	72.00
	(Cal-Seal)			1 sack	8.50	8.50
	(Lumnite)			4 sacks	7.50	30.00
	NX	1795	1837	42	8.90	373.80
						$ 993.10
S-49A		1691.8	1862.2	170.4	8.90	$ 1516.56
	Materials used (Drill mud)			14 sacks	4.50	63.00
	Mud time			7 hrs.	5.30	37.10
						$ 1616.66
S-53		1466	1500	34	7.90	$ 268.60
		1500	1779	279	8.90	2483.10
	Materials used (Drill mud)			9 sacks	4.50	40.50
	Mud time			4 hrs.	5.30	21.20
						$ 2813.40

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-55	Rotary	904.6	1000	95.4	2.60	$ 248.04
		1000	1500	500	3.60	1800.00
		1500	1750.8	250.8	4.60	1153.68
	Cored			10.7	7.00	74.90
	Materials used (Drill mud)			48 sacks	4.50	216.00
	Mud time			16 hrs.	5.30	84.80
	Casing 3" pipe			1756 ft.	1.08675	1908.33
	Casing time			5 hrs.	10.60	53.00
	Diamond Drill					
		1756.5	1907.1	150.6	8.90	1340.34
	Materials used (Drill mud)			21 sacks	4.50	94.50
	(Cal-Seal)			1 sack	8.50	8.50
	(Lummite)			5 sacks	7.50	37.50
	Mud time			10 hrs.	5.30	53.00
	Cement time			20 hrs.	10.60	212.00
	Stand-by			4 hrs.	10.60	42.40
	Coring time			15 hrs.	10.60	159.00
						$ 7485.99

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Tucson, Arizona

HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-56	Rotary	1290.7	1500	209.3	3.60	$ 753.48
		1500	2000	500	4.60	2300.00
		2000	2003.7	3.7	5.60	20.72
	Cored			18.4	7.00	128.80
	Coring time			32 hrs.	10.60	339.20
	Materials used (Drill mud)			10 sacks	4.50	45.00
	Mud time			3 hrs.	5.30	15.90
						$ 3603.10
S-58	Rotary	155.3	1000	844.7	2.60	$ 2196.22
		1000	1500	500	3.60	1800.00
		1500	1660	160	4.60	736.00
	Cored			6.7	7.00	46.90
	Coring time			10 hrs.	10.60	106.00
	Materials used (Drill mud)			20 sacks	4.50	90.00
	Mud time			7 hrs.	5.30	37.10
	Stand-by			16 hrs.	10.60	169.60
						$ 5181.82

DIAMOND CORE DRILLING
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LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-58	Deflecting & Casing hole					
	Making up wedge					$ 157.83
	Stand-by			32 hrs.	5.30	169.60
	Coring			16.3	7.00	114.10
	Materials used (Drill mud)			18 sacks	4.50	81.00
	(Lumnite)			29 sacks	7.50	217.50
	(Cal-Seal)			7 sacks	8.50	59.50
	Cement time			61 hrs.	10.60	646.60
	Drilling around wedge			38 hrs.	10.60	402.80
	Casing time			13 hrs.	10.60	137.80
	NX casing			30 ft.	2.92	87.60
	3" pipe			1425 ft.	1.08675	1548.62
						$ 3622.95
S-59	Rotary	0	1000	1000	2.60	2600.00
		1000	1500	500	3.60	1800.00
		1500	1772	272	4.60	1251.20
	Cored			13.8	7.00	96.60
	Coring time			32 hrs.	10.60	339.20
	Materials used (Drill mud)			34 sacks	4.50	153.00
	Mud time			11 hrs.	5.30	58.30

DIAMOND CORE DRILLING
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LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-59	Rotary					
	3" pipe			1777 ft.	1.08675	$ 1931.15
	casing time			10 hrs.	10.60	106.00
						$ 8335.45
S-59	Dia. Drill	1777	1844.1	67.1	8.90	$ 597.19
	Materials used	(Drill Mud)		8 sacks	4.50	36.00
		(Cal-Seal)		1 sack	8.50	8.50
		(Lumnite)		3 sacks	7.50	22.50
	Mud time			4 hrs.	5.30	21.20
						$ 685.39
S-61	Rotary	0	1000	1000	2.60	$ 2600.00
		1000	1063	63	3.60	226.80
	Cored			6	7.00	42.00
	Materials used	(Drill mud)		21 sacks	4.50	94.50
		(Cal-Seal)		1 sack	8.50	8.50
		(Lumnite)		4 sacks	7.50	30.00
	Mud time			7 hrs.	5.30	37.10
	3" pipe			1069 ft.	1.08675	1161.74
	Casing time			7 hrs.	10.60	74.20
	Cement time			1 hr.	10.60	10.60
	Coring time			6 hrs.	10.60	63.60
						$ 4349.04

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American Smelting & Refining Co.
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Tucson, Arizona

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HOLE NO		FROM	TO	FOOTAGE	RATE	TOTAL
S-62	Rotary	0	773.5	773.5	2.60	$ 2011.10
	Materials used (Drill mud)			11 sacks	4.50	49.50
	Mud time			4 hrs.	5.30	21.20
						$ 2081.80
S-63	Rotary	0	792.6	792.6	2.60	$ 2060.76
	Materials used (Drill mud)			16 sacks	4.50	72.00
	Mud time			5 hrs.	5.30	26.50
						$ 2159.26
S-64		0	245.9	245.9	2.60	$ 639.34
	Materials used (Drill mud)			7 sacks	4.50	31.50
	Mud time			2 hrs.	5.30	10.60
						$ 681.44
Additives		Caustic soda		800 lbs.	17.44	$ 139.52
		Quebracho		550 "	38.02	209.11
		Condet		55 gals.	4.25	233.75
		Cellex		150 lbs.	1.09	163.50
		Q-Broxin		150 lbs.	.348	52.20
						$ 798.08

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INVOICE DATE: September 30, 1962
ORDER NUMBER:
INVOICE NUMBER:
CONTRACT: 6-255
TERMS:
LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
	Water truck rental		1 mo.	$190.00	$ 190.00
	Mileage driven		3162 miles	.12	379.44
	Sprinkler Truck		16 shifts	7.60	121.60
	Mileage driven		833 miles	.12	99.96
	Drivers wages				277.20
	Pay-roll tax				41.58
					$ 1109.78
	Stand-by Drill # 782 - (168 hrs. @ $125.00 per 24 hrs.)				875.00
	Stand-by Drill # 530 - (56 hrs. @ $125.00 per 24 hrs.)				291.66
	Stand-by Drill # 530 - (216 hrs. @ $75.00 per 24 hrs.)				675.00
					$ 1841.66
					$47358.92

DIAMOND CORE DRILLING
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Boyles Bros. DRILLING COMPANY

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K. R.
NOV 13 1962

K v m S
NOV 13 1962

INVOICE DATE: November 12, 1962
ORDER NUMBER:
INVOICE NUMBER:
CONTRACT: 6-255
TERMS:
LOCATION: Sacaton Project, Casa Grande, Arizona

American Smelting and Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

COPY

HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
S-64	NX	2042.3	2060	17.7	9.60	169.92
	Materials used (Drill mud)			1 sack	4.50	4.50
						$ 174.42

COMPLETION INVOICE

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

September 7, 1962

J. H. C.
SEP 10 1962

MEMORANDUM TO K. E. RICHARD

SACATON
Drilling Performance
August, 1962

The following is a summary of drilling performance of Boyles Bros. Drilling Company and J. O. Barnes Well Drilling during the month of August, 1962.

SHIFTS

	Possible	Worked
Boyles non-core	175.625	168.625
Barnes non-core	22.5*	22.5*
Total, non-core	198.125	191.125
Boyles core	128.75	128.75
Total Shifts	326.875	319.875

	Feet
Boyles non-core	7569.6**
Barnes non-core	893.3
	8462.9
Boyles core	1304.7
	9767.6

OPERATING DOWN TIME (SHIFTS)***

	Repairs	%	Fishing	%	Redrill	%	Total	%
Boyles	29.00	9.07	16.37	5.11	27.19	8.50	72.56	24.4
Barnes	4.25	1.87	0.25	.11	0.00	-	4.5	20.
Total	33.25		16.62		27.19		77.06	

IDLE DOWN TIME

Boyles 7.00 Shifts - 2.14%

FT/SHIFTS WORKED

	Non Core	Core
Boyles	44.89'	10.13'
Barnes	39.70'	-

% SCHEDULED SHIFTS DRILLING

Boyles	68.7%
Barnes	80.0%
Total	74.3%

* Barnes worked 15 12-hr. shifts which multiplied by 3/2 is equivalent to 22.5 8-hr. shifts.
** Does not include 651.1 ft. redrilled in S-52 or 1508.4 ft. redrilled in S-4
*** Does not include 7.0 idle shifts awaiting parts.

Total shifts lost due to repairs, fishing, redrill or waiting on parts - 84.06

Productive shifts - 242.815

cc: JHCourtright

JOSEPH R. WOJCIK

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
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MINE PLANT DESIGN AND FABRICATION

Boyles Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS

General Offices and Plant

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SALT LAKE CITY 10, UTAH

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INVOICE DATE: October 31, 1962

ORDER NUMBER:

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CONTRACT: 6-255

TERMS:

LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

Page 1

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
S-3	Casing time		40 hrs.	10.60	424.00
	NX Casing lost in hole		1350 ft.	2.155	2909.25
S-58 D.D.	1457.8	1500	42.2	7.90	333.38
	1500	1507.7	7.7	8.90	68.53
	Cement time		1hhr.	10.60	10.60
	Mud time		2 hrs.	5.30	10.60
	Materials used (Drill mud)		5 sacks	4.50	22.50
	Casing time		2 hrs.	10.60	21.20
	3" pipe		9 ft.	1.08875	9.78
S-59 D.D.	1844.1	1926.5	82.4	8.90	733.36
	Materials used (Drill mud)		14 sacks	4.50	63.00
	Mud time		7 hrs.	5.30	37.10
S-61 D.D.	1069	1500	431 ft.	7.90	3404.90
	1500	1636	136 ft.	8.90	1210.40
	Cement time		47 hrs.	10.60	498.20
	Mud time		45 hrs.	5.30	238.50
	Materials used (Drill mud)		91 sacks	4.50	409.50
	(Cal-Seal)		1 sack	8.50	8.50
	(Lumnite)		3 sacks	7.50	22.50

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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
8-62	Rotary	773.5	1000	226.5	2.60	588.90
		1000	1490	490	3.60	1764.00
	Cored			34.7	7.00	242.90
	Coring time			31 hrs.	10.60	328.60
	Stand-by time			22 hrs.	10.60	233.20
	Mud time			7 hrs.	5.30	37.10
	Materials used (Drill mud)			21 sacks	4.50	94.50
8-63	Rotary	792.6	1000	207.4	2.60	539.24
		1000	1175.3	175.3	3.60	631.08
	Cored			12.5	7.00	87.50
	Coring time			10 hrs.	10.60	106.00
	Stand-by time			7 hrs.	10.60	74.20
	Mud time			4 hrs.	5.30	21.20
	(Materials used (Drill mud)			12 sacks	4.50	54.00
64	Rotary	245.9	1000	754.1	2.60	1960.66
		1000	1200	200	3.60	720.00
	Cored			12 ft.	7.00	84.00
	Coring time			15 hrs.	10.60	159.00
	Casing time			8 hrs.	10.60	84.80
	Cement time			2 hrs.	10.60	21.20
	Mud time			3 hrs.	5.30	15.90

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
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TUNNEL DRIVING
MINE PLANT DESIGN AND FABRICATION

Boyles Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 HUnter 7-7595
SALT LAKE CITY 10, UTAH

BRANCH OFFICES
PHOENIX
RENO
SPOKANE
DENVER
SACRAMENTO
ST. LOUIS

INVOICE DATE: October 31, 1962
ORDER NUMBER:
INVOICE NUMBER:
CONTRACT: 6-255
TERMS:
LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
64 (con't.)	Materials used (Drill mud)		9 sacks	4.50	40.50
	(Lumnite)		4 sacks	7.50	30.00
	(Cal-Seal)		1 sack	8.50	8.50
	3" pipe		1209 ft.	1.08675	1304.10
2-64 R.D.	1200	1300	100	7.90	2370.00
	1500	2000	500	8.90	4450.00
	2000	2042.3	42.3	9.60	406.08
	Materials used (Drill mud)		25 sacks	4.50	112.50
	Mud time		12 hrs.	5.30	63.60
3-65	Rotary Coring time		38 hrs.	10.60	402.80
	Cored		2 ft.	7.00	14.00
6-I	0	694.2	694.2	2.60	1804.92
	Cored		14.8	7.00	103.60
	Coring time		15 hrs.	10.60	159.00
	Materials used (Drill mud)		17 sacks	4.50	76.50
	Mud time		6 hrs.	5.30	31.80
	Water truck rental		1 mo.	190.00	190.00
	Mileage driven		1275 miles	.12	153.00
	281 - 21 ft. 3" pipe		5901 ft.	1.08675	6412.91
	Additives (Quebracho)		220 lbs.	38.02	83.64
	(Collex)		150 lbs.	1.09	163.50
					$34664.73

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DENVER
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ST. LOUIS

K. Richard

J. H. C.

SEP 24 1962

OK JER

K. R.

SEP 17 1962

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American Smelting & Refining Co.
813 Valley National Bank Bldg.
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HOLE NO	FROM	TO	FOOTAGE		RATE	TOTAL
S 31	1030.5	1238.9	208.4		7.00	$ 1,458.80
Casing time			8	hours	10.60	84.80
Stand-by			2	"	10.60	21.20
Mud time			6	"	5.30	31.80
Mud			9	sacks	4.50	40.50
S 37	1766	1869	103		8.90	916.70
Mud time			8	hours	5.30	42.40
Mud			16	sacks	4.50	72.00
S 42	1807	1874.1	67.1		8.90	597.19
Cement time			47	Hours	10.60	498.20
Stand-by			2	"	10.60	21.20
Mud time			15	"	5.30	79.50
Cal-seal			2	sacks	8.50	17.00
Lumite			6	"	7.50	45.00
Mud			27	"	4.50	121.50
S 10	1318	1500	182		3.60	655.20
	1500	1508.4	8.4		4.60	38.64

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
S 49A	0	1000	1000	2.60 50%	1,300.00
	1000	1500	500	3.60 50%	900.00
	1500	1508	8	4.60 50%	18.40
NX core	1508	1513	5	7.00	35.00
	1513	1691.8	178.8	8.90	1,591.32
Casing			1513	1.05	1,588.65
Core time			6 hours	10.60	63.60
Casing time			7 "	10.60	74.20
Cement time			6 "	10.60	63.60
Cal-seal			3 sacks	8.50	25.50
Lumnite			2 "	7.50	15.00
Mud time			28 hours	5.30	148.40
Mud			78 sacks	4.50	351.00
S 50	500	1000	500	2.60	1,300.00
	1000	1383.3	383.3	3.60	1,379.88
Casing			1387	1.05	1,456.35
Casing time			6 hours	10.60	63.60
Core runs			12.8	7.00	89.60
Core time			15 "	10.60	159.00
Cal-seal			3 sacks	8.50	25.50
Lumnite			2 "	7.50	15.00

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813 Valley National Bank Bldg.
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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
S 50 Cont'd					
Cement time			2 hours	10.60	21.20
Stand-by			2 "	10.60	21.20
Mud time			10 "	5.30	53.00
Mud			30 sacks	4.50	135.00
Diamond core	1387.3	1500	112.7	7.90	890.33
	1500	1731.7	231.7	8.90	2,062.13
Mud time			14 hours	5.30	74.20
Mud			28 sacks	4.50	126.00
Coring cement			23 hours	10.60	243.80
S 51	66	142.7	76.7	6.30	483.21
Stand-by			2 hours	10.60	21.20
Casing time			1 hour	10.60	10.60
Mud time			1 "	5.30	5.30
Mud			2 sacks	4.50	9.00
S 52	0	1000	1000	2.60	2,600.00
	1000	1500	500	3.60	1,800.00
	1500	2000	500	4.60	2,300.00
	2000	2040.6	40.6	5.60	227.36

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
S 52 Cont'd					
Stand-by			2 hours	10.60	21.20
Core time			18 "	10.60	190.80
Core			12.1	7.00	84.70
Mud time			13 hours	5.30	68.90
Mud			39 sacks	4.50	175.50
S 53	0	1000	1000	2.60	2,600.00
	1000	1139.7	139.7	3.60	502.92
	1139.7	1466	326.3	7.90	2,577.77
Casing			1140	1.05	1,197.00
Casing time			3 hours	10.60	31.80
Cal-seal			3 sacks	8.50	25.50
Lumnite			2 "	7.50	15.00
Cement time			11 hours	10.60	116.60
Core run			5 "	7.00	35.00
Core time			4 "	10.60	42.40
Mud time			16 "	5.30	84.80
Mud			50 sacks	4.50	225.00
Stand-by			1 hour	10.60	10.60

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
S 55	0	904.6	904.6	2.60	2,351.96
Mud time			6 hours	5.30	31.80
Mud			18 sacks	4.50	81.00
S 56	0	1000	1000	2.60	2,600.00
	1000	1290.7	290.7	3.60	1,046.52
Core run			5	7.00	35.00
Core time			6 hours	10.60	63.60
Mud time			7 "	5.30	37.10
Mud			21 sacks	4.50	94.50
S 57	0	946	946	2.60	2,459.60
Core run			5	7.00	35.00
Core time			4.5hours	10.60	47.70
Mud time			5 "	5.30	26.50
Mud			12 sacks	4.50	54.00
S 58	0	155.3	155.3	2.60	403.78
Mud time			2 hours	5.30	10.60
Mud			5 sacks	4.50	22.50

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Additives:					
Caustic soda			800 lbs.	17.44cwt	139.52
Quebracho			440 "	38.02 "	167.28
Condet			30 gal.	4.25	127.50
Water truck rental			1 mo.	190.00 mo.	190.00
Miles driven			3318 miles	.12	398.16
Road maintenance			54 hrs.	2.10	113.40
Sprinkler truck			3 days	6.33	18.99
Driver's wages			3 "	16.80	50.40
Driver's payroll taxes				15%	7.56
3" pipe taken to Florence job		(21' joints)	122 joints	1.05 ft.	2,690.10
Sales Tax on 3" pipe		(Invoices enclosed)	(2562')		780.98
					$ 48,579.30
			Less Sales Tax on Used Pipe		218.56
					$ 48,320.74

DIAMOND CORE DRILLING
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Davies Bros.
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American Smelting & Refining Co.
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CORRECTED INVOICE

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-12	580	1000	420	7.00	2940.00
	1000	1133	133	7.90	1050.70
Casing			579	1.50	868.50
Materials used (Drill mud)			52 sacks	4.50	234.00
(Cement)			3 sacks	4.50	13.50
Mud time			33 hrs.	5.30	174.90
Cement time			11 hrs.	10.60	116.60
Hole # S-32	1760	1795	35	8.90	311.50
Casing			1760	1.50	2640.00
Materials used (Cement)			2 sacks	4.50	9.00
(Drill mud)			9 sacks	4.50	40.50
Cement time			7 hrs.	10.60	74.20
Mud time			8 hrs.	5.30	42.40
Hole # S-33	1726	2000	274	4.60	1260.40
	2000	2055	55	5.60	308.00
	2060	2077	17	9.60	163.20
Casing			2050	1.05	2152.50
Casing time			9 hrs.	10.60	95.40
Cement time			10 hrs.	10.60	106.00
Mud time			1 hr.	5.30	5.30
Materials used (Drill mud)			6 sacks	4.50	27.00

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SALT LAKE CITY 10, UTAH

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CORRECTED INVOICE

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-33 cont.					
Materials used (Cement)			3 sacks	4.50	13.50
Rotary core			11.5	7.00	80.50
Rotary core time			15 hrs.	10.60	159.00
Washing hole			3.5 hrs.	10.60	37.10
Hole # S-35	485	500	15	6.30	94.50
	500	1000	500	7.00	3500.00
	1000	1188	188	7.90	1485.20
Casing			485	1.50	727.50
Mud time			27 hrs.	5.30	143.10
Materials used (Drill mud)			44 sacks	4.50	198.00
Hole # S-36	770	1000	230	2.60	598.00
	1000	1222	222	3.60	799.20
Casing			1222	1.05	1283.10
Rotary core			6	7.00	42.00
Rotary core time			9 hrs.	10.60	53.00
Cement time			38 hrs.	10.60	402.80
Mud time			21 hrs.	5.30	111.30
Materials used (Drill mud)			31 sacks	4.50	139.50
(Cement)			8 sacks	4.50	36.00
Casing time			6 hrs.	10.60	63.60

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-36 cont.					
Cored	1224	1346	122	7.90	963.80
Hole # S-37	580	1000	420	2.60	1092.00
	1000	1451	451	3.60	1623.60
Casing			1451	1.05	1523.55
Casing time			9.5	10.60	100.70
Rotary core			19.7	7.00	137.90
Core time			21.5	10.60	227.90
Mud time			12.5	5.30	66.25
Materials used (Drill mud)			15 sacks	4.50	67.50
(Cement)			2 sacks	4.50	9.00
Washing and standby time			6 hrs.	10.60	63.60
Cement time			1 hr.	10.60	10.60
Hole # S-38	0	301	301	2.60	782.60
Casing time			2 hrs.	10.60	21.20
Washing hole			1 hr.	10.60	10.60
Standby time			1 hr.	10.60	10.60
Mud time			3 hrs.	5.30	15.90
Materials used (Drill mud)			6 sacks	4.50	27.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-39	0	1000	1000	2.60	2600.00
	1000	1500	500	3.60	1800.00
	1500	1830	330	4.60	1518.00
Rotary core			8.6	7.00	60.20
Core time			14 hrs.	10.60	148.40
Mud time			13.5 hrs.	5.30	71.55
Materials used (Drill mud)			34 sacks	4.50	153.00
Hole # S-40	0	517.6	517.6	2.60	1345.76
Rotary core			9	7.00	63.00
Core time			6.5 hrs.	10.60	68.90
Standby time			5.5 hrs.	10.60	58.30
Mud time			4 hrs.	5.30	21.20
Materials used (Drill mud)			7 sacks	4.50	31.50
Hole # S-41	0	1000	1000	2.60	2600.00
	1000	1266	266	3.60	957.60
Rotary core time			19 hrs.	10.60	201.40
Core			17.5	7.00	122.50
Standby time			1 hr.	10.60	10.60
Mud time			10.5 hrs.	5.30	55.65
Materials used (Drill mud)			28 sacks	4.50	126.00

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CORRECTED INVOICE.

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-42	0	1000	1000	2.60	2600.00
	1000	1397	397	3.60	1429.20
Mud time			13 hrs.	5.30	68.90
Materials used (Drill mud)			30 sacks	4.50	135.00
Hole # S-43	0	278	278	2.60	722.80
Core time			2 hrs.	10.60	21.20
Core			5	7.00	35.00
Standby time			.5	10.60	5.30
Mud time			2 hrs.	5.30	10.60
Materials used (Drill mud)			5 sacks	4.50	22.50
Hole # S-44	0	760	760	2.60	1976.00
Mud time			6 hrs.	5.30	31.80
Materials used (Drill mud)			20 sacks	4.50	90.00
Hole # S-45	0	320	320	2.60	832.00
Mud time			3 hrs.	5.30	15.90
Water truck rental			1 mo.	190.00	190.00
Mileage driven			3472 miles	.12	416.64
Road maintenance			48 hrs.	2.00	96.00
Materials used (Drill mud)			5 sacks	4.50	22.50

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1624 Pioneer Road P. O. Box 58 HUnter 7-7595

SALT LAKE CITY 10, UTAH

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SPOKANE
DENVER
SACRAMENTO
ST. LOUIS

INVOICE DATE: June 30, 1962
ORDER NUMBER:
INVOICE NUMBER:
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TERMS:
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American Smelting & Refining Co.
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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Materials used (Coh det) 5 gal. cans			10	21.25	212.50
(Albroxin) 50#			12 sacks	17.40	208.80
(Quebracho) 100#			6 sacks	38.02	228.12
(Caustic soda)			4 cans	8.73	34.88
(CMC)			5 sacks	54.45	272.25
					$1046.25

DIAMOND CORE DRILLING
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Boyles Bros. DRILLING COMPANY

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-5	1321	1500	179 '	7.90	1414.10
	1500	1544.6	44.6	8.90	396.94
Casing			1292	1.05	1356.60
Casing time			16 hrs.	10.60	169.60
Washing out old hole			8 hrs.	10.60	84.80
Mud time			16 hrs.	5.30	84.80
Materials used (Drill mud)			32 sacks	4.50	144.00
Hole # S-10	678	1000	322	7.00	2254.00
	1000	1144	144	7.90	1137.60
Casing time			24 hrs.	10.60	254.40
Washing out old hole			15 hrs.	10.60	159.00
Mud time			8.5 hrs.	5.30	45.05
Materials used (Drill mud)			18 sacks	4.50	81.00
Hole # S-12	1133	1202.4	69.4	7.90	548.26
Mud time			2.5	5.30	13.25
Materials used (Drill mud			3 sacks	4.50	13.50
Hole # S-31 NX	1042.4	1049	6.6	7.90	52.14
redrilled NX	933	1000	67	7.00	469.00
	1000	1030.5	30.5	7.90	240.95

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-31 cont.					
Casing time			18 hrs.	10.60	190.80
Casing		3" pipe	880 "	1.05	924.00
Cement time			105 hrs.	10.60	1113.00
Materials used (Cal Seal)			19 sacks	8.50	161.50
(Lumnite)			9 sacks	7.50	67.50
(Drill mud)			16 sacks	4.50	72.00
Washing hole			54 hrs.	10.60	572.40
Mud time			8 hrs.	5.30	42.40
Hole # S-33	2077	2250	173	9.60	1660.80
	2250	2320.7	70.7	10.30	728.21
Mud time			13.5	5.30	71.55
Materials used (Drill mud)			27 sacks	4.50	121.50
Hole # S-37	1451	1500	49	7.90	387.10
	1500	1766	266	8.90	2367.40
Washing hole			4 hrs.	10.60	42.40
Mud time			33 hrs.	5.30	174.90
Materials used (Drill			19 sacks	4.50	85.50
Hole # S-42	1397	1500	103	3.60	370.80
	1500	1807	307	4.60	1412.20
Casing		3" pipe	1807	1.05	1897.35
Casing time			7 hrs.	10.60	74.20

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-42 cont.					
Cement time			5 hrs.	10.60	53.00
Materials used (Cal Seal)			4 sacks	8.50	34.00
(Drill mud)			33 sacks	4.50	148.50
(Lummite)			1 sack	7.50	7.50
Core time			59 hrs.	10.60	625.40
Core			38 "	7.00	266.00
Mud time			15.5 hrs.	5.30	82.15
Hole # S-44	760	1000	240	2.60	624.00
	1000	1500	500	3.60	1800.00
	1500	1918	418	4.60	1922.80
Core			20.2	7.00	141.40
Core time			33 hrs.	10.60	349.80
Standby time			1 hr.	10.60	10.60
Mud time			7.5 hrs.	5.30	39.75
Materials used (Drill mud)			24 sacks	4.50	108.00
Hole # S-45	320	442	122	2.60	317.20
Mud time			1 hr.	5.30	5.30
Materials used (Drill mud)			2 sacks	4.50	9.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-46	0	100	100	2.60	260.00
	100	116.8	16.8	7.00	117.60
	116.8	230	113.2	6.30	713.16
Core time			12 hrs.	10.60	127.20
Standby time			1 hr.	10.60	10.60
Materials used (Drill mud)			16 sacks	4.50	72.00
Mud time			7 hrs.	5.30	37.10
Hole # S-47	0	867	867	2.60	2254.20
	867	874.5	7.5	7.00	52.50
Core time			6 hrs.	10.60	63.60
Mud time			7.5	5.30	39.75
Materials used (Drill mud)			12 sacks	4.50	54.00
Hole # S-48	0	1000	1000	2.60	2600.00
	1000	1324	324	3.60	1166.40
Core			22.5	7.00	157.50
Core time			23 hrs.	10.60	243.80
Standby time			1.5	10.60	15.90
Mud time			11 hrs.	5.30	58.30
Materials used (Drill mud)			27 sacks	4.50	121.50

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-49	0	1000	1000	2.60	2600.00
	1000	1318	318	3.60	1144.80
Core			5	7.00	35.00
Core time			8 hrs.	10.60	84.80
Standby time			3 hrs.	10.60	31.80
Mud time			7 hrs.	5.30	37.10
Materials used (Drill mud)			23 sacks	4.50	103.50
Hole # S-50	0	500	500	2.60	1300.00
Mud time			5.5	5.30	29.15
Materials used (Drill mud)			17 sacks	4.50	76.50
Hole # S-51	0	60	60	2.60	156.00
Core			2	7.00	14.00
Core time			1 hr.	10.60	10.60
	62	66	4	6.30	25.20
Casing time			6 hrs.	10.60	63.60
Mud time			1.5	5.30	7.95
Materials used (Drill mud)			3 sacks	4.50	13.50
Water truck rental			1 mo.	190.00	190.00
Mileage driven			2660 miles	.12	319.20
Road Maintenance			50 hrs.	2.00	100.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Additives					
Caustic Soda	@ 8.72 per 50 lbs.		750 lbs.		130.80
Quebracho	@ 38.02 per 100 lbs.		530 lbs.		201.50
Q-Broxin	@ 34.80 " " "		300 lbs.		104.40
CMC	@ 54.45 " 50 "		100 lbs.		108.90
Con det	@ 4.25 gal.		30 gals.		127.50
					$ 43181.81

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

August 1, 1962

MEMORANDUM TO KENYON RICHARD

SACATON - TIME DISTRIBUTION

The following comments pertain to recent Boyles Bros. time distribution on the Sacaton drilling project.

During May, June and up to July 18 of all shifts accounted for, operating time has averaged 85% (by operating time, I mean drilling, reaming, casing, cementing, etc.). Repairs have amounted to 10% of the remaining 15% non-operating time. This time distribution does not account for those periods when drills were not operating due to lack of drillers or when they were removed to Phoenix for major repairs. Nor does it include time lost due to interruption of drilling, such as caving in the hole which then requires a good deal of time to wash out upon resuming operations.

It is difficult to estimate the total time lost because of repairs, as just outlined, but I would venture that it approximates 25% of all time available for work.

JOHN E. KINNISON

JEK/kw
cc: JHCourtright
JWojcik

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K. R.
JUN 14 1962

K. R. S.
JUN 14 1962

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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-36	Rotary	0	770	770	2.60	2002.00
	Mud time			6 hrs.	10.60	63.60
	Materials used (Drill mud)			12 sacks	4.50	54.00
Hole # S-37	Rotary	0	580	580	2.60	1508.00
	Mud time			4 hrs.	10.60	42.40
	Materials used (Drill mud)			11 sacks	4.50	49.50
	Water truck rental			1 mo.	190.00 mo.	190.00
	Mileage driven			1414 miles	.12	169.68
						$33005.12

J. H. C.
JUN 15 1962

122
270 | 33000
27
600
600

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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-33	Rotary	0	1000	1000	2.60	2600.00
		1000	1500	500	3.60	1800.00
		1500	1726	226	4.60	1039.60
	Core time			15 hrs.	15.00	225.00
	Stand-by time			4.5 hrs.	10.60	47.70
	Core			10	7.00	70.00
	Mud time			20 hrs.	10.60	212.00
	Materials used (Drill mud)			47 sacks	4.50	211.50
Hole # S-34	Rotary	0	1000	1000	2.60	2600.00
		1000	1400	400	3.60	1440.00
	Stand-by time			3 hrs.	10.60	31.80
	Washing			14 hrs.	10.60	148.40
	Core time			25 hrs.	15.00	375.00
	Core			16.6 hrs.	7.00	116.20
	Mud time			20 hrs.	10.60	212.00
	Materials used (Drill mud)			54 sacks	4.50	243.00
Hole # S-35	Rotary	0	485	485	2.60	1261.00
	Casing time			3 hrs.	10.60	31.80
	Mud time			2 hrs.	10.60	21.20
	Materials used (Drill mud)			8 sacks	4.50	36.00

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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-31	Rotary	840	1000	160	2.60	416.00
		1000	1035	35	3.60	126.00
	Cored	1035	1044.2	9.2	7.00	64.40
		1044.2	1045.2	1	7.90	7.90
	Core time			21 hrs.	15.00	315.00
	Stand-by time			7 hrs.	10.60	74.20
	Mud time			8 hrs.	10.60	84.80
	Materials used (Drill mud)			13 sacks	4.50	58.50
Hole # S-32	Rotary	915	1000	85	2.60	221.00
		1000	1500	500	3.60	1800.00
		1500	1760	260	4.60	1196.00
	Stand-by time			15 hrs.	10.60	159.00
	Casing time			12	10.60	127.20
	Core time			38 hrs.	15.00	570.00
	Core			32.5	7.00	227.50
	Mud time			3 hrs.	10.60	31.80
	Materials used (Drill mud)			16 sacks	4.50	72.00

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HOLE NO.		FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-3	Casing time			37 hrs.	10.60	392.20
	Diesel fuel			220 gals.	.18.1	39.82
Hole # S-12	Reamed	120	570	450	2.90	1305.00
	Rotary	570	579	9	2.60	23.40
	Casing time			4.5 hrs.	10.60	47.70
	Mud time			3 hrs.	10.60	31.80
	Materials used (Drill mud)			8 sacks	4.50	36.00
Hole # S-29	Coring	1087	1305	218.4	7.90	1725.36
	Casing time			14 hrs.	10.60	148.40
	Mud time			10 hrs.	10.60	106.00
	Materials used (Drill mud)			19 sacks	4.50	85.50
	Diesel Fuel			110 gals.	.18.1	19.91
	Casing left in hole			1087 ft.	1.50	1630.50
Hole # S-30	Coring	603	1000	397	7.00	2779.00
		1000	1241.5	241.5	7.90	1907.85
	Casing time			2 hrs.	10.60	21.20
	Mud time			18 hrs.	10.60	190.80
	Materials used (Drill mud)			36 sacks	4.50	162.00

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Hole # S-12	580	1000	420	7.00	2940.00
	1000	1133	133	7.90	1050.70
Casing			579	1.50	868.50
Materials used (Drill mud)			52 sacks	4.50	234.00
(Cement)			3 sacks	4.50	13.50
Mud time			33 hrs.	5.30	174.90
Cement time			11 hrs.	10.60	116.60
Hole # S-32	1760	1795	35	8.90	311.50
Casing			1760	1.50	2640.00
Materials used (Cement)			2 sacks	4.50	9.00
(Drill mud)			9 sacks	4.50	40.50
Cement time			7 hrs.	10.60	74.20
Mud time			8 hrs.	5.30	42.40
Hole # S-33	1726	2000	274	4.60	1260.40
	2000	2055	55	5.60	308.00
	2060	2077	17	9.60	163.20
Casing			2050	1.05	2152.50
Casing time			9 hrs.	10.60	95.40
Cement time			10 hrs.	10.60	106.00
Mud time			1 hr.	5.30	5.30
Materials used (Drill mud)			6 sacks	4.50	27.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-33 cont.					
Materials used (Cement)			3 sacks	4.50	13.50
Rotary core			11.5	7.00	80.50
Rotary core time			15 hrs.	15.00	225.00
Washing hole			3.5 hrs.	10.60	37.10
Hole # S-35	485	500	15	6.30	94.50
	500	1000	500	7.00	3500.00
	1000	1188	188	7.90	1485.20
Casing			485	1.50	727.50
Mud time			27 hrs.	5.30	143.10
Materials used (Drill mud)			44 sacks	4.50	198.00
Hole # S-36	770	1000	230	2.60	598.00
	1000	1222	222	3.60	799.20
Casing			1222	1.05	1283.10
Rotary core			6	7.00	42.00
Rotary core time			5 hrs.	15.00	75.00
Cement time			38 hrs.	10.60	402.80
Mud time			21 hrs.	5.30	111.30
Materials used (Drill mud)			31 sacks	4.50	139.50
(Cement)			8 sacks	4.50	36.00
Casing time			6 hrs.	10.60	63.60

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
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SHAFT SINKING
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MINE PLANT DESIGN
AND FABRICATION

Boyles Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS

General Offices and Plant

1624 Pioneer Road P. O. Box 58 HUnter 7-7595

SALT LAKE CITY 10, UTAH

BRANCH OFFICES
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ST. LOUIS

INVOICE DATE: June 30, 1962
ORDER NUMBER:
INVOICE NUMBER:
CONTRACT: 6-255
TERMS:
LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-36 cont.					
Cored	1224	1346	122	7.90	963.80
Hole # S-37	580	1000	420	2.60	1092.00
	1000	1451	451	3.60	1623.60
Casing			1451	1.05	1523.55
Casing time			9.5	10.60	100.70
Rotary core			19.7	7.00	137.90
Core time			21.5	15.00	322.50
Mud time			12.5	5.30	66.25
Materials used (Drill mud)			15 sacks	4.50	67.50
(Cement)			2 sacks	4.50	9.00
Washing and standby time			6 hrs.	10.60	63.60
Cement time			1 hr.	10.60	10.60
Hole # S-38	0	301	301	2.60	782.60
Casing time			2 hrs.	10.60	21.20
Washing hole			1 hr.	10.60	10.60
Standby time			1 hr.	10.60	10.60
Mud time			3 hrs.	5.30	15.90
Materials used (Drill mud)			6 sacks	4.50	27.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-39	0	1000	1000	2.60	2600.00
	1000	1500	500	3.60	1800.00
	1500	1830	330	4.60	1518.00
Rotary core			8.6	7.00	60.20
Core time			14 hrs.	15.00	210.00
Mud time			13.5 hrs.	5.30	71.55
Materials Used (Drill mud)			34 sacks	4.50	153.00
Hole # S-40	0	517.6	517.6	2.60	1345.76
Rotary core			9	7.00	63.00
Core time			6.5 hrs.	15.00	97.50
Standby time			5.5 hrs.	10.60	58.30
Mud time			4 hrs.	5.30	21.20
Materials used (Drill mud)			7 sacks	4.50	31.50
Hole # S-41	0	1000	1000	2.60	2600.00
	1000	1266	266	3.60	957.60
Rotary core time			19 hrs.	15.00	285.00
Core			17.5	7.00	122.50
Standby time			1 hr.	10.60	10.60
Mud time			10.5 hrs.	5.30	55.65
Materials used (Drill mud)			28 sacks	4.50	126.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # S-42	0	1000	1000	2.60	2600.00
	1000	1397	397	3.60	1429.20
Mud time			13 hrs.	5.30	68.90
Materials used (Drill mud)			30 sacks	4.50	135.00
Hole # S-43	0	278	278	2.60	722.80
Core time			2 hrs.	15.00	30.00
Core			5	7.00	35.00
Standby time			.5	10.60	5.30
Mud time			2 hrs.	5.30	10.60
Materials used (Drill mud)			5 sacks	4.50	22.50
Hole # S-44	0	760	760	2.60	1976.00
Mud time			6 hrs.	5.30	31.80
Materials used (Drill mud)			20 sacks	4.50	90.00
Hole # S-45	0	320	320	2.60	832.00
Mud time			3 hrs.	5.30	15.90
Water truck rental			1 mo.	190.00	190.00
Mileage driven			3472 miles	.12	416.64
Road maintenance			48 hrs.	2.00	96.00
Materials used (Drill mud)			5 sacks	4.50	22.50

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American Smelting & Refining Co.
813 Valley National Bank Bldg.
Tucson, Arizona

HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Materials used (Con det) 5 gal. cans			10	21.25	212.50
(QBroxin) 50#			12 sacks	17.40	208.80
(Quebracho) 100#			6 sacks	38.02	228.12
(Caustic soda)			4 cans	8.72	34.88
(CMC)			5 sacks	54.45	272.25
					$51411.45

C • O • P • Y

June 1, 1962

T-3607

The Galigher Company
Att: D. A. Fowler, Sales Engineer
P. O. Box 209
Salt Lake City 10, Utah

American Smelting and Refining Company
c/o Valley Pump & Machine Works
701 W. 2nd Street
Casa Grande, Arizona

Two weeks

Net 30 days

Salt Lake City, Utah

Motor Freight or Railway Express

1	only	1-1/2 x 2 Model 1.5VR100 Horizontal VACSEAL Pump with cast iron casings, 55F replaceable liners, 55F covered impeller, 8-1/2" std. diameter, st. stl. shaft sleeve	1	$500.00
1	"	V-Belt Drive No. 3871-5.8-13.6	2	33.00
1	"	Belt guard, sheet metal, Galigher standard	3	30.00
1	"	Engine , Wisconsin Model BKN rope start, 6 HP at 3200 RPM	4	145.00
1	"	Base for mounting pump and motor	5	70.00

Above in accordance with your Quotation No. 37482 dated May 28, 1962.

CONFIRMING telephone order of our Mr. Courtright, 6/1/62.

Orig: Galigher
cc: JHCourtright
KvdSteinen
File

Original Signed By
K. Richard

Chief Geologist

C O P Y

June 1, 1962

T-3606

Equipment Engineers
737 Loma Verde Avenue
Palo Alto, California

American Smelting and Refining Company
c/o Valley Pump & Machine Works
701 W. 2nd Street
Casa Grande, Arizona

Two weeks

Palo Alto, Calif. Net 10th prox.

Palo Alto, Calif.

Motor Freight or Railway Express

1	only	Krebs Cyclone, Model No. D-6B, 6" diam. 12° sides, 11 - 12 lbs pressure, 80 g.p.m.	1	$485.00

Above per Mr. Green's quotation May 15, 1962 to our Mr. Courtright.

Orig: Equipment Engineers
cc: JHCourtright
KvdSteinen
File

Original Signed By
K. Richard

Chief Geologist

J.H.C.
JUN 1 1962

THE GALIGHER COMPANY

ESTABLISHED 1901

CABLE ADDRESS
GALSAL

545-585 WEST EIGHTH SOUTH STREET
P. O. BOX 209
SALT LAKE CITY 10, UTAH

TELEPHONE
ELGIN 9-8731
AREA CODE 801

— QUOTATION —

DATE May 28, 1962

YOUR INQUIRY

QUOTATION NO. 37482

IN REPLY PLEASE REFER TO QUOTATION NUMBER

American Smelting & Refining Co.
183 Valley National Bank Bldg.
Tucson, Arizona

Attention Mr. Cartwright

In accordance with our recent telephone conversation, we are submitting the following quotation:

DUTY: 100 GPM of slurry with an occasional particle as large as 1/4" at 40 ft. TDH, when operating at 1360 RPM, requiring 6 BHP at 1.3 specific gravity. Operating temperature is assumed to be ambient.

1 only 1½ x 2 Model 1.5VR100 Horizontal VACSEAL Pump with cast iron casings, 55F replaceable liners, 55F covered impeller, 8½" std. diameter, st. stl. shaft sleeve.

	PRICE	WEIGHT
Pump	$500.00	300#
V-Belt Drive No. 3B71-5.8-13.6	$ 33.00	40#
Belt guard, sheet metal, Galigher standard	$ 30.00	15#
Engine, Wisconsin Model BKN rope start, 6 HP at 3200 RPM	$145.00	150#
Base for mounting pump and motor	$ 70.00	150#
TOTAL F.O.B. Salt Lake City, Utah	$778.00	655#

DESCRIPTIVE LITERATURE: Bulletin VP-061.

TERMS: Net 30 days.

DELIVERY: Based on present production schedules, shipment can be made in 3 to 4 weeks from receipt of your order or approved drawings if required. If this does not comply with your requirements, we shall be glad to review. Acknowledgements of orders contain current delivery information.

Your interest in our company is appreciated. In the event of a purchase order or future correspondence, please reference our Quotation No. 37482.

THE GALIGHER COMPANY

Enc: Bulletin VP-061

D A Fowler
Sales Engineer
D. A. Fowler/db

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K. M. S.
MAY 16 1962

INVOICE DATE: April 30, 1962
ORDER NUMBER:
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CONTRACT: 6-255
TERMS:
LOCATION: Casa Grande, Arizona

American Smelting & Refining Co.
813 Valley National Bank Bldg.
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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # 30	0	223	223	2.60	579.80
	223	500	277	6.30	1745.10
	500	603	103	7.00	721.00
	Casing time		2 hrs.	10.60	21.20
	Mud time		9.5 hrs.	10.60	100.70
	Materials used (Drill mud)		26 sacks	4.50	117.00
Hole # 31	0	840	840	2.60	2184.00
	Core run		5.5	7.00	38.50
	Core run time		2 hrs.	15.00	30.00
	Mud time		10 hrs.	10.60	106.00
	Materials used (Drill mud)		12 sacks	4.50	54.00
Hole # 32	0	915.4	915.4	2.60	2380.04
	Mud time		13 hrs.	10.60	137.80
	Materials used (Drill mud)		27 sacks	4.50	121.50
	Water truck rental		190.00 mo.	190.00	190.00
	Mileage driven		854 miles	.12	102.48
					$ 23582.01

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Hole # 17		715	828	113	7.00	791.00
	Casing time			? 52 hrs.	10.60	551.20
	Casing 3" pipe			694 ft.	1.50	1041.00
	Mud time			6 hrs.	10.60	63.60
	Materials used (Drill mud)			12 sacks	4.50	54.00
Hole # 18	Casing time			71 hrs.	10.60	752.60
	Casing NX			580 ft.	2.92	1693.60
	Diesel Oil			165 gals.	.18	29.70
Hole # 26		349	434.5	85.5	6.30	538.65
	Casing time			3 hrs.	10.60	31.80
	Mud time			1 hr.	10.60	10.60
	Materials used (Drill mud)			2 sacks	4.50	9.00
Hole # 29		194	1000	806	2.60	2095.60
		1000	1087	87	3.60	313.20
	Core runs			21.4	7.00	149.80
	Core time			15.5	15.00	232.50
	Stand-by			2 hrs.	10.60	21.20
	Mud time			12.5 hrs.	10.60	132.50
	Materials used (Drill mud)			18 sacks	4.50	81.00

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HOLE NO.	FROM	TO	FOOTAGE	RATE	TOTAL
Hole # 3	1572	1852.4	280.4	4.60	1289.84
	1852.4	1863	10.6	7.00	74.20
	1863	2014	151	7.90	1192.90
	Core run		22 hrs.	15.00	330.00
	Casing time		110 hrs.	10.60	1166.00
	Mud time		14 hrs.	10.60	148.40
	Stand-by time		2 hrs.	10.60	21.20
	Materials used (Drill mud)		28 sacks	4.50	126.00
Hole # 5	1175	1292	117	3.60	421.20
	1292	1321	29	7.90	229.10
	Mud time		9 hrs.	10.60	95.40
	Stand-by time		4 hrs.	10.60	42.40
	Materials used (Drill mud)		18 sacks	4.50	81.00
Hole # 15	400	740	340	2.60	844.00
	Core run 740	752	12	7.00	84.00
	Core run time		10.5	15.00	157.50
	Mud time		2 hrs.	10.60	21.20
	Materials used (Drill mud)		8 sacks	4.50	36.00