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0069

Volume 5 ; Book 4

TOMBSTONE

Mining District

Cochise County

ARIZONA

Charleston Drilling - #1
DDH's #1 - #3 (1967 to 1968)

Southwestern Exploration Associates

Mineral Exploration & Natural Resource Consultants

Tucson, Arizona

Charleston Mine Drilling

V5 B1
V5 B5
Box #11

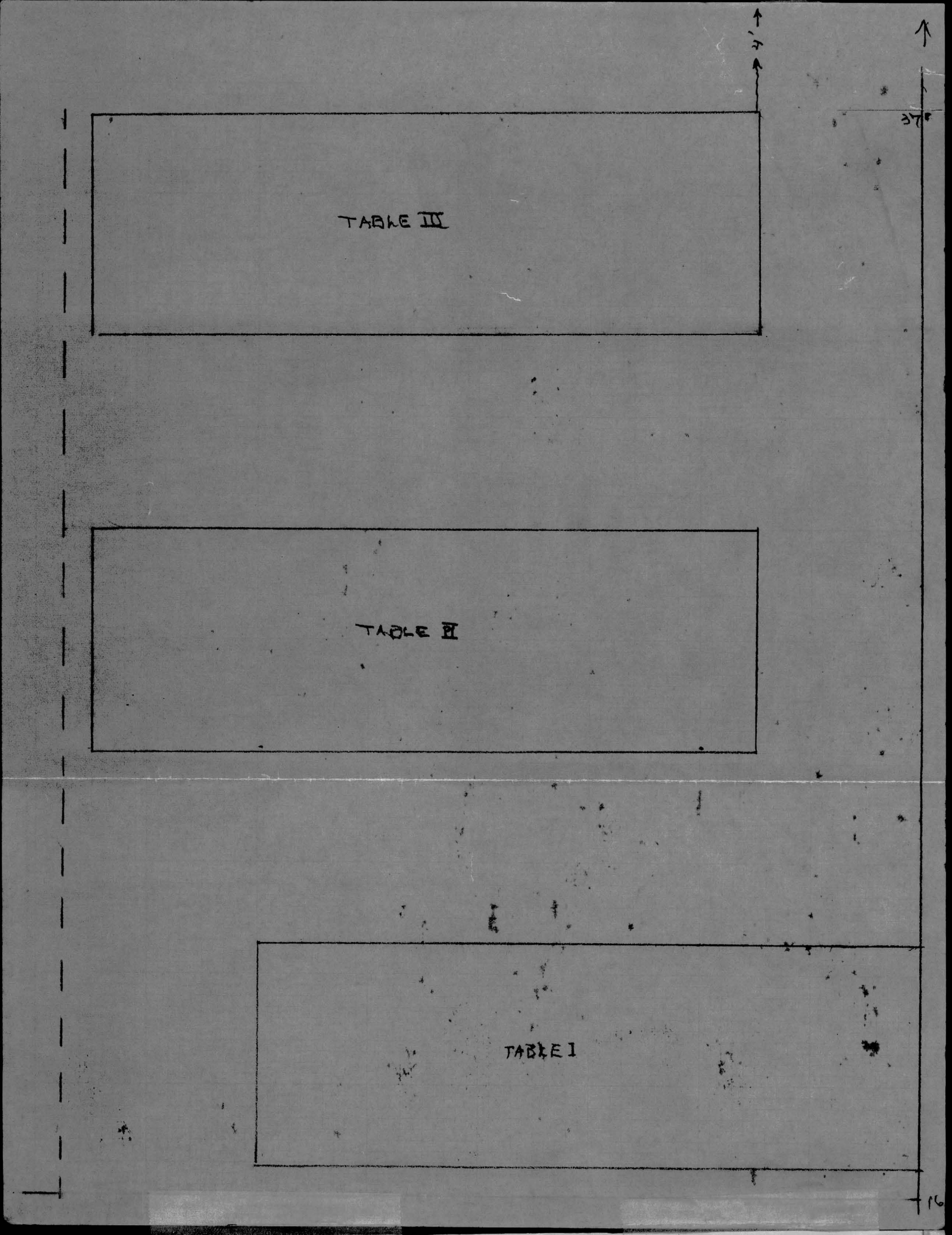


TABLE III
TABLE II
TABLE I
37'
16'

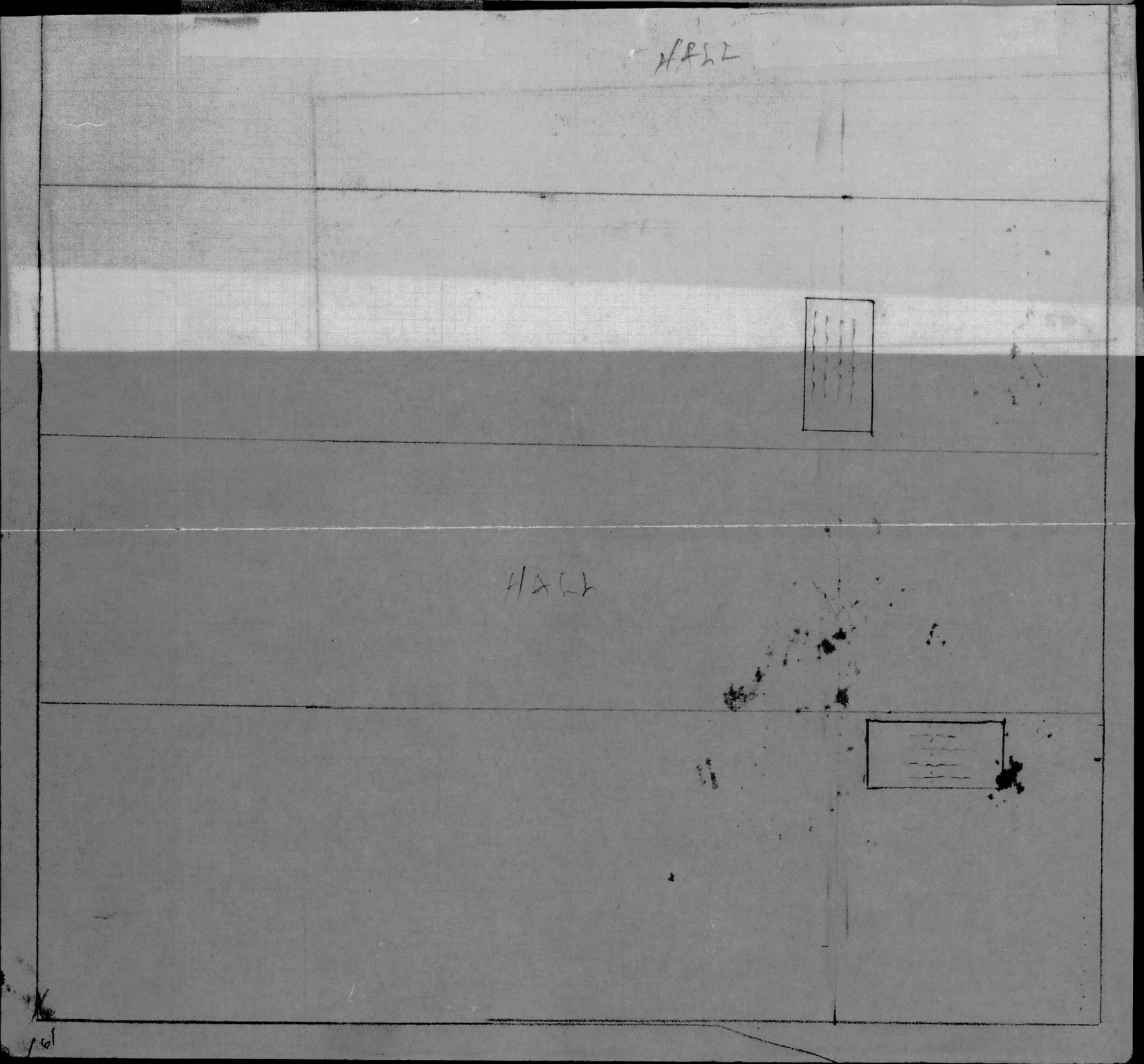

HALL
HALL

TABLE II

TABLE I

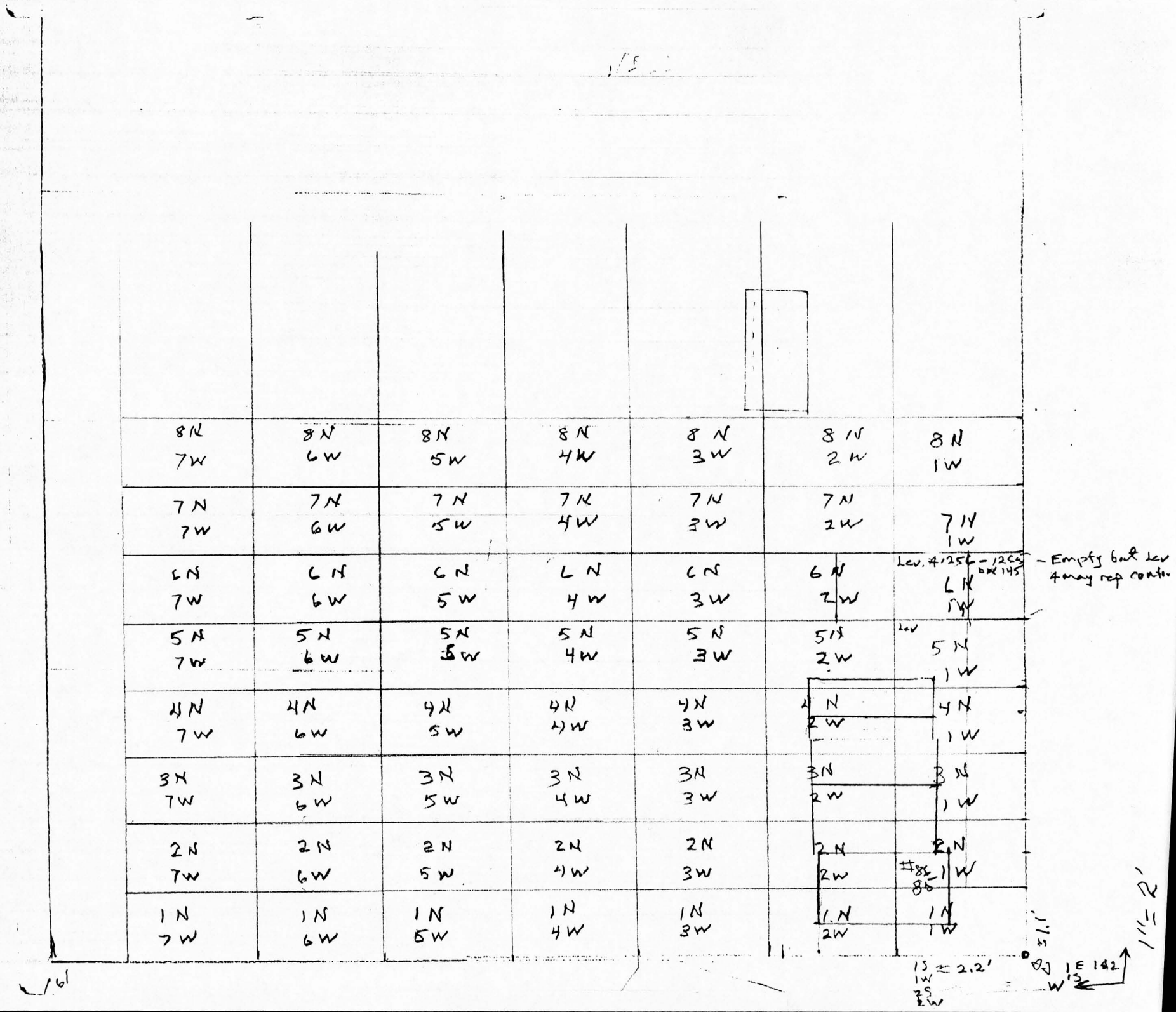
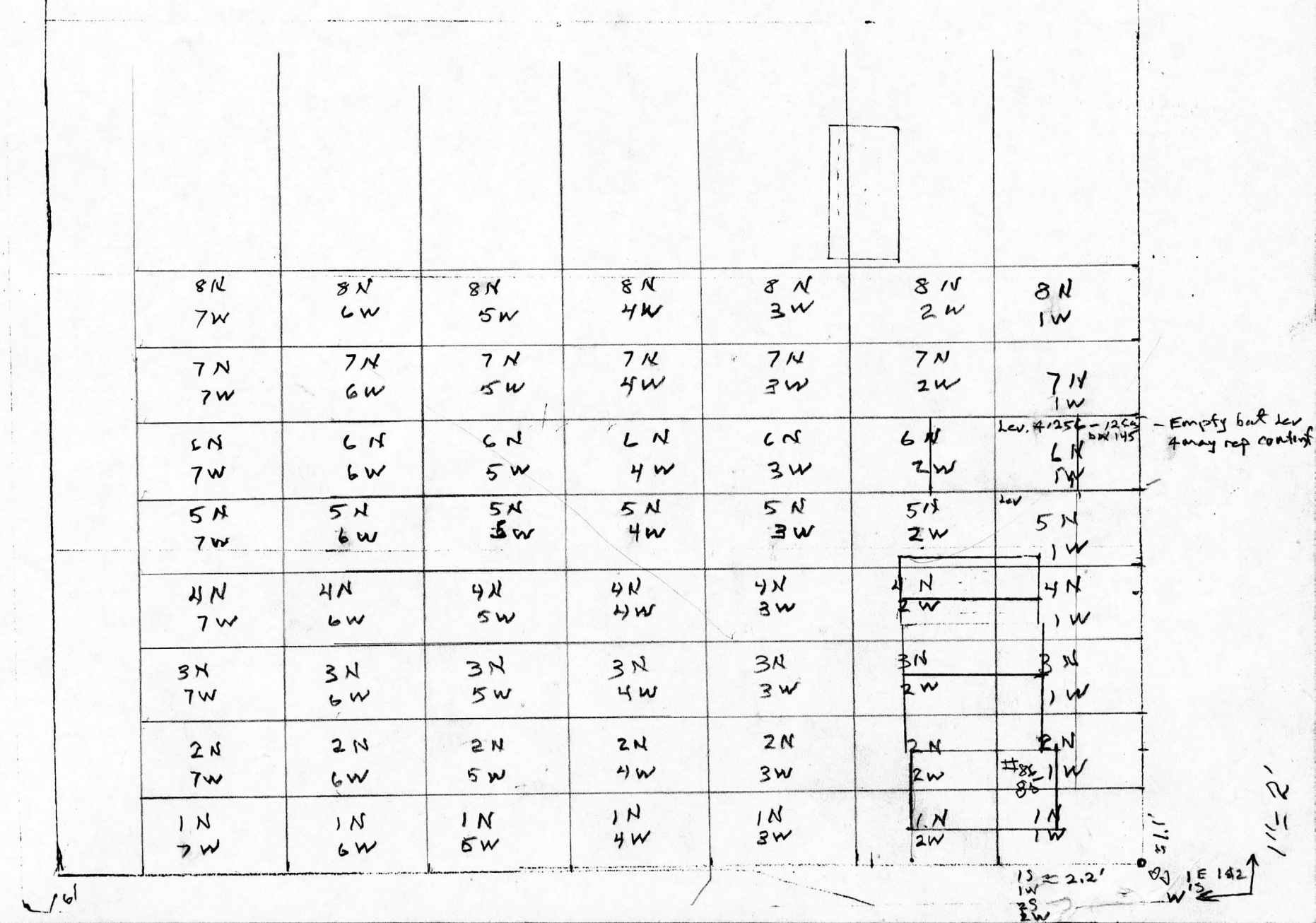
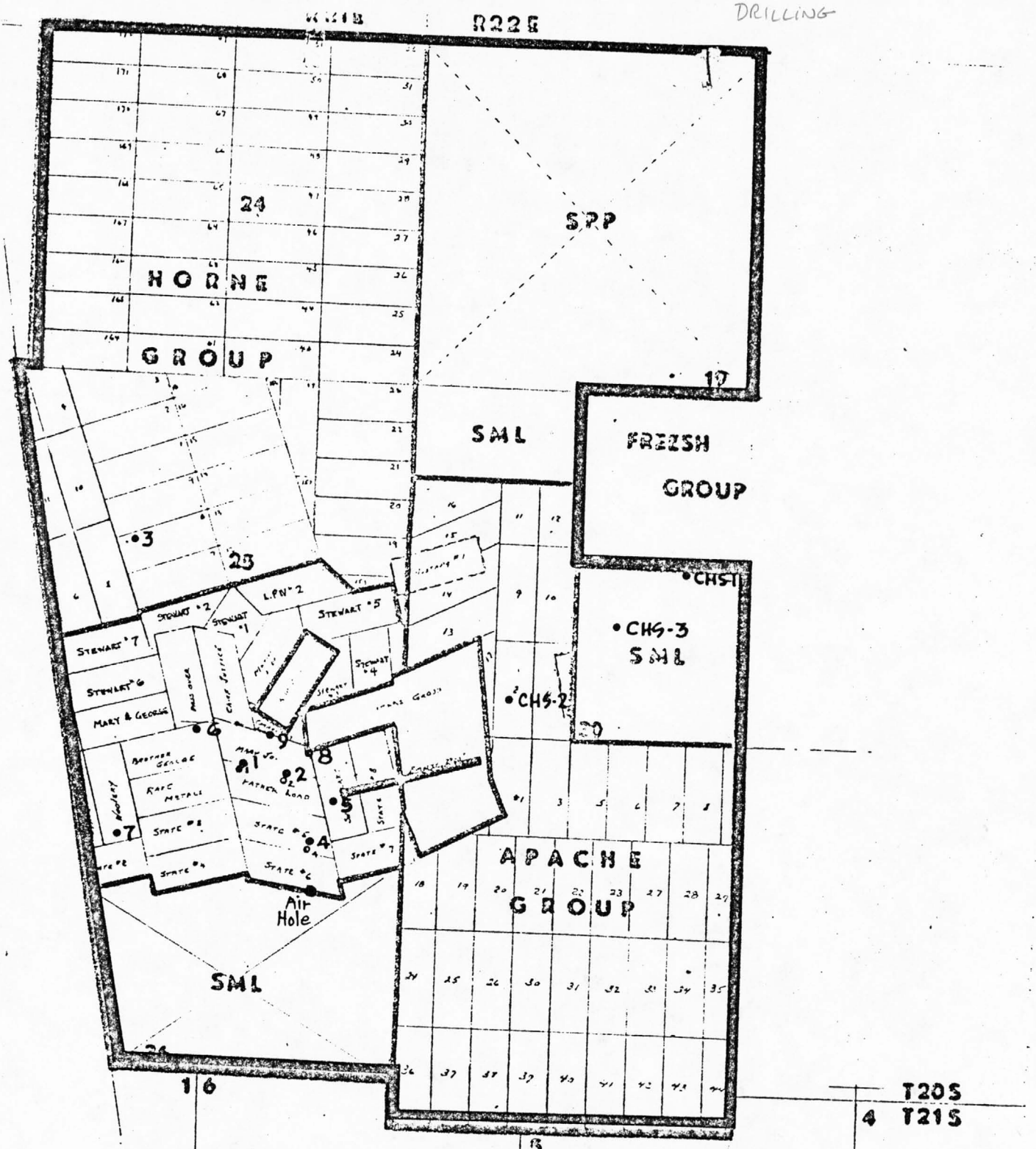


TABLE II

TABLE I



DRILLING



DEPTH OF DIAMOND DRILL HOLES

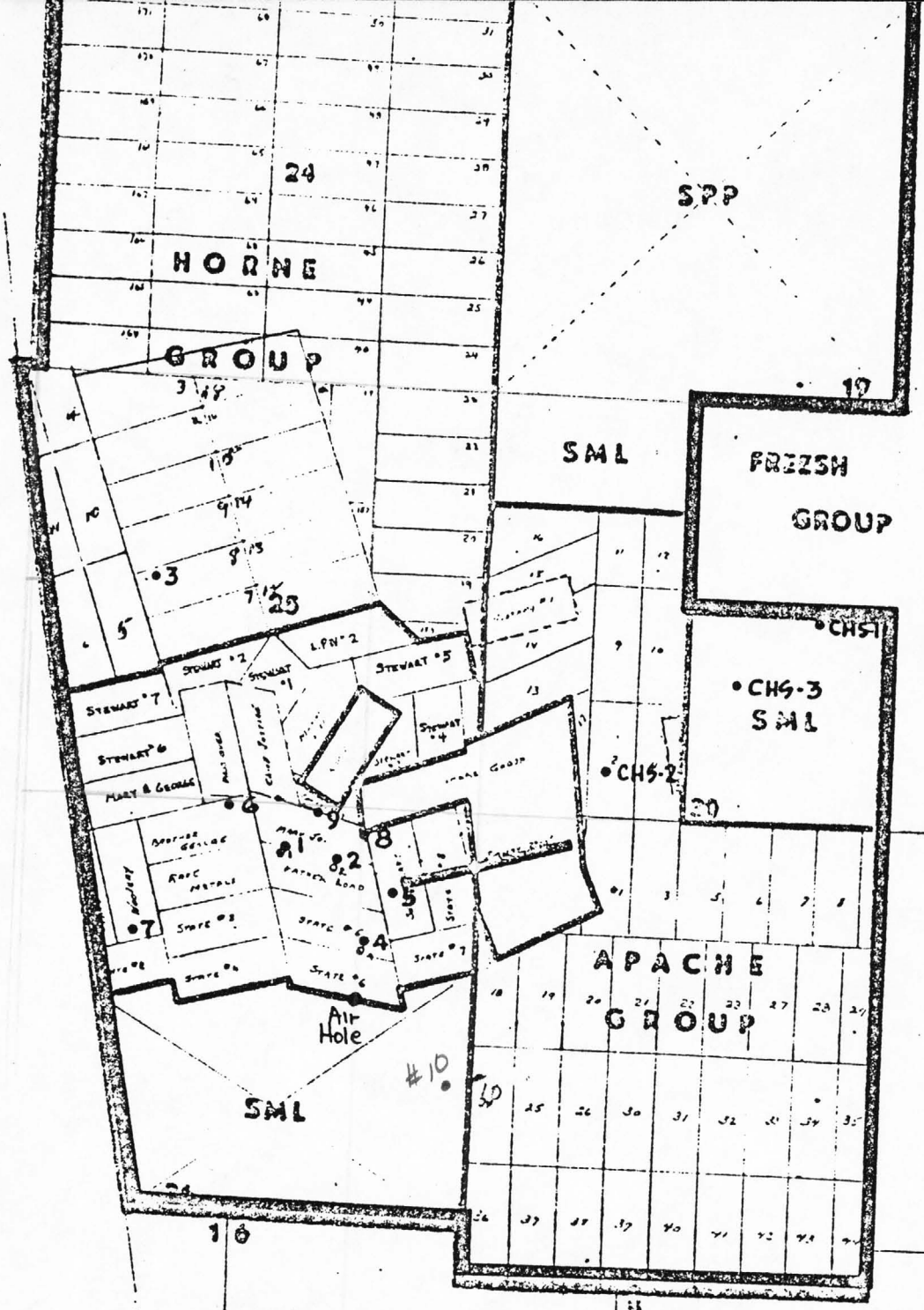
• 1	2107'
• 2	3212'
• 3	2617'
• 4	3310'
• 5	2528'
• 6	237'
• 7	3595'
• 8	872'
• 9	940'

• CHS-1	4002'
• CHS-2	5020'
• CHS-3	3005'
Air Hole	1405' (10/78)

DRILL SITE OVER-LAY

CHARLESTON MINE

18 AUG 75



DEPTH OF DIAMOND DRILL HOLES			
• 1	2107'	• CHS-1	4002'
• 2	3212'	• CHS-2	5020'
• 3	2617'	• CHS-3	3005'
• 4	3310'	Air Hole	14~~05~~81' (10/78)
• 5	2928'	• #10	~~2260~~ 8-32-93
• 6	237' =1407?		
• 7	3595'		
• 8	872'		
• 9	940'		

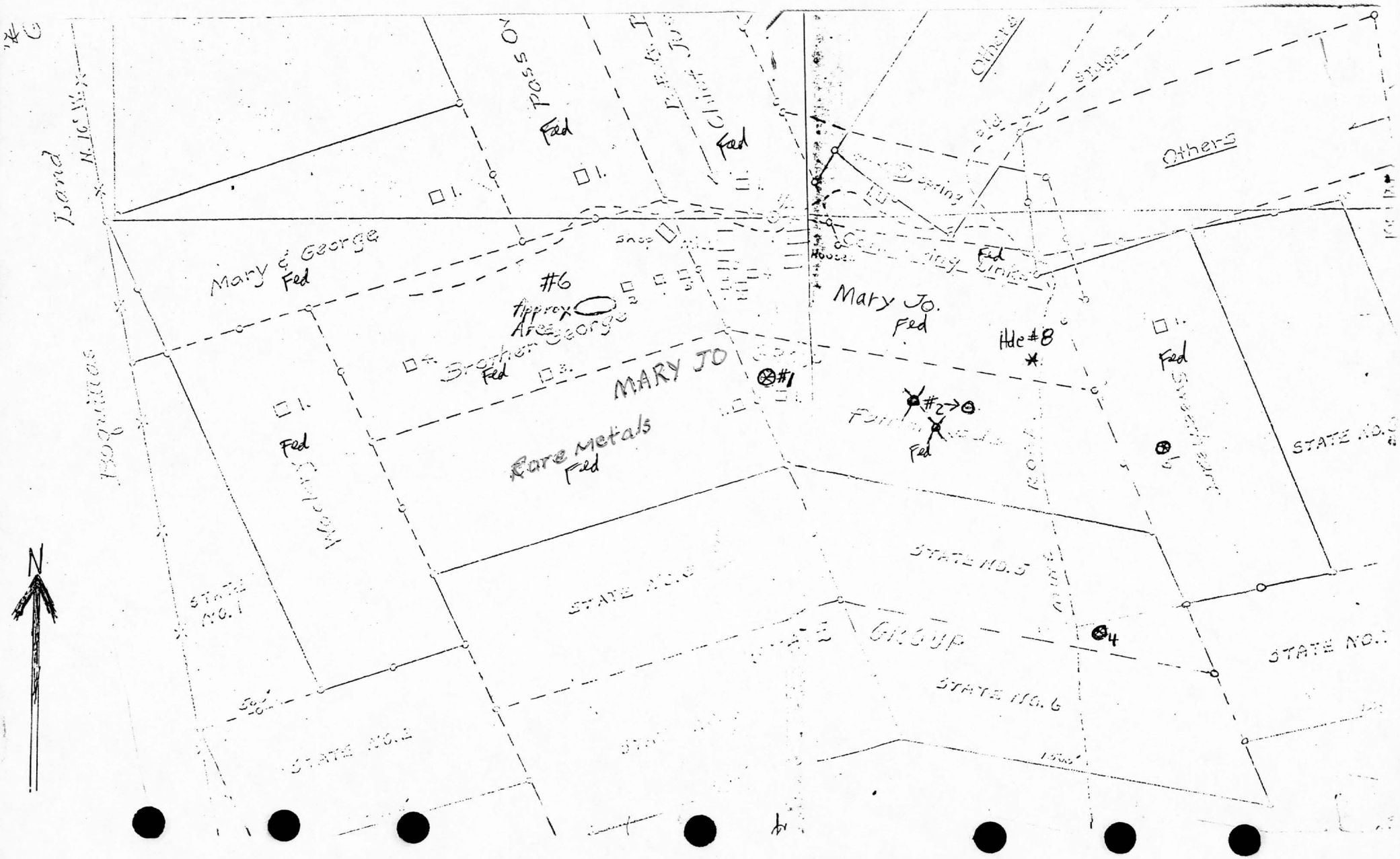
DRILL SITE OVER-LAY

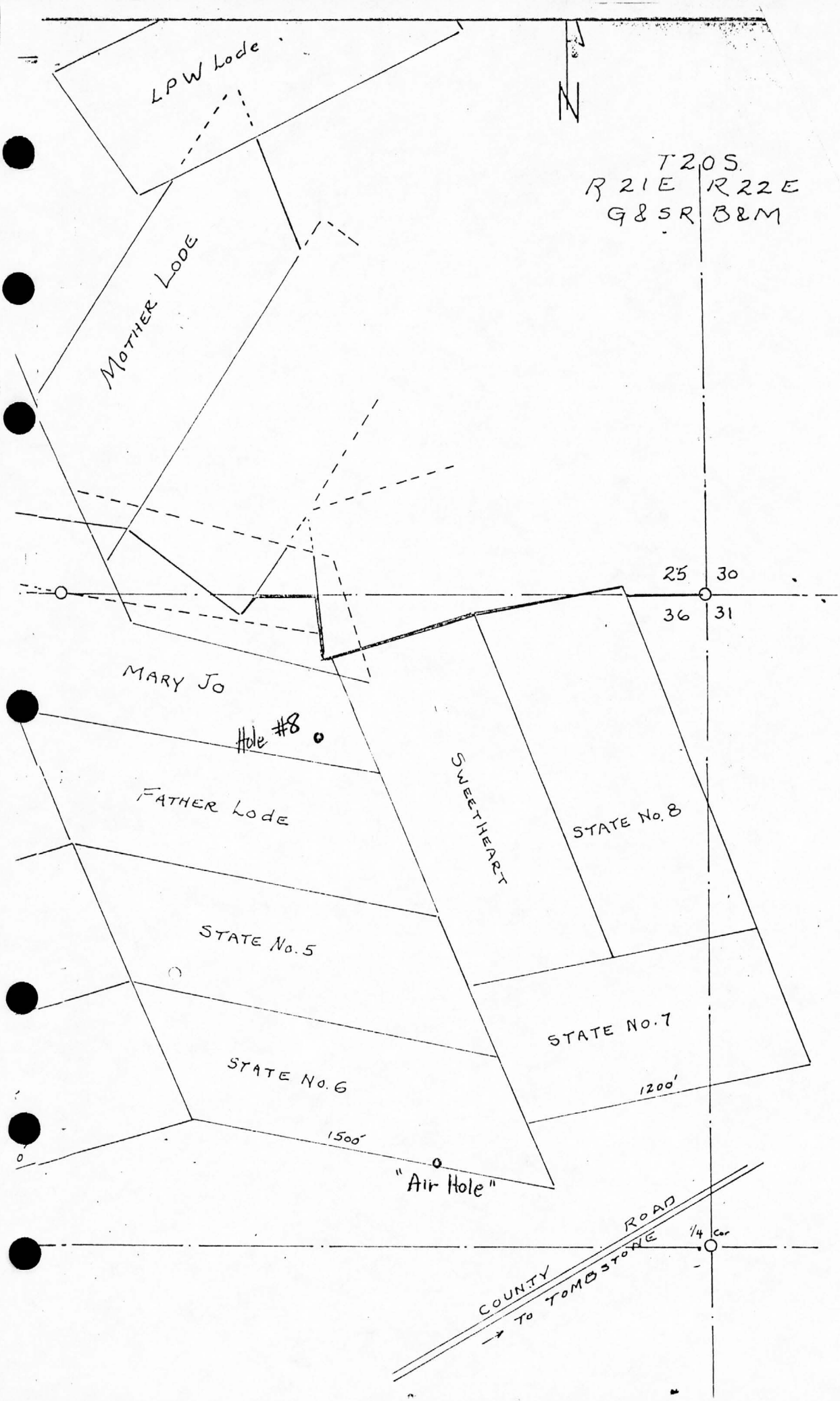
CHARLESTON MINE

18 AUG 75

DRILL HOLES OF THE CHARLESTON MINE AREA

1	Mary Jo	2107 ft.	0-14	core size
2	Father Lode	3212	0-10	core size
3	Horne #8	2617		
4	State #5	2528		
5	Sweetheart	2518	0-12	core size
A-5	State #6, S½	1481	NXF	core
6	Brother Geo.	237		
7	Wooley	3595		
8	Mary Jo	872		
9	Mary Jo	940		
10	Apache 24	2260	NX	
CHS 1		3922	NC	
CHS 2		5028	NC,NX,BX,AX	
CHS 3		3003	NC,NX	


N
Land
Mary & George
Fed
Possum
Fed
Fed
Others
Others
Stage
Spring
Mary Jo.
Fed
Hde #8
#6
Approx Area
Brother George
Fed
MARY JO
#1
#2
Fed
Rare Metals
Fed
Fed
Fed
STATE NO.1
STATE NO.2
STATE NO.3
STATE NO.4
STATE NO.5
STATE NO.6
GROUP
STATE NO.


LPW Lode
N
T20S.
R21E R22E
G&SR B&M
MOTHER LODE
25 30
36 31
MARY JO
Hole #8
FATHER LODE
SWEETHEART
STATE No. 8
STATE No. 5
STATE No. 7
STATE No. 6
1200'
1500'
0
"Air Hole"
1/4 Cor
COUNTY ROAD
→ TO TOMBSTONE

D.D. #1 LOGS

ASARCO

DEC 8 1978

JAMES STEWART COMPANY
PHOENIX, ARIZONA

Exploration Department
Southwestern United States Division
R. B. Crist
Property Manager

December 6, 1978

J. Stewart Company
3033 North Central Avenue
Phoenix, Arizona 85012

Attention: Mr. Roger Horne

Charleston Mine
Cochise County, Arizona

Dear Roger:

Sorry to be so late with this. Burt Devere, the Asarco geologist who handles the Tombstone area, gave me the enclosed log regarding your Charleston property.

In October, he logged the core from Drill Holes 1 and 2.

The alteration was weak and the mineralization decreased with depth. None of the core was assayed due to the lack of mineralization.

We always appreciate the opportunity to look at rocks. In this instance the core was not split for assay work, however, I did promise assays and if you ask again, I will get some for you.

Very sincerely,

R. B. Crist

R. B. Crist.

RBC:jlh
encls BJD log

ASARCO Incorporated P. O. Box 5747 Tucson, Az 85703
1150 North 7th Avenue (602) 792-3010

Charleston Pb Mine
Cochise County, Arizona

Hole #1

From	To	
0	2103	Drilled previously.
2103	2252	Cretaceous Bisbee Group, <½% py, rare Tr sph mineral.
2252	2514	Cretaceous Bisbee Group, barren to rare Tr py mineral.
2514	2640	Cretaceous Bisbee Group, weak py <1% mineral.
2640	2764	Cretaceous Bisbee Group, barren, no mineral.

Bottom 2764 feet.

Hole #5-A

0	631	Drilled previously.
631	733	Tertiary-Cretaceous Bronco Volcanics, ±2% diss py mineral.
733	785	Tertiary-Cretaceous Bronco Volcanics, barren, no mineral.
785	824	Tertiary-Cretaceous Bronco Volcanics, ±1% diss py mineral.
824	984	Tertiary-Cretaceous Bronco Volcanics, barren, no mineral.
984	1184	Cretaceous Bisbee Group, barren, no mineral.
1184	1405	Cretaceous Bisbee Group, rare trace diss py, mineral.

Bottom 1405 feet.

BJD:jlh

py = pyrite
Tr = trace
sph = sphalerite
diss = disseminated

AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG

PROPERTY Charleston Pb Mine
MINING DISTRICT Tombstone
COUNTY, STATE Cochise, Arizona

DRILL HOLE 1
FINAL DEPTH 2764 ft.

PAGE 1 of 2
DATE 10-18-78
LOG BY BJD

DEPTH FROM	DEPTH TO	ROCK	MINERALIZATION	ALTERATION	REMARKS
0	2103	?	?	?	Drilled previously
2103	2115	congl.	traces of py in occ. quartzite fragments, one 1/16" wide cpy vn in ls fragment	None	Cretaceous Bisbee Formation
2115	2147	sandstone	fn gr diss pyrr < 1/2%, from 2144 2147 rare trace of fn gr diss py, pyrr, cpy & sph?	moderate silicification	Laminated, bedding 45° to core axis Cretaceous Bisbee Formation, rock poorly broken
2147	2159	siltstone	fn gr diss py on rare fractures occ. tr sph on fractures, total sulfide <1%	weak bleaching and silicification	lower contact 45° to core axis, rock poorly broken, Cretaceous Bisbee Formation
2159	2175	sandstone	fn gr py on fractures and occ. diss in rock, rare speck of cpy, some honeycolored sph on fractures also some blackjack, total sulfide ±1% py : sph 10:1	moderate silicification, some chlorite on fractures	Laminated; Cretaceous Bisbee Formation
2175	2176.5	Fault	2% xlyn py diss in gouge	—	—
2176.5	2196.5	sandstone	occ. rare trace of fn gr diss py, cpy and very rare speck of galena total sulfide content trace; @ 2195 1.5' of massive xlyn py with some Rhodochrosite	moderate silicification, occ. light green sericite on fractures	Rock poorly broken - Cretaceous Bisbee Fm
2196.5	2218	siltstone	fn gr diss py & rare trace sph total sulfide 1%, py : sph 5:1	moderately silicified - weakly bleached	Beds 45° to core axis, Rock more massive, mottled pink and green - Cretaceous Bisbee Fm
2218	2252	sandstone	< 1/2% fn gr diss py, occ vuggy calcite veinlets	Rare 1/8"-1/4" wide fractures with chly alt. & trace of sericite?	Massive, gray, Cretaceous Bisbee Fm
2252	2263	siltstone	Barren	weak silicification	Laminated, beds 45° to core axis, Kb
2263	2266	Fault	Barren	—	—
2266	2281	sandstone	rare trace of fn gr diss py & cpy	—	Badly broken - Kb
2281	2301	Andesite	fn gr diss py ± 2%	Epidote clots, feldspar clouded	Tertiary andesite dike?
2301	2326.5	mudstone	Barren	calcite and occ epidote along fractures	Red mudstone - Kb

AMERICAN SMELTING & REFINING CO.
GEOLOGIC LOG

PROPERTY Charleston Pb mine
MINING DISTRICT Tombstone
COUNTY, STATE Cochise, Arizona

DRILL HOLE 1
FINAL DEPTH 2764 ft

PAGE 2 of 2
DATE 10-18-78
LOG BY BJD

DEPTH FROM	DEPTH TO	ROCK	MINERALIZATION	ALTERATION	REMARKS
2326.5	2329	Sandstone	Barren	moderately well silicified	massive, upper contact gradational, Kb
2329	2334.5	mudstone	Barren	None	Red mudstone - Kb
2334.5	2382	Sandstone	fn gr diss hematite	None	Massive, gray fn gr, Kb
2382	2482.5	mudstone	Barren	None	massive, below 2427' rock become mottled with white calcite clots - Kb
2482.5	2508	mudstone	very fn gr diss specks of py <1/2%	weak bleaching, chlorite and Epidote filled fractures, moderate silicification	appears to be same rock as interval above moderately well broken - Kb
2508	2514	mudstone	Barren	None	massive, Red mudstone - Kb
2514	2573	mudstone	very fn gr diss speck of py <1%. more py diss on fractures	weak bleaching, moderate silicification, some chlorite on fractures	moderately well broken, alternating bands of sandstone, fn gr, and mudstone - Kb.
2573	2577	sandstone	fn gr xlyn py diss throughout <1/2%	moderate silicification	fn gr SS, rock somewhat arkosic - Kb
2577	2639.5	mudstone	very fn gr diss specks of py throughout rock and on fractures <1% total sulfide	weak silicification, some vuggy calcite filled veinlets, chlorite and epidote in some fractures	appears very similar to interval 2514-2573; beds dip 35° to core axis
2639.5	2764	mudstone	Barren	traces of epidote along occ fractures	Red mudstone, massive - Kb.
			Bottom 2764 feet		

P.D. WALK
ER? 3

GENERALIZED DESCRIPTIVE LOG

Charleston Lead Mine

James Stewart Construction Company

HORNE #1 DRILL HOLE

0-14 No core

14-148 Fragmental meta-andesite tuff. Hematite (earthy) clay, chlorite. Coarsely fragmental to 63, then tuff to 74, then coarsely fragmental to 148.

148-152 Fault zone, gouge and breccia

152-153 Fragmental tuff

153-155 Fault zone, gouge and breccia

155-180 Weathered, bleached, clay-altered tuff.

180-223 Bleached white arg. alt. medium, fragmental tuff, heavily sericitized.

223-227 Gouge - fault zone

227-243 White arg. alt. tuff - sericitized.

243-244 Gouge - fault zone

244-254 Whitearg.. alt. tuff - sericitized

254-257 Gouge - fault zone

257-303^{6} Graywacke, silicified, mosaic appearance, reddish. (Might be a silicified tu: Scattered pyrite cubes. Grades to fine gray siltstone. Pyrite on seams <1%.

303^{6}-328^{5} Gouge and breccia, heavily sericitized (313).

328^{5}-340 Fine siltstone, thoroughly bleached, pyritized (2-3% py), sericitized, to 340.

340-342-1/2 Gouge

342-1/2-400 Fine light grey to white siltstone, considerable fine qtz., sericitized. At 366, 1/4" sphalerite - chalcopyrite veinlet. Pyrite 1-3%, locally up to 10%. Rock thoroughly sericitized adjacent to veinlet. Locally abundant (up to 5%) chalcopyrite. (See specimen at 371. (Nx core to 400)

400-474 Fine granular siltstone, grey, 2-6% pyrite, very little cpy (<0.2%) At 430, 1/4" vein calcite, siderite, galena, chalcopyrite. At 440, 1" vein same.

474-476 Fault,gouge

476-525 Fine granular siltstone, pyritized (2-6% py), fragmental from 477-1/2-479, then finer grained, light grey. Two or three 1/8" vlts 482-485, sphalerite, galena, cpy. Pyrite up to 10% locally. 6" epidote zone with fine galena, sphalerite, pyrite, tetrahedrite?, 518. Several small (1/16"-1/8") vlts sphalerite. Galena with epidote to 525. Pyrite 2-6%, other sulfides <0.1% in interval.

525-573 Conglomerate, 531-1/2-536, py - 2-6%, then fine light gray siltstone, 2-6% py calcite streaks 570-1/2-573. Sericitized.

573-574 Fault, gouge

574-582 Fine gray siltstone, 2-6% pyrite. Sericitized.

582-584 Fault, gouge

584-586 Greenish gray fine siltstone, 1-2% py, becomes fine quartzite at 586.

586-649 Fine quartzite, grades to 1mm qtz locally, vuggy after 630, some py in vugs and on seams, (< 2% py.)

649-665 Quartzite, 1mm, vuggy in part.

4

665-671 Fine grained impure qtz, locally with a streak or two of sphalerite, 1-2% py., <0.1% sph)

671-676^4 No core

676^4-705 Fine grained impure qtz, grades to 1mm at 679^5, vuggy, continues to 705

705-724 Qtz, 1 mm, but with pyrite on seams, bulk 5-8% py, to 724.

724-769 Bedding at 724, 75° to axis. Fine grained siltstone, light grey, 1-2% py. Becomes gray banded after 750, somewhat softer.

769-818 Fragmental (conglomerate) for about 2 feet, then splotchy, local development lime silicates. Gray siltstone with local fragmental horizon, emphasized by epidote splotches, locally fine quartzite for 5-6' intervals to 818.

818-824 At 818, bedding at 50° to axis. Fine banded greenish-grey siltstone (epidote and calcite)

824-824-1/2 Several 1/8" vlts sphalerite and galena.

824-1/2-860 Fine green-grey siltstone, splotchy with epidote, becoming drably uniform after 842-855, then splotchy.

860-886^4 Porphyry, first 18" qtz free. Altered, probably qtz monz.? Pyritized, argillic - sericite to fault at 886^4.

886^4-934 Brecciated (healed) siltstone to 892, then fine gray siltstone, becoming darker grey with depth. Some dark epidote?

934-971-1/2 Dark grey siltstone, mottled (fine mottling) to 955^5, then fine dark gray siltstone to 971-1/2.

971-1/2-974 24" carbonate vein (not calcite), ankerite or siderite)

974-1004.3 Dark grey massive siltstone grades into fine-grained arkose.

1004.3-1106 At 1056, bedding 55° to axis. Becomes somewhat darker after 1080.

1106-1162.3 Fine grained, nearly quartzite, grey, gradually becomes coarser (about 1mm) at 1117. Stays coarse to 1141, then grades into finer at 1153. Fine arkosic qtz. - medium gray.

1162.3-1178 Arkose, fine grained. Sericitized. Becomes fine grained at 1178.

1178-1248 Grades back into fine grained arkose after 1186. Two or three calcite bands 1207-1208. Mottled locally. 6" healed breccia at 1247-1/2, then porphyry.

1248-1261 Meta-andesite porphyry -

1261-1262 8" fault gouge.

1262-1320.5 Fine massive grey granular siltstone, mottled with epidote; locally impure quartzite (hard). Becomes darker grey after 1286 to purple, 1290-1291, then 16" lime silicates to 1289^5, then purplish siltstone to 1299, then light grey grading back to purple at 1316, then grey, quartzite.

1320^5-1350-1/2 Fine grained light grey siltstone, 1% py, some mottling, becoming medium grey with considerable mottling 1330-1336, then lighter grey with epidote patches and blobs, becoming less splotchy after 1337. Splotches end at 1350-1/2.

1350-1/2-1367 Fine granular impure quartzite. Grades from medium light to medium grey at 1367.

1367-1482^5 Banded siltstone, some epidote banding, purplish at 1367, becomes gray and mottled, then finely mottled 1378 to 1385. Fine grained grey quartzite (impure).

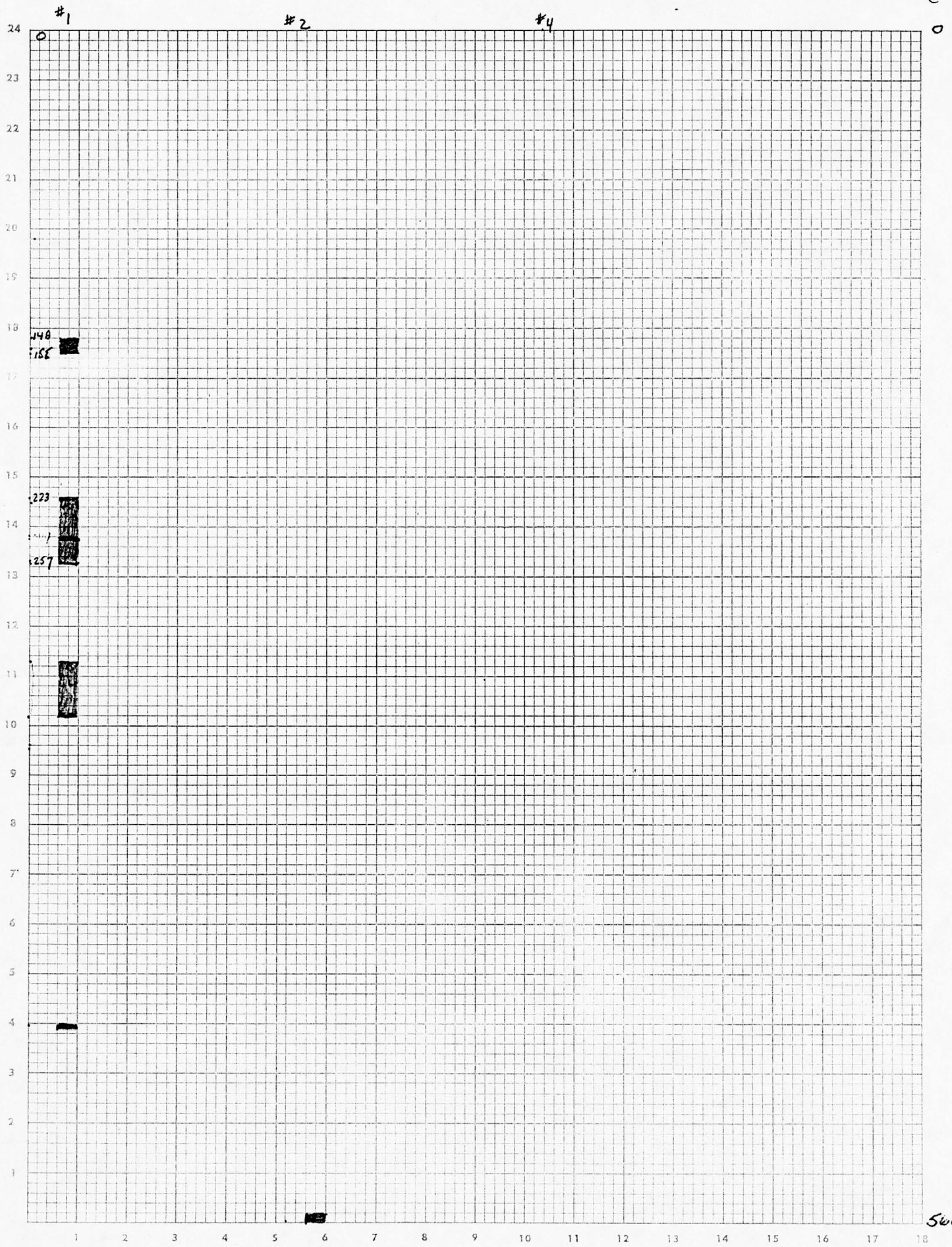
1482^5-1585 Fine grained light gray qtz (impure). Some epidote veinlets, sphalerite (1/4" vein) at 1490. Grey to 1496, then mottled, fragmental looking to 1503. Fine grained grainy-looking to 1511. Fragmental to 1514, then fine grained, meta-arkose, fragmental 1524-1525. Fine grained light colored quartzite 1525-1566. 12" breccia 1566-1567 (healed). Fragmental light colored impure fine grained qtz to 1574.5.

1585-1606	Meta-andesite-silicified.
1606-1616	Mixed-meta-andesite.
1616-1630	Mixed-meta-andesite, quartzite (impure)
1630-1650	Mottled meta-arkose-fine
1650-1678	Siltstone, splotchy, grey, grades to light grey at 1657. Fragmental 1662-1664. Purplish 1666-1676-1/2, bedding 60° to axis, contact 1678.
1678-1698	Meta-andesite porphyry, several mixed zones.
1698-1746	Siltstone, purplish, to 1722, 18" fine qtz., then purplish siltstone, gradually grading to more qtz. material.
1746-1757	Siltstone, fragmental (conglomerate)
1757-1810	Siltstone, becomes quartzitic at 1763. Fine grained impure light grey qtz.
1810-1818	Fragmental siltstone (conglomerate)
1818-1951	Light gray impure siltstone (fine qtz.), fragmental intervals, grades to 1mm qtz. at 1905, 2' basal arkose 1949-51.
1951-1954	Light colored grey siltstone.
1954-1981	Quartz latite?
1981-1998	Meta-arkose-conglomerate.
1998-2050	Fine grained siltstone to 2007, then 1mm qtz. to 2012, 6" cong., then arkosic qtz. (medium grained, grey), gradually becoming darker grey, more silty to 2050.
2050-2103	Purplish siltstone, fragmental 2061-2068, then grey qtz. siltstone, medium grained, splotchy, to bottom. 2103

WJW:jc
December 13, 1967

FAULTS Charleston

6



Peter Dunn

AREA CHARLESTON T. 20S R. 21E S. 36 TOTAL DEPTH 2103 COLLAR ELEV. _____ HOLE NO. 1

Kennicott Bear Creek

Footage From	Footage To	Description	Footage From	Footage To	% Cu.	% Zn.	% Pb.	Oz. Ag.	Oz. Au.
5	102	Latite porphyry - fine-grained-gray 15-20% phenocrysts of feldspar < ¼' - contains abundant large fragments of green volcanic tuff - contains abundant clay - dark red (hematite) clay along fractures 45° ∧ core - epidote locally common - locally green tuff in matrix with large fragments of porphyry.							
102	162	Tuff - green with abundant large fragment of other volcanic rocks and of green siltstone - abundant clay & chlorite - weak goethitic staining locally on fractures - Fault? 149-152							
162	180	Volcanic - altered - strong goethitic staining - strong clay-sericite alteration - some Mn staining - poor core recovery.							
180	254	Volcanic, white, altered - strong clay-sericite alteration - no significant iron staining 1% limonite after pyrite as fine disseminated grains - rare thin quartz veinlets - probably an alteration feature - original pyrite content increases to 2-3% below 220'.							
254	258	Volcanic, pink - altered - consists almost entirely of clay (sericite) - weak goethitic staining along fractures.							
258	303	Volcanic - gray fine-grained, altered - quartz-sericite alteration not as intensive as above strong goethitic staining along fractures - hematitic limonite locally present. Fresh pyrite appears @ 262' - finely disseminated euhedral crystals up to 3% - goethite stringers still present - becomes common and mostly on fractures below 272' - chlorite becomes common ≈ 265'. Pyrite content increases with depth up to 5-8% below 280' - thin calcite stringers (up to ¼") locally present.							
303	325	Volcanic - highly altered - white < 1' of small chips 303'-311'8" - possibly a fault. 1-2% fresh euhedral pyrite disseminated -≈1% limonite casts after pyrite.							
325	411	Volcanic - fine-grained, gray - strong quartz-sericite alteration - strong silicification - strong goethitic staining on fractures - 1% disseminated fresh pyrite > 2% limonite after pyrite. Pyrite content increases below 330' up to 3-5% limonite rare-finely disseminated - weak chlorite and rare epidote on fractures - rare calcite stringers - highly altered 340'-342' as above - rare epidote stringers and clots.							
411	589	Andesite, fine-grained, green, porphyritic - probably less altered rock as above - change is gradual - shows weak chlorite alteration - epidote common along very narrow stringers - disseminated euhedral- pyrite up to 5% - rare visible chalcopyrite - some calcite associated with epidote - some narrow calcite veinlets - rock weakly silicified ? ½" sphalerite-galena vein with rare chalcopyrite @ 440' - 32° ∧ core							

AREA CHARLESTON T. 20S R. 21E S. 36 TOTAL DEPTH 2103 COLLAR ELEV. HOLE NO. 1

Footage From	Footage To	Description	Footage From	Footage To	% Cu.	% Zn.	% Pb.	Oz. Ag.	Oz. Au.
		some pyrite occurs with epidote along narrow stringers ¼" Sphalerite-calcite-epidote veinlet @442' nearly parallel to core-with rare chalcopyrite ½" sphalerite-galena vein @485' 10°∧ core - with epidote and calcite ¼" sphalerite vein with chalcopyrite @521' ≈ 15°∧ core with epidote 1/8" sphalerite vein with chalcopyrite @503' - 40° ∧ core ¼" sphalerite vein with abundant epidote @525' 20° ∧ core 1/8" sphalerite vein with abundant epidote @528' 20° ∧ core Pyrite content decreases to ≈ 2% below 530' - rare other narrow sphalerite epidote veinlets occur - most of rock barren. Abundant random calcite veinlets 550' - 556' sericite becomes common below 560' - epidote and chlorite rare - pyrite < 1% - no other sulfides.							
589	750	Quartzite - arkosic, fine-grained, white clay-sericite matrix < ½% disseminated pyrite sericite locally quite abundant - a few ½"-1" quartz veins ≈ 40°∧ core with 3-10% pyrite - no other sulfides - down to 700' - thin sphalerite veinlets 700'-702' - rare overall. 705-725' contains disseminated and random veins of pyrite up to 10% - 3-4% overall. Bedding to core angle 50° @710' - some pyrite occurs as open fracture fillings with quartz and unidentified white rhombehedral mineral - with very very rare galena crystals - only rare visible sulfides below 725'.							
750	859	Tuff - light green, aphanitic - chlorite abundant throughout and as narrow veinlets. Disseminated euhedral pyrite up to 2% - thin calcite veinlets and some irregular calcite clots - this rock grades into a very fine-grained quartzite 787'-783' - pyrite < 1% below. Epidote becomes common from 793' as irregular clots and irregular stringers - some very rare very narrow sphalerite veins occur with epidote - some pyrite very thin stringers - < .5 mm - bedding to core angle < 70° @806' sericite locally common.							
859	886	Dacite porphyry - green, fine-grained - 5% feldspar phenocrysts ¼" and 2-3% biotite phenocrysts smaller in a green groundmass. 2% pyrite as disseminated euhedral crystals - thin calcite stringers - clay alteration increases with depth til 868' where it is a white rock with clay phenocrysts in a clay matrix - < 1% pyrite.							
886	892	Brecciated tuff - poor core recovery - probable fault							
892	934	Tuff - light green - 1-2% disseminated pyrite. Manganese oxide - goethite-calcite stringers common 892' -911' - pyrite content < ½% below 900' - no limonite below 911' - thin calcite stringers - pyrite absent below 920'.							

5

AREA CHARLESTON T. 20S R. 21E S. 36 TOTAL DEPTH 2103 COLLAR ELEV. HOLE NO. 1

Footage From	Footage To	Description	Footage From	Footage To	% Cu.	% Zn.	% Pb.	Oz. Ag.	Oz. Au.
934	956	Tuff, red fine-grained with small altered phenocrysts - chlorite common in groundmass & alteration of phenocrysts - probably a tuff-marked bedding locally - bedding to core angle 40° @ 946' - pyrite very rare.							
956	1027	Tuff, green fine-grained - rare calcite stringers - rare very fine-grained pyrite. Goethite along calcite stronger @968'. Coarse calcite vein makes up most of the core 972'-974' - no sulfides. < ½% pyrite below 974' - disseminated euhedral crystals - rare epidote - becomes more abundant as clots from 1020'.							
1027	1105	Quartzite, fine grained, white with clay matrix - rare thin epidote stringers - no sulfides - Bedding to core angle 50° @ 1030'. Chlorite matrix and epidote increase from 1031' - locally an aphanitic siltstone - mostly fine quartzite - calcite stringer occur locally with manganese denrites - very rare sphalerite along a narrow epidote veinlet @1085' - nearly parallel to core.							
1105	1108	Tuff (tuffaceous siltstone) white to light green 1% very fine-grained pyrite.							
1108	1140	White to green quartzite as above - top 8" bright brick red - ≈1% pyrite disseminated - rare calcite veinlets - no pyrite below 1120'.							
1140	1241	Tuff - pale green - chlorite becomes more abundant with depth - epidote common - pyrite only locally present and thin as disseminated small euhedral crystals < ½%- calcite veinlets common - quartzite 1165' - 1175' - no sulfides - 1/8" sphalerite -epidote-calcite stringers @1193' 32° core - pyrite ≈ ½% 1190'-1200' - barren below 1200'-1208' - pyrite content increases to 1% - local goethitic staining along fractures.							
1241	1262	Dacite porphyry, green - 10-15% feldspar phenocrysts in dark green, chloritic groundmass only some crystals altered to epidote < ½ - < 1% pyrite as disseminated grains.							
1262	1264	Brecciated white tuff - almost entirely clay or sericite - no sulfides - probably a fault.							
1264	1440	Tuff - fine-grained, green ≈1% very fine-grained pyrite disseminated decreasing with depth. Bedding to core angle 42° @1270' - rare epidote clots - increasing with depth. 3' red tuff beds occur between 1280 and 1320' - core out of order - very narrow pyrite-sphalerite vein @1331' - white quartzite 1320' - 1326'; 1350' - 1357' - no sulfides - pyrite generally absent sometimes disseminated up to ½% and very rarely in this veinlet up to 1/8" thick. Pyrite content about 1% below 1400'.							

Footage From	Footage To	Description	Footage From	Footage To	% Cu.	% Zn.	% Pb.	Oz. Ag.	Oz. Au.
1440	1578	Tuff, light green, very fine-grained with rare clay after feldspar phenocrysts? < 1/16" - 1-2% fine-grained disseminated pyrite-weak chlorite and epidote alteration with some narrow calcite veins - locally fragmental - fragments same rock as matrix. Few small galena crystals in an ¼" epidote vein with rare chalcopyrite and sphalerite @1488'. Phenocryst locally very abundant - 1500'-1503'. Volcanic breccia 1521'-1525' - includes angular fragments of tuffs - some volcanic matrix < ½% pyrite - similar breccias 1550'-1578'.							
1578	1597	Dacite porphyry with abundant 10-15% feldspar phenocrysts - probably same rock as above only more porphyritic - fine-grained groundmass - 1-2% quartz - phenocrysts - 2-4% fine epidote phenocrysts - no pyrite-locally fragmental.							
1597	1666	Tuff, fine-grained, light green- very little chlorite in matrix - up to 15% feldspar small phenocrysts - same rock as 1440'-1578'. 1-2% pyrite disseminated or associated with epidote - rare calcite stringers.@1635' 2" sphalerite vein with rare galena - no pyrite- no chalcopyrite roughly parallel to core - cut off by an identical ¼" vein - that is 45° to core - mineralization extends for about 6" along core.							
1666	1679	Tuff, fine-grained, red - no pyrite - rare epidote, chlorite and sericite clots - very thin calcite stringers.							
1679	1704	Tuff, fine-grained, light green as 1597-1666' - locally with angular fragments of red tuff and rarely of white quartzite. No pyrite rare epidote.							
1704	1734	Tuff-fine-grained - mostly red but some bands of green. Bedding to core angle 68° @1730'. Rare chlorite and epidote clots - no pyrite - 2" dikes? of white altered quartz-latite @1716' contains 2-3% pyrite grains.							
1734	1765	Tuff, light green, fine-grained - weak chloritic and epidote alteration - pyrite very rare.							
1765	1806	Quartzite, arkosic, fine-grained, white - weakly chloritic matrix - pyrite very rare - 1" calcite-epidote vein @1786 10° to core - no sulfides. Bedding to core angle 50° @1806' - some bands of fragmental fine-grained green tuff.							
1806	1875	Tuff, fine-grained, green - rare phenocrysts - chlorite very abundant - epidote locally abundant - locally fragmental - pyrite ½% - very fine-grained - 1" band @1818 consists of 60% epidote and 40% alunite? (specimen) - pyrite very rare below 1830'.							
1875	1900	Tuff, fine-grained, white to green - weak chloritic groundmass - fine-grained phenocrysts of feldspar - pyrite content < ½% - irregular large lenses of fine-grained white material							

AREA CHARLESTON T. 20S R. 21E S. 36 TOTAL DEPTH 2103 COLLAR ELEV. _____ LOGGED BY Peter Dunn HOLE NO. 1

Footage From	Footage To	Description	Footage From	Footage To	% Cu.	% Zn.	% Pb.	Oz. Ag.	Oz. Au.
1875	1900 (con't)	probably feldspar - thin calcite veinlets.							
1900	1950	Quartzite, arkosic, fine-grained in sericitic matrix - with chlorite alteration - epidote rare as clots and narrow stringers. Pyrite absent - small crystals and narrow stringers occur very rarely.							
1950	1962	Tuff, fine-grained, green - weak chlorite and epidote - narrow calcite stringers - no pyrite 1955'-1956' - green dacite porphyry - 15% ¼" feldspar phenocrysts - chlorite abundant - no pyrite.							
1962	1973	Quartzite - arkose, white to gray conglomerate 1965'-1972' - fragments up to 2" - epidote common - pyrite < ½%.							
1973	1980	Dacite porphyry, fine-grained - 5-15% feldspar phenocrysts, 2-5% quartz phenocrysts in a green aphanitic groundmass - epidote locally common - thin calcite stringers common often with sericite or talc- pyrite < ½%.							
1980	2055	Conglomerate, arkosic, red-grades to a fine-grained arkosic quartzite at 1998' - epidote very common in conglomerate - some calcite on fracture faces - chlorite abundant in quartzite. Bedding to core angle 76° @2011' - pyrite very rare - large irregular clots of calcite up to 1" become common below 2020'.							
2055	2067	Tuff, red - calcite clots up to 1" also common. Bedding to core angle 75 @ 2059' - no sulfides -							
2067	2096	Quartzite, arkosic - calcite clots rare - thin stringers - no sulfides.							
2096	2103	Quartzite, arkosic, red, fine-grained rare chlorite - rare calcite clots. No sulfides							
		END OF HOLE							

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

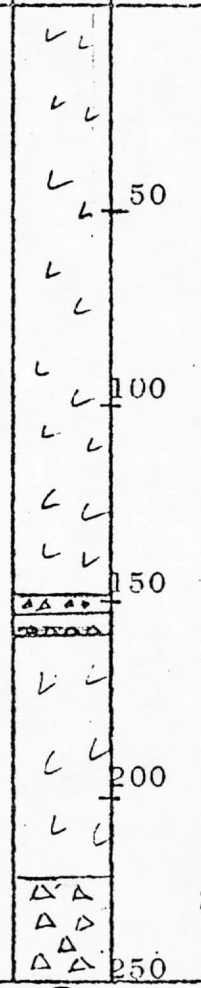
Charleston Project
Cochise County Arizona
Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar



0-14 No Core
14-148 Fragmental meta-andesite tuff. Hematite (earthy) clay, chlorite. Coarsely fragmental to 63, then tuff to 74, then coarsely fragmental to 148
148-152 Fault zone, gouge and breccia
152-153 Fragmental tuff
153-155 Fault zone, gouge and breccia
155-180 Weathered, bleached, clay-altered tuff.
180-223 Bleached white arg. alt. medium, fragmental tuff, heavily sericitized.

223-227 Gouge - fault zone
227-243 White arg. alt. tuff - sericitized
243-244 Gouge - fault zone
244-254 White arg. alt. tuff - sericitized

Drill Hole No. 1
Collar Elevation
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Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
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By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type	Depth	Description
									254-257 Gouge - fault zone
									257-303.6 Graywacke, silicified, mosaic appearance, reddish. (Might be a silicified tuff) Scattered pyrite cubes. Grades to fine gray siltstone. Pyrite on seams <1%.
									303.6-328.5 Gouge and breccia, heavily sericitized (313)
									328.5-340 Fine siltstone, thoroughly bleached, pyritized (2-3% py), sericitized, to 340.
								300	
									340-342.5 Gouge
									342.5-400 Fine light grey to white siltstone, considerable fine qtz., sericitized. At 366, ¼" sphalerite - chalcopyrite veinlet. Pyrite 1-3%, locally up to 10%. Rock thoroughly sericitized adjacent to veinlet. Locally abundant (up to 5%) chalcopyrite. (See specimen at 371. Nx core to 400)
								350	
									400-474 Fine granular siltstone, grey, 2-6% pyrite, very little cpy (< 0.2%) At 430, ¼" vein calcite, siderite, galena, chalcopyrite. At 440, 1" vein same.
								400	
									474-476 Fault, gouge
								450	476-525 Fine granular siltstone, pyritized (2-6% py), fragmental from 477-1/2-479, then finer grained, light grey. Two or three 1/8" vlts 482-485, sphalerite, galena, cpy. Pyrite up to 10% locally. 6" epidote zone with fine galena, sphalerite, pyrite, tetrahedrite?, 518. Several small (1/16"-1/8") vlts sphalerite. Galena with epidote to 525. Pyrite 2-6%, other
								500	

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

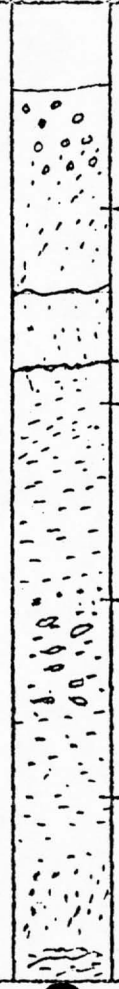
Charleston Project
Cochise County Arizona
Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar



sulfides <0.1% in interval.

525-573 Conglomerate, 531-1/2-536, py - 2-6%, then fine light gray siltstone, 2-6% py calcite streaks 570-1/2-573. Sericitized.

573-574 Fault, Gouge

550

574-582 Fine gray siltstone, 2-6% pyrite. Sericitized.

582-584 Fault, gouge

584-586 Greenish gray fine siltstone, 1-2% py, becomes fine quartzite at 586.

586-649 Fine quartzite, grades to 1mm qtz locally, vuggy after 630, some py in vugs and on seams, (< 2% py)

600

649-665 Quartzite, 1mm, vuggy in part.

665-671 Fine grained impure qtz, locally with a streak or two of sphalerite, 1-2% py, <0.1% sph.

650

671-676.4 No core

676.4-705 Fine grained impure qtz, grades to 1mm at 679.5, vuggy, continues to 705

700 705-724 Qtz, 1mm, but with pyrite on seams, bulk 5-8% py, to 724

724-769 Bedding at 724, 75° to axis. Fine grained siltstone, light grey, 1-2% py. Becomes gray banded after 750, some what softer.

750

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

769-818 Fragmental (conglomerate) for about 2 feet, then splotchy, local development lime silicates. Gray siltstone with local fragmental horizon, emphasized by epidote splotches, locally fine quartzite for 5-6' intervals to 818.

800 818-824 At 818, bedding at 50° to axis. Fine banded greenish-grey siltstone (epidote and calcite)
824-824.5 Several 1/8" vlts sphalerite and galena
824.5-860 Fine green-grey siltstone, splotchy with epidote, becoming drably uniform after 842-855, then aplotchy.

850

860-886.4 Porphyry, first 18" qtz free. Altered, probably qtz monz.? Pyritized, argillic - sericite to fault at 886.4.
886.4-934 Brecciated (healed) siltstone to 892, then fine gray siltstone, becoming darker grey with depth. Some dark epidote?

900

934-971.5 Dark grey siltstone, mottled (fine mottling) to 955.5, then fine dark gray siltstone to 971.5

950

971.5-974 24" carbonate vein (not calcite), ankerite or siderite
974-1004.3 Dark grey massive siltstone grades into fine-grained arkose.

1000

16

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona
Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1004.3-1106 At 1056, bedding 55° to axis. Becomes somewhat darker after 1080.

1050

1100 1106-1162.3 Fine grained, nearly quartzite, grey, gradually becomes coarser (about 1mm) at 1117. Stays coarse to 1141, then grades into finer at 1153. Fine arkosic qtz. - medium gray.

1150

1162.3-1178 Arkose, fine grained. Sericitized. Becomes fine grained at 1178.

1178-1248 Grades back into fine grained arkose after 1186. Two or three calcite bands 1207-1208. Mottled locally. 6" healed breccia at 1247.5, then porphyry.

1200

1248-1261 Meta-andesite porphyry

1250

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona
Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1261-1262 8" fault gouge

1262-1320.5 Fine massive grey granular siltstone, mottled with epidote; locally impure quartzite (hard). Becomes darker grey after 1286 to purple, 1290-1291, then 16" lime silicates to 1289.5, then purplish siltstone to 1299, then light grey grading back to purple at 1316, then grey, quartzite.

1300

1320.5-1350.5 Fine grained light grey siltstone, 1% py, some mottling, becoming medium grey with considerable mottling 1330-1336, then lighter grey with epidote patches and blobs, becoming less splotchy after 1337. Splotches end at 1350.5

1350 1350.5-1367 Fine granular impure quartzite. Grades from medium light to medium grey at 1367

1367-1482.5 Banded siltstone, some epidote banding, purplish at 1367, becomes gray and mottled, then finely mottled 1378 to 1385. Fine grained grey quartzite (impure).

1400

1482.5-1585 Fine grained light gray qtz (impure). Some epidote veinlets, sphalerite (¼" vein) at 1490. Grey to 1496, then mottled, fragmental looking to 1503. Fine grained grainy-looking to 1511. Fragmental to 1514, then fine grained, meta-arkose, fragmental 1524-1525. Fine grained light colored quartzite 1525-1566. 12" breccia 1566-1567 (healed). Fragmental light colored impure fine grained qtz to 1574.5

1450

1500

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1550

1585-1606 Meta-andesite-silicified.

1600

1606-1616 Mixed-meta-andesite.
1616-1630 Mixed-meta-andesite, quartzite (impure)
1630-1650 Mottled meta-arkose-fine

1650 1650-1678 Siltstone, splotchy, grey, grades to light grey at 1657. Fragmental 1662-1664. Purplish 1666-1676.5, bedding 60° to axis, contact 1678
1678-1698 Meta-andesite porphyry, several mixed zones.
1698-1746 Siltstone, purplish, to 1722, 18" fine qtz., then purplish siltstone, gradually grading to more qtz. material.

1700

1746-1757 Siltstone, fragmental (conglomerate)

1750

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1757-1810 Siltstone, becomes quartzitic at 1763. Fine grained impure light grey qtz.

1800

1810-1818 Fragmental siltstone (conglomerate)

1818-1951 Light gray impure siltstone (fine qtz.), fragmental intervals, grades to 1mm qtz. at 1905, 2' basal arkose 1949-51.

1850

1900

1950

1951-1954 Light colored grey siltstone
1954- 1981 Quartz latite?
1981-1998 Meta-arkose-conglomerate

2000

Drill Hole No. 1
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1998-2050 Fine grained siltstone to 2007, then 1mm qtz. to 201.., 6" cong., then arkosix qtz. (medium grained, grey) gradually becoming darker grey, more silty to 2050.

2050 2050-2103 Purplish siltstone, fragmental 2061-2068, then grey qtz. siltstone, medium grained, splotchy, to bottom. 2103

2100

2150

2200

2250

FORM 225-A
11-66

F3-13

Inco.

PROPERTY Charleston Mine

SHEET NO. 1

HOLE NO. #1 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____

CO-ORDINATES _____ _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & NI.
201.3	White porphyry feldspar kaolinized									
254	Progressively more alt'd porphyry 243-245 rock almost completely clay									
264	Contact zone between porphyry and tuff 254-259 yellow gouge? slickensides minor limonite 259-264 broken alt'd brown tuff									
310	Tuff 264-284 brown 264-284 to green tuff with abund frags up to 2" veined with qtz stringers and chlorite abund fine pyrite 284-310 grab-yellow tuff few frags, veins chlorite? Lumanite? speckled from pyrite qtz stringers									
311	310-311 missing									
330	Highly sericitized 311-322 completely alt to sercite 322 highly mixed seriticized rock and frsh gray tuff									
341	gray tuff abund fine pyrite									
343	Completely sericitized soft white rock predominantly mottled gray meta-tuff veined with qtz chlorite, v fine in stringers and disseminated									
588	372-373 bxiated 387-390 bx or agglomerates 503 stringers 30? to axis of									

FORM 225-A
11-66

PROPERTY Charleston Mine

SHEET NO. 2

HOLE NO. #1 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____

CO-ORDINATES _____ _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & NI.
	core ¼" epidote w/1/8"									
	core sulphide py Zn Pb									
588	518-519 sample for assay									
	Cu Zn Gray tuff with fine									
	pyrite and fine chalco and									
	582-583 zone									
	wericitized									
724	Gray siltstone to qtzite									
	703-713 coarse pyrite									
	((0.8-0.1 -Cu-Ni))									
749	v fine gray siltstone									
	minor fine py									
779	Siltstone grades into									
	varigated tuff green gray									
	and brown Veins chlorite and									
	small inclusions 767-771 tuff									
	grades into brown silt									
	stone and grades gack into									
	tuff									
832	Tuff siltstone pale grn									
	fg inclusions chert-patches									
	epidote up to 1" diam									
	fine black veins									
860	Grades to more varigated									
	tuff darker green and gray									
	more chert inclusions no									
	epidote patches									
886.4	Dark gray porphyry Felspar									
	phenocyrsts qtz eyes 866-886.4									
	bleached much sericite									
	slic ensides									
893	Gray siltstone bx 6" from									
	contact with porphyry									
920	Fine grades into variagated									
	siltstone tuff gray brown									
	green									

22

FORM 223-A
11-66

PROPERTY Charleston Mine

SHEET NO. 3

HOLE NO. #1 DEPTH ANGLE V STRIKE ELEVATION

CO-ORDINATES

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS FEET X PER CENT NICKEL	PROGRESSIVE TOTALS FEET X PER CENT CU. & NI.
934	Fine grained green tuff?									
957	Purple and grn andesitic tuff									
971	Grading to grn siltz tuff									
974	White qtz vein									
976.6	6" core broken sheard clayey rock with limonite									
1002	Fg greenish tuff occasional frags									
1055	Siltstone, gry-grn tuffaceous occasional patches and stringers epidote 1038-1040 pure gry siltstone bed 40° to axis of core									
1080	1080 - gry siltstone bed 40° to axis									
1102	Tuffaceous sitlstone gry to green patches epidote and veins epidote									
1128	Gry siltstone									
1136	Gry qtzite									
1165	Varigated tuff gry minor inclusions 1143-1152 broken core limonite on fractures									
1179	Fg gray qtzite									
1187	Gry shale tuffaceous?									
1249	Gray siltstone 1219-1237 tuffaceous, 1240-1249									
1262	Porphyry (dike?) gray-green feldspar phenocrysts abund patches epidote									
1263	White gouge, sericite?									
1290	Pale green tuff siltstone									
1299	Purple tuff									
1369	Green tuff 1311-1326 gray siltstone									

FORM 225-A
11-66

PROPERTY Charleston Mine

SHEET NO. 4

HOLE NO. #1 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____

CO-ORDINATES _____ _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & NI.
1697	1736 - Purple tuff									
	1716 2" brown completely									
	weathered porphyry									
	1730-1736 grading into									
	gray tuff									
1763	Gray-grn tuff 1738 - many									
	inclusions of fragments									
	agglomerate									
	1742 - 1746 siltz									
	1750 - 1763 mostly agglomerate									
1799	Gray siltstone qtzite									
1871	Green tuff siltz abund									
	fragments up to 1" minor									
	qtz and epidote veins of (up?)									
	to ¼" no sulphide									
	1864 - 1870 prple tuff									
1900	Pale green to gray fragmental									
	tuff silty minor pyrite									
	in less silty sections cubes									
	up to 1/8 "									
1951	conglomerate									
	mostly small fragments up to									
	½incl poorly sorted volcanic									
	frags rounded pebbles									
	qtzite abund qtz grains									
	and feldspar									
1961	Pearl gray silicified									
	shale bedding 45° to core									
	axis									
	1955-1956 gray porphyry									
	dike or flow? scattered									
	fledspar phenocrysts in									
	fg gray gound mass									
	1958 1" dike as above									
1966	Gray qtzite									
	fg minor dissem pyrite									

FORM 223-A
11-66

PROPERTY Charleston Mine

SHEET NO. 5

HOLE NO. #1 DEPTH ANGLE V STRIKE ELEVATION

CO-ORDINATES

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS FEET X PER CENT NICKEL	PROGRESSIVE TOTALS FEET X PER CENT CU. & NI.
1974	Arkosic conglom pebbles									
	up to 2" volcanic and									
	qtziteetc. Inclusions of									
	porphyry at 1973									
1981	Gray porphyry flow or dike									
	feldspar phenocrysts up to									
	¼" Patches of epidote up to									
	3/4" qtz. minor scattered									
	py in gray-green ground mass									
1998	Arkosic conglom as at									
	1974									
	1992 - 1998 shearing									
	sericite and some calcite									
	in fract flares small									
	fault zone									
2009	Gray shale with arkose beds									
	up to 2"									
2015	Dark green gray qtzite									
	2014 4" conglomerate									
2103	Arkose									
	2015-2053 gray -green									
	with irregular inclusions									
	of limestone ground mass									
	silty with calcite cement									
	2054 - 2070 similar to									
	above but purple									
	2063-2064 with frags andesite?									
	2096-2103 prple arkose									
	similar to 2154									

DDH #1

2-6 2b

14') breccia of andesite & dacite fragments (& component xls) in dense glassy matrix (→ Fe_2O_3). feldspars → clay, mafites → chlorite

63') quartz latite (kaolinized plagioclase, β quartz, & biotite → FeOx in intensely sericitized matrix) - rock is cut by dikelets similar to the matrix at 14'

180') quartz latite (plagioclase phenocrysts heavily sericitized) rock veined with quartz & tr. of pyrite — [rock resembles Bronco qtz latite of the south

244') quartz latite like at 180'; strongly sheared and laced with quartz (and a few calcite) veins

257½') latite bx; plagioclase → clay & sericite, mafites → chlorite, then FeOx; cut by chloritic shears

263') latite bx like at 257½' but cemented by cognate latite; alteration of both latites is like at 257½'; also tr. altered pyrite

286') andesite bx; plagioclase wholly altered to sericite; veined with chlorite + pyrite, then calc

371') andesite; shearing + alteration converted matrix to foliated chlorite + sericite; plagioclase xls → sericite & then drawn out by shearing; several % diss. pyrite

427') andesite like above but less shearing & slightly more intense epizonal meta. has produc epidote; several % diss. pyrite; late calcite veins

464') meta-andesite; plagioclase partly → sericite; mafites → chlorite + epidote - cut by epidote veins w/ pyrite (FeS_2 also disseminated) & tr. PbS

DDH-1 (cont.)

518') piece shows contact between andesite like at 464' & a calcareous shale, epizonally metm to produce epidote. meta-sediment is veined wit & carries diss. specks of $CuFeS_2$, PbS, ZnS & pyrite - only pyrite occurs in the andesite; FeS mol% in ZnS almost 0%.

630') quartzite - fracturing & recrystallization have produced vuggy qtz veins w/ tr. late calcite; tr. disseminated pyrite

740') arkose, uniform-sized, fine-grained quart & slightly sericitized feldspars; tr. diss. pyrite (≤1%

786') andesite; shearing has promoted extensive chloritization of matrix; plagioclase → sericite, trace of pyrite

829') calc-shale; epizonal metm has produced new epidote (especially in and around pebble veins of quartz & chlorite

860') dacite porphyry (plagioclase phenocrysts quite fresh; β quartz; hornblende → chlorite) ~1% Fe late calcite veins

866') andesite (plagioclase → sericite, biotite → chlorite) very minor pyrite

1004') argillite (fragments of plagioclase & parent andesite, dacite etc in dirty chloritic matrix)

1025') argillite - shows better sorting than above; cut by veins of epidote, calcite etc

DDH-#1 (cont.)

1159') argillite much like at 1025'. – more quartz.

1248') meta-dacite (plagioclase → calcite + epidote β qtz; mafites & xenoliths → epidote; minor pyrite

1255') just like above but larger, more spectac. epidotized xenoliths & plagioclase; uniformly diss. pyrite

1319') argillite (matrix rich in calcite, qtz, chlorite fragments selectively replaced by epidote–chlorite–calcite etc.

1350') calc-sandstone w/ chlorite in matrix

1450') like above but more calcareous; fractured & veined w/ epidote, chlorite, calcite etc; some diss. pyrite

1580') andesite bx; matrix chloritic; plagioc. → sericite + chlorite; pyrite very rare

1590') dacite (plagioclase phenocrysts quite fresh matrix of qtz & chloritized glass & mafites)

1648') banded argillite / greywacke w/ heavily chloritized mafites, plagioclase → sericite

1686') andesite (plagioclase → sericite, mafites → chlorite) veined w/ calcite, epidote & chlorite

1704') mudstone – loaded w/ angular fragments; mild chloritization of mafites

1776') dirty ss w/ abundant chlorite in matrix epidote replaces calcareous bands; local veins of pyrite

DDH-11 (cont.)

1912') quartzite (dirty chloritic matrix) some chert pebbles; tr. euhedral pyrite

1976') dacite porph (fresh plag; β quartz; mafics → epidote + chlorite; minor coarse pyrite (rock strongly resembles 860')

1979') dacite like 1976 but much more epidote (repl. mafics & matrix) tr. pyrite

2103') dirty ss w/ ferruginous cement; veined by chlorite w/ reduced Fe_2O_3 wall

CRC? Log #6

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates ____ N ____ E Collar Elevation ____ Inclination VERTICAL Bearing ____

Date Started 7-27-67 Date Completed ____ Final Depth ____ Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Brecciated	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
0	10													✓							
10	20													✓							
20	30													✓				xx			Brecciation
30	40													✓							
40	50													✓							
50	60													✓							
60	70													✓							
70	80													✓							
80	90													✓							
90	100													✓							
100	110							✓					✓	✓		✓	✓				Chlorite, Br
110	120							✓					✓	✓		✓					
120	130							✓					✓	✓	✓	✓					Sericite - Starts
130	140							✓					✓	✓	✓	✓					145 - 155 - Highly Brecciate
140	150							✓					✓	✓	✓	✓					
150	160							✓					✓	✓	✓	✓			7		Pyrite - (Au, Ag, Fe, Cu Minerals)
160	170							✓					✓		✓	✓			7		"
170	180														✓	✓			7		Red Clay with Pyrites
180	190														✓	✓			7		Waterway - Red Clay 190'
190	200														✓	✓			7		
200	210														✓	✓			7		5' - Good Sericite 205 to 210
210	220														✓	✓			7		15'- Good Sericite 220 - 235
220	230														✓	✓			7		
230	240														✓	✓			7		
240	250														✓	✓			4		
250	260														✓	✓			7		Yellow-Red Clay
260	270											✓				✓			4		
270	280											✓							4		Latite andesite
280	290											✓							5		" "
290	300											✓							5		
300	310											✓							7		17' Good Sericite - 308' - 325'

File 2-22

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates ____ N ____ E Collar Elevation Inclination VERTICAL Bearing

Date Started 7-27-67 Date Completed Final Depth

Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Breccia	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
310	320														✓				7		Good Sericite to 325'
320	330														✓				7		
330	340											✓			✓				7		3' Stringer - Good Sericite
340	350											✓			✓				7		12" Stringer - Good Sericite - 347'
350	360											✓			✓				7		12" " " " - 357'
360	370											✓	✓		✓				6		12" " " " - 375'
370	380											✓	✓						6		
380	390											✓							4		
390	400											✓							4		
400	410											✓							5		
410	420											✓							5		
420	430											✓							5		
430	440											✓							5		
440	450											✓							4		
450	460											✓							5		
460	470											✓							5		
470	480											✓							6		
480	490											✓							7		
490	500											✓							7		
500	510											✓							5		
510	520											✓							5		
520	530											✓							5		
530	540											✓							5		
540	550											✓			✓				4		3' Stringer - Good Sericite
550	560											✓							4		
560	570											✓							6		
570	580											✓							7		
580	590											✓			✓				7		7' Good Sericite - 585' - 592'
590	600								✓										2		Pyrites in Quartz
600	610								✓										2		
610	620								✓										2		

DDH NO. HORNE #1 State ARIZONA Mining District TOMBSTONE Coordinates ____ N ____ E Date Started 7-27-67 Drilling Co. BOYLES BROS.

County COCHISE Project ____ Collar Elevation ____ Date Completed ____

Inclination VERTICAL Bearing ____ Final Depth ____

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Brecciated	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
620	630								✓										2		
630	640								✓										2		
640	650								✓										2		
650	660								✓										2		
660	670								✓						✓				2		Stringer - Good Sericite
670	680								✓						✓				2		
680	690								✓						✓				2		Stringer - Good Sericite
690	700								✓										2		
700	710								✓										7		
710	720										✓								7		Heavy Pyrites - 705' - 730'
720	730										✓								6		
730	740										✓								5		Sugary & Granular
740	750								✓		✓								5		Stringer of Quartz
750	760											✓							4		
760	770												✓						4		
770	780												✓						5		
780	790													✓					5		Oxide - Waterway
790	800											✓					✓		5		Latite Chloride Porphry
800	810											✓					✓		4		
810	820											✓					✓		3		
820	830											✓		✓			✓		3		
830	840											✓		✓			✓		3		
840	850											✓		✓			✓		3		Diabase Porphry - to 862'
850	860											✓					✓		3		Quartzite
860	870											✓		✓					3/6		At 865' - Minteral increase
870	880														✓				7		2' Good Sericite at 876'
880	890														✓		✓		6		Green - Chrloride inclusions
890	900												✓						3		
900	910												✓						3		Purple - Bloom
910	920												✓						3		
920	930												✓	✓					3		

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates N E Collar Elevation Inclination VERTICAL Bearing

Date Started 7-27-67 Date Completed Final Depth

Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Brecciated	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
930	940												✓	✓		✓	✓		4		Quartz, Calcite
940	950							✓					✓	✓			✓		2		
950	960							✓					✓						7-6		Good Pyrite
960	970							✓					✓			✓			5		10' Core Missing - Waterway
970	980							✓					✓			✓			5		
980	990												✓						5		Dendretic Mn - Oxide
990	1000												✓						4		" "
1000	1010							✓					✓						3		" " Broken (Loss 10' Core)
1010	1020							✓					✓				✓		3		$CaCO_3$
1020	1030												✓				✓		3		
1030	1040								✓		✓						✓		4		Mn, Pyrite Cubes - 2' Quartz
1040	1050								✓		✓						✓		5		"
1050	1060										✓						✓		4		"
1060	1070										✓								4		" Oxides
1070	1080											✓							3		
1080	1090							✓				✓							5		Oxides & Sulphides
1090	1100											✓							5		
1100	1110										✓								5		Waterway
1110	1120										✓								4		Arcose?
1120	1130											✓							4		Arcose? Sugar-Textured Quartz
1130	1140											✓							5		Arcose?
1140	1150											✓							5		Quartz
1150	1160												✓			✓			5		Broken Waterway - Highly altered to 1160
1160	1170												✓			✓			3		" " - MnOx, Dendritic
1170	1180												✓			✓			2		
1180	1190												✓						3		
1190	1200												✓						2		$CaCO_3$ Seams - Quartz Seams
1200	1210												✓						2		" " " "
1210	1220												✓						3		" " " "
1220	1230											✓	✓						3		" " " "
1230	1240											✓	✓						3		

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates N E Collar Elevation Inclination VERTICAL Bearing

Date Started 7-27-67 Date Completed Final Depth Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Brecciated	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
1240	1250												✓				✓		4		Andesite Porphry - 2'
1250	1260												✓				✓		2/6		3' Sericite - Heave Mineral at 1256'
1260	1270																✓		3		
1270	1280																✓		3		
1280	1290												✓	✓			✓		4		1286' - Breaks to Andesite Diabase
1290	1300												✓	✓			✓		0		
1300	1310												✓	✓			✓		0		
1310	1320												✓				✓		3		
1320	1330												✓				✓		4		
1330	1340												✓				✓		3		
1340	1350												✓				✓		4		
1350	1360												✓				✓		4		
1360	1370												✓				✓		3		
1370	1380												✓				✓		2		
1380	1390												✓						3		
1390	1400												✓						3		
1400	1410												✓						2		
1410	1420												✓						4		
1420	1430								✓				✓						2		11' Quartz starts at 1425'
1430	1440								✓			✓				✓			3		15' Alteration
1440	1450											✓				✓			4		Fine grained Latite
1450	1460											✓							3		Fine Grained Latite
1460	1470											✓							3		Fine Grained Latite
1470	1480											✓							3		
1480	1490											✓							3		
1490	1500											✓					✓		3		
1500	1510											✓							4		
1510	1520												✓						3		
1520	1530												✓						4		
1530	1540											✓							4		
1540	1550									✓									4		

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates N E Collar Elevation Inclination VERTICAL Bearing

Date Started 7-27-67 Date Completed Final Depth

Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Breccia	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
1550	1560										✓								4		
1560	1570											✓							4-2		
1570	1580											✓	✓						3		
1580	1590												✓						3		
1590	1600											✓	✓						3		
1600	1610								✓			✓							3		
1610	1620								✓			✓							4-2		1' Rib - Quartz
1620	1630								✓				✓						4		6" Rib - Quartz
1630	1640											✓							7		Minerals, Lead-Zinc
1640	1650											✓	✓						5-2		
1650	1660												✓						2		
1660	1670											✓	✓						2		
1670	1680												✓						2		4' Diabase at 1676'
1680	1690												✓						2		
1690	1700												✓						2		
1700	1710												✓	✓					2		
1710	1720												✓	✓					2		
1720	1730													✓					2		
1730	1740												✓						3		
1740	1750											✓	✓						3		
1750	1760											✓	✓						4		
1760	1770											✓							3		Sericite at 1765'
1770	1780								✓			✓							4		
1780	1790								✓			✓							3		
1790	1800								✓			✓	✓						3		
1800	1810								✓			✓	✓						3		5' Quartz
1810	1820												✓						4		2' Quartz
1820	1830												✓						3		
1830	1840												✓						4		
1840	1850												✓						4		
1850	1860												✓						3		

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates N E Collar Elevation Inclination VERTICAL Bearing

Date Started 7-27-67 Date Completed Final Depth

Drilling Co. BOYLES BROS.

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Breccia	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	MINERAL DENSITY No.	COMBINED ASSAY: Tot. Cu.	Remarks
1860	1870												✓						3		
1870	1880												✓						5		
1880	1890										✓	✓							6		
1890	1900										✓	✓							6		
1900	1910																				
1910	1920																				
1920	1930																				

DDH NO. HORNE #1 State ARIZONA County COCHISE Mining District TOMBSTONE Project

Coordinates _____ N _____ E Collar Elevation _____ Inclination VERTICAL Bearing _____

Date Started 7-27-67 Date Completed _____ Drilling Co. BOYLES BROS. Final Depth _____

FOOTAGE		L1	L2	CORE: % Rec. By Ft.	Lbs. Rec.	% Rec. By Wt.	Assay	Breccia	Quartz	Granite	Acid	Intermediate	Basic	Diabase	Sericite	Altered	Chloride	Core	Mineral Density No.	COMBINED ASSAY: Tot. Cu.	Remarks
1850	1860													X		X			2		
1860	1870													X		X			2		
1870	1880													X		X					
1880	1890								X										5		
1890	1900										X	X							5		
1900	1910											X							5		
1910	1920										X	X							5		
1920	1930										X	X							5		
1930	1940										X	X							3		
1940	1950											X		X					2		
1950	1960													X					2		
1960	1970													X					2		
1970	1980													X					2		
1980	1990											X							3		
1990	2000											X							3		
2000	2010											X							3		
2010	2020											X							2		
2020	2030												X	X					2		
2030	2040												X	X					2		
2040	2050												X	X					2		
2050	2060													X					2		
2060	2070													X					1		
2070	2080													X					1		
2080	2090													X					0		
2090	2100													X					0		
2100	2102													X					0		

BRIGHAM YOUNG UNIVERSITY

Clyde Davis

F 2-25

DDH No. HORNE #1 | State ARIZONA | County COCHISE | Mining District TOMBSTONE | Project | Coordinates ____ N ____ E | Collar Elevation | Inclination . | Bearing | Date Started | Date Completed | Final Depth | Drilling Co.

CORE

Core Box#	FOOTAGE		L1	(-) L2	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2							✓	core size	Samp. No.	GEOLOGY: Alt.	Sil.	Ser	Bred.	Str.	Ass.	Qtz	Acid	Fmt.	Igneous	REMARKS
	0	10																NX											✓	dacite - frag. -
	10	20																				✓								
	20	30																											✓	brecciation
	30	40																											✓	
	40	50																											✓	
	50	60																											✓	
	60	70																											✓	qtz., latite feO_x
	70	80																											✓	
	80	90																											✓	
	90	100																											✓	
	100	110																		✓	✓		✓						✓	clorite, Br
	110	120																		✓			✓				✓		✓	
	120	130															7			✓		✓	✓				✓			pyrite, Au, Ag, fe, Cu, mmen
	130	140															7			✓			✓				✓			" " " " "
	140	150															7			✓			✓				✓			" " "
	150	160															7			✓			✓				✓		✓	" " " "
	160	170															7			✓			✓						✓	" " " "
	170	180															7			✓									✓	red clay with pyrites
	180	190															7			✓			✓						✓	waterway - red clay 190' qtz. latite
	190	200															7			✓									✓	
	200	210															7			✓									✓	5' good sericite 205 to 210
	210	220															7			✓									✓	15' good sericite 220-235
	220	230															7			✓									✓	
	230	240															7			✓									✓	
	240	250															4			✓			✓						✓	qtz - latite
	250	260															7			✓									✓	yellow-red clay qtz.
	260	270															4			✓									✓	
	270	280															4												✓	latite andesite
	280	290															5												✓	" "
	290	300															5													
	300	310															7					✓							✓	17" Good Sericite 308'-325'

BRIGHAM YOUNG UNIVERSITY

DDH No. HORNE #1 | State ARIZONA | County COCHISE | Mining District Tombstone | Project | Coordinates ____ N ____ E | Collar Elevation | Inclination ____ Bearing ____ | Date Started | Date Completed | Final Depth | Drilling Co.

CORE																		GEOLOGY							REMARKS
Core Box#	FOOTAGE		L1	(-) L2	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2						✓	core size	Samp. No.	Alt.	Ser	Sh.Sl.	SS-1	QTZ Acid	Fel. BASS	
	310	320														7	NX		✓	✓					pyrite, Au, Ag, Cu, Pb.
	320	330														7			✓	✓					" " " " "
	330	340														7			✓	✓					" " " " 'meta-Sed'
	340	350														7			✓	✓					Siltstone " " " "
	350	360														7			✓	✓					" " " " " "
	360	370														7			✓	✓					" " " " " "
	370	380														6			✓	✓				✓	" " " " " "
	380	390														6									
	390	400														4									
	400	410														4									fine grained Siltstone
	410	420														5									"
	420	430														5									"
	430	440														5									"
	440	450														5									"
	450	460														4									"
	460	470														5									"
	470	490														5									"
	480	490														6									"
	490	500														7									"
	500	510														7									
	510	520														5									
	520	530														5									Conglomerate
	530	540														5									
	540	550														5				✓					3' Stringer - good sericite
	550	560														4									
	560	570														4									
	570	580														6									Fault gouge - DARK - Siltstone
	580	590														7				✓					7' good sericite 585'-592'
	590	600														2									pyrites in quartz.
	600	610														2									
	610	620														2									

BRIGHAM YOUNG UNIVERSITY

DDH No. HORNE #1 | State ARIZONA | County COCHISE | Mining District TOMBSTONE | Project | Coordinates ____ N ____ E | Collar Elevation | Inclination ____ Bearing ____ | Date Started | Date Completed | Final Depth | Drilling Co.

Core Box#	FOOTAGE		L1	L2	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2		core size	Samp. No.	Alt.	Chl.	Ser.	Breccia	Sh-Slate	SS-Sltst	Qtz.	Acid Int.	Basic	REMARKS
	620	630									2									✓			quartzite
	630	640									2									✓			"
	640	650									2									✓			"
	650	660									2									✓			"
	660	670									2					✓		✓		✓			" impure Qtz
	670	680									2					✓		✓		✓			"
	680	690									2					✓		✓		✓			"
	690	700									2									✓			"
	700	710									7									✓			"
	710	720									7												pyrite in seams
	720	730									6												siltstone
	730	740									5							✓					sugary & granular
	740	750									5							✓					stringer of quartz
	750	760									4												
	760	770									4												
	770	780									5												
	780	790									5												oxide - waterway
	790	800									4						✓			✓			water-sat. chloride cr
	800	810									3						✓			✓			
	810	820									3						✓			✓			
	820	830									3						✓			✓			
	830	840									3						✓			✓			
	840	850									3						✓			✓			dark material - to 862'
	850	860									3						✓			✓			quartzite
	860	870									3/6									✓			At 865' - Mineral increase
	870	880									7					✓							Sericite
	880	890									6					✓	✓						green - chloride inclusions
	890	900									3							✓					
	900	910									3							✓					purple - bloom
	910	920									3							✓					
	920	930									3							✓					

BRIGHAM YOUNG UNIVERSITY

DDH No. HORNE #1 | State Arizona | County Cochise | Mining District Tombstone | Project | Coordinates ____ N ____ E | Collar Elevation | Inclination ____ Bearing ____ | Date Started | Date Completed | Final Depth | Drilling Co.

CORE																				GEOLOGY								REMARKS
Core Box#	FOOTAGE		L1	(-) L2	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2							core size	Samp. No.		Alt	Calc	Ser	Brecc	Sh-Slate	SS-Qtz	Qtz	Acid	Tr-Int	Basic	
	930	940															4			✓	✓			✓						quartz, calcite
	940	950															2				✓	✓		✓						
	950	960															7-6					✓		✓						good pyrite
	960	970															5			✓		✓		✓						10' core missing - waterway
	970	980															5			✓		✓		✓						
	980	990															5							✓						dendretic Mn-Oxide
	990	1000															4							✓						" "
	1000	1010															3					✓		✓						" " broken (lost 10' core)
	1010	1020															3				✓	✓		✓						$CaCO_3$
	1020	1030															3				✓			✓						
	1030	1040															4				✓			✓	✓					Mn, Pyrite cubes - 2' quartz
	1040	1050															5				✓			✓	✓					"
	1050	1060															4				✓			✓						"
	1060	1070															4							✓						" oxides
	1070	1080															3							✓						
	1080	1090															5					✓		✓						Oxides & sulphides
	1090	1100															5							✓						
	1100	1110															5							✓						Waterway
	1110	1120															4							✓						Arkose ?
	1120	1130															4							✓						Arkose ? } sugar-textured Qtz.
	1130	1140															5							✓						Arkose ?
	1140	1150															5							✓						Qtz
	1150	1160															5			✓				✓						ARKoseic broken waterway
	1160	1170															3			✓				✓						" Mn Ox, dendritic
	1170	1180															2			✓				✓						"
	1180	1190															3					✓		✓						"
	1190	1200															2					✓		✓						" $CaCO_3$ seams
	1200	1210															2					✓		✓						" " "
	1210	1220															3							✓						" " "
	1220	1230															3							✓	✓					" "
	1230	1240															3							✓	✓					

BRIGHAM YOUNG UNIVERSITY

DDH No. Horne #1 | State Arizona | County Cochise | Mining District Tombstone | Project | Coordinates ____ N ____ E | Collar Elevation | Inclination ____ Bearing ____ | Date Started | Date Completed | Final Depth | Drilling Co.

CORE																															GEOLOGY								REMARKS
Core Box#	FOOTAGE		L1	L2	(-)	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2															core size	Samp. No.											
	1240	1250																										4			M		✓						meta-andesite porphyry -
	1250	1260																										3/6			G		✓						" " "
	1260	1270																										3			E								
	1270	1280																										3			E								
	1280	1290																										4			E		✓						1286' - Breaks to Andesite Diabas
	1290	1300																										0			C		✓						
	1300	1310																										0			B		✓						
	1310	1320																										3			C		✓						
	1320	1330																										4			C		✓						
	1330	1340																										3			C		✓						
	1340	1350																										4			E		✓						
	1350	1360																										4			E		✓						
	1360	1370																										3			E		✓						
	1370	1380																										2			E		✓						
	1380	1390																										3			E		✓						
	1390	1400																										3			E		✓						
	1400	1410																										2			E		✓						
	1410	1420																										4			E		✓						
	1420	1430																										2			E		✓		✓				11' Qtz starts at 1425'
	1430	1440																										3			✓			✓	✓				15' Alteration
	1440	1450																										4			✓			✓					Fine-grained Meta-sediment
	1450	1460																										3						✓					" " " "
	1460	1470																										3						✓					" " " "
	1470	1480																										3						✓					
	1480	1490																										3						✓					
	1490	1500																										3			cl			✓					
	1500	1510																										4						✓					
	1510	1520																										3					✓						
	1520	1530																										4					✓	✓					
	1530	1540																										4						✓					
	1540	1550																										4						✓					

BRIGHAM YOUNG UNIVERSITY

DDH No. Hornet #1 State Arizona County Cochise Mining District Tombstone Project

Coordinates N E Collar Elevation Inclination Bearing

Date Started Date Completed Final Depth Drilling Co.

CORE																		GEOLOGY							REMARKS
Core Box#	FOOTAGE		L1	(-) L2	% Rec. by ft.	Lbs. Rec.	Ox Cu	(S) Cu	Tot. Cu	MOS_2						core size	Samp. No.	Alt	Ser	Sh-Slate	SS-Qtz	Qtz	Pert.	Fort.	Base	
	1550	1560														4					✓					
	1560	1570														4-2					✓					
	1570	1580														3				✓	✓					
	1580	1590														3				✓						
	1590	1600														3				✓	✓					
	1600	1610														3					✓	✓				
	1610	1620														4-2					✓	✓				1' Rib - Qtz.
	1620	1630														4				✓		✓				6" Rib - Qtz.
	1630	1640														7					✓					Minerals, lead-zinc
	1640	1650														5-2				✓	✓					
	1650	1660														2				✓						
	1660	1670														2				✓	✓					
	1670	1680														2				✓						4' dark at 1676'
	1680	1690																		✓						
	1690	1700														2				✓						
	1700	1710														2				✓						
	1710	1720														2				✓						
	1720	1730														2				✓						
	1730	1740														3				✓						
	1740	1750														3				✓	✓					
	1750	1760														4				✓	✓					
	1760	1770														3					✓					Sericite at 1765'
	1770	1780														4					✓	✓				
	1780	1790														3					✓	✓				
	1790	1800														3				✓	✓	✓				
	1800	180														3				✓	✓	✓				5' Quartz
	1810	1820														4				✓						2' Quartz
	1820	1830														3				✓						
	1830	1840														4				✓						
	1840	1850														4				✓						
	1850	1860														3				✓						

BRIGHAM YOUNG UNIVERSITY

DDH No. HORNE #1 State ARIZONA County COCHISE Mining District Tombstone Project

Coordinates N E Collar Elevation Inclination Bearing

Date Started Date Completed Final Depth Drilling Co.

CORE																																				GEOLOGY								REMARKS
Core Box#	FOOTAGE		L1		(-) L2		% Rec. by ft.		Lbs. Rec.		Ox Cu		(S) Cu		Tot. Cu		MOS2										core size	Samp. No.	Alt.		Sec.		Sh-Slate	SS-Qtz	Qtz.	Asp.	Fel.	Basc.	
	1860	1870																								3																		
	1870	1880																								5																		
	1880	1890																								6																		
	1890	1900																								6																		
	1900	1910																																										
	1910	1920																																										
	1920	1930																																										

D.D. #1 Assays

30 So. Main St.
P. O. Box 1889

Jacobs Assay Office

Registered Assayers

PHONE MA 2-0813

85702 Tucson, Arizona, Sept 23rd, 1967

Sample Submitted by Mr. James Stewart Co. By H. Clyde Davis

Sample Marked	GOLD Ozs. per ton ore	GOLD Value per ton ore * $	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	NICKEL Ni. Per Cent Wet Assay	Per Cent Wet Assay	Per Cent Wet Assay
703-713	—	—	—	.08	—	TRACE	—	—

Check to Clyde Davis 11/10/67

* Gold Figured $35.00 per oz. Troy

Charges $ 7.00

Very respectfully,

Ben P. Jacobs

HAWLEY & HAWLEY
ASSAYERS AND CHEMISTS, INC.
1700 W. GRANT RD. • BOX 5934 • 622-4836
TUCSON, ARIZONA 85703

BRANCHES
DOUGLAS, ARIZONA
HAYDEN, ARIZONA
EL PASO, TEXAS
AMARILLO, TEXAS

IDENTIFICATION	GOLD OZS	SILVER OZS	LEAD %	COPPER %	ZINC %	MO. %	IRON %		
Sample	None	0.02		0.02					

RECEIVED
SEP 1 1 1967
JAMES STEWART COMPANY
PHOENIX

CC: James Stewart Company
ADD: 3033 North Central
CITY: Phoenix, Arizona
DD:
CITY:

REMARKS:

ANALYSIS CERT. BY Pluchard

PREPARATION $ 1.00
ANALYSIS $ 8.00

ACC: JAMES STEWART COMPANY

DATE SPL. RECEIVED 9/8/67 | DATE COMPL 9/11/67 | PNX 336897 | $ 9.00PAID

HAWLEY & HAWLEY
ASSAYERS AND CHEMISTS, INC.
1700 W. GRANT RD. • BOX 5934 • 622-4836
TUCSON, ARIZONA 85703

BRANCHES
DOUGLAS, ARIZONA
HAYDEN, ARIZONA
EL PASO, TEXAS
AMARILLO, TEXAS

IDENTIFICATION	GOLD OZS	SILVER OZS	LEAD %	COPPER %	ZINC %	MO. %	IRON %	Ni %
280	None	None		0.05				< 0.03
1632	None	None		0.01				< 0.03
1636	None	0.50	5.60	0.08	8.05			< 0.03

CC: James Stewart Company
ADD: 3033 N. Central
CITY: Phoenix, Arizona
DD:
CITY: Attn: Mr. Cosgrove
ACC: JAMES STEWART CO. - Phoenix

OK

REMARKS: Charge Charles Top

ANALYSIS CERT. BY D. Creighton

PREPARATION $ 2.55
ANALYSIS $ 34.25

DATE SPL. RECEIVED 9/21/67
DATE COMPL 9/26/67
PNX 336987
$ 36.80

6 33

BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH
84601

ERNEST L. WILKINSON, PRESIDENT

OFFICE OF UNIVERSITY DEVELOPMENT

September 8, 1967

Mr. Seth Horne
144 East Country Club Drive
Phoenix, Arizona

Dear Seth:

Enclosed are the spectographic analysis reports of the four samples submitted to Rogers Research & Analysis Company.

I am also enclosing a Certificate of Assay received from Black & Deason.

Sincerely,

H. Clyde Davis

H. Clyde Davis, Director by cc
Mineral Development

HCD:cc

Enclosures

P. O. BOX 1888
165 SOUTH WEST TEMPLE ST.

CERTIFICATE OF ASSAY

TELEPHONE EM 3-2563

BLACK & DEASON

ASSAYERS AND CHEMISTS

H. C. Davis

SALT LAKE CITY, UTAH 84110 September 6, 1957

Hole #1

ASSAY PER TON OF 2000 POUNDS

NAME	NO.	GOLD OUNCES	VALUE GOLD PER TON	SILVER OUNCES	WET LEAD %	COPPER %	INSOLUBLE %	ZINC %	%	IRON %	%
Horne #1		Trace		Trace		0.05	1102'-1107'				
Horne #2		Trace		0.4		0.05	1108'				
Horne #3		Trace		0.4		0.05	1106'-1108'				
Horne #4		Trace		Trace		0.10	1130'-1135'				

CHARGE $ 27.75 total

W. E. Worsley

35

ROGERS RESEARCH & ANALYSIS CO.

X-ray Spectographic & Diffraction Specialists

1009 WEST 5TH SOUTH WEST BOUNTIFUL PHONE 295-4402
P. O. BOX 6, WOODS CROSS, UTAH 84087

Customer's Name Clyde Davis Date Sept 5, 1967

Address 859 E. 2730 North, Provo, Utah 84601 Phone 374-5389

REPORT OF X-RAY SPECTOGRAPHIC (FLUORESCENCE) ANALYSIS — COMPLETE

Type:** Qualitative ☐ Semi-Quantitative ☐ Semi-Quantitative ☒ Quantitative ☐

R.R.A No. 9567-3 Customer's Identification of Sample Number 1

1102-1107

Elements in Sample:

	Antimony		Germanium		Osmium*		Thallium
.1%	Arsenic	Tr	Gold*		Palladium*		Thulium
.6%	Barium		Hafnium		Platinum*		Thorium
Tr	Bismuth		Holmium		Praseodymium	Tr	Tin
	Cadmium		Indium		Rhenium	1.5%	Titanium
	Cerium		Iodine		Rhodium	.1%	Tungsten*
	Cesium		Iridium	Tr	Rubidium		Uranium
.2%	Chromium	9.8%	Iron		Ruthenium*	.2%	Vanadium
Tr	Cobalt		Lanthanum		Samarium		Ytterbium
	Columbium (Niobium)	Tr	Lead		Scandium*		Yttrium
.5%	Copper		Lutecium*		Selenium	.1%	Zinc
	Dysprosium	.3%	Manganese	1 oz/Ton	Silver*	.3%	Zirconium
	Erbium		Mercury	.7%	Strontium		
	Europium	Tr	Molybdenum		Tantalum		
	Gadolinium		Neodymium		Tellerium		
	Gallium	.2%	Nickel		Terbium		

* Limited detection

COMPLETE ANALYSIS: An identification of all the detectable elements present in the sample with an atomic number of 22 or higher.

By [signature]
ROGERS RESEARCH & ANALYSIS CO.

**** REPORT SYMBOLS:**

☐ Qualitative — P = Present, Blank = Non-Present
☐ Semi-Quantitative Qualitative — T = Below .03%, W = .03% to .3%, S = .3% to 3.0%, L = 3.0% to 30.0%, Q = Above 30.0%
☒ Semi-Quantitative — Given in % within ± 10% to 25% of the Element's Concentration
☐ Quantitative — Given in %

TOTAL SERVICE CHARGE $17.00

36

ROGERS RESEARCH & ANALYSIS CO.

X-ray Spectographic & Diffraction Specialists

1009 WEST 5TH SOUTH WEST BOUNTIFUL PHONE 295-4402
P. O. BOX 6, WOODS CROSS, UTAH 84087

Customer's Name Clyde Davis Date Sept 5, 1967

Address 859 E. 2730 North. Provo, Utah Phone 374-5389

REPORT OF X-RAY SPECTOGRAPHIC (FLUORESCENCE) ANALYSIS — COMPLETE

Type:** Qualitative ☐ Semi-Quantitative ☐ Semi-Quantitative ☒ Quantitative ☐

R.R.A No. 9567-4 Customer's Identification of Sample Number 2

1108'

Elements in Sample:

	Antimony		Germanium		Osmium*		Thallium
Tr	Arsenic	.1 oz/ Ton	Gold*		Palladium*		Thulium
.5%	Barium		Hafnium		Platinum*	Tr	Thorium
Tr	Bismuth		Holmium		Praseodymium		Tin
	Cadmium		Indium		Rhenium	.8%	Titanium
	Cerium		Iodine		Rhodium	Tr	Tungsten*
	Cesium		Iridium	Tr	Rubidium		Uranium
.1%	Chromium	4.7%	Iron		Ruthenium*	Tr	Vanadium
	Cobalt		Lanthanum		Samarium		Ytterbium
	Columbium (Niobium)	.1%	Lead		Scandium*	.1%	Yttrium
.3%	Copper		Lutecium*		Selenium	.2%	Zinc
	Dysprosium	.4%	Manganese	Tr	Silver*	.3%	Zirconium
	Erbium		Mercury	~~1B~~ .2%	Strontium		
	Europium	Tr	Molybdenum		Tantalum		
	Gadolinium		Neodymium		Tellerium		
	Gallium	.2%	Nickel		Terbium		

● Limited detection

COMPLETE ANALYSIS: An identification of all the detectable elements present in the sample with an atomic number of 22 or higher.

By [signature]
ROGERS RESEARCH & ANALYSIS CO.

*** REPORT SYMBOLS:**

- ☐ Qualitative — P = Present, Blank = Non-Present
- ☐ Semi-Quantitative Qualitative — T = Below .03%, W = .03% to .3%, S = .3% to 3.0%, L = 3.0% to 30.0%, Q = Above 30.0%
- ☒ Semi-Quantitative — Given in % within ± 10% to 25% of the Element's Concentration
- ☐ Quantitative — Given in %

TOTAL SERVICE CHARGE $ 17.00

37

ROGERS RESEARCH & ANALYSIS CO.

X-ray Spectographic & Diffraction Specialists

1009 WEST 5TH SOUTH WEST BOUNTIFUL PHONE 295-4402
P. O. BOX 6, WOODS CROSS, UTAH 84087

Customer's Name Clyde Davis Date Sept 5, 1967

Address 859 E. 2730 N. Provo, Utah Phone 374-5389

REPORT OF X-RAY SPECTOGRAPHIC (FLUORESCENCE) ANALYSIS — COMPLETE

Type:** Qualitative ☐ Semi-Quantitative ☐ Semi-Quantitative ☒ Quantitative ☐

R.R.A No. 9567-5 Customer's Identification of Sample Number 3 1106-1108

Elements in Sample:

	Antimony		Germanium		Osmium*		Thallium
.2%	Arsenic	Tr	Gold*		Palladium*		Thulium
.1%	Barium		Hafnium		Platinum*		Thorium
	Bismuth		Holmium		Praseodymium	.1%	Tin
	Cadmium		Indium		Rhenium	.8%	Titanium
	Cerium		Iodine		Rhodium		Tungsten*
	Cesium		Iridium	.3%	Rubidium	Tr	Uranium
.1%	Chromium	14.9%	Iron		Ruthenium*	Tr	Vanadium
Tr	Cobalt		Lanthanum		Samarium		Ytterbium
	Columbium (Niobium)	.6%	Lead		Scandium*		Yttrium
.1%	Copper		Lutecium*		Selenium	1.2%	Zinc
	Dysprosium	.2%	Manganese	3 oz/Ton	Silver*	.4%	Zirconium
	Erbium		Mercury	.8%	Strontium		
	Europium		Molybdenum		Tantalum		
	Gadolinium		Neodymium		Tellerium		
	Gallium	Tr	Nickel		Terbium		

* Limited detection

COMPLETE ANALYSIS: An identification of all the detectable elements present in the sample with an atomic number of 22 or higher.

By R. W. Rogers
ROGERS RESEARCH & ANALYSIS CO.

** REPORT SYMBOLS:

☐ Qualitative — P = Present, Blank = Non-Present
☐ Semi-Quantitative Qualitative — T = Below .03%, W = .03% to .3%, S = .3% to 3.0%, L = 3.0% to 30.0%, Q = Above 30.0%
☒ Semi-Quantitative — Given in % within ± 10% to 25% of the Element's Concentration
☐ Quantitative — Given in %

TOTAL SERVICE CHARGE $ 17.00

ROGERS RESEARCH & ANALYSIS CO.

X-ray Spectographic & Diffraction Specialists

1009 WEST 5TH SOUTH WEST BOUNTIFUL PHONE 295-4402
P. O. BOX 6, WOODS CROSS, UTAH 84087

Customer's Name Clyde Davis Date Sept 5, 1967

Address 859 E. 2730 North, Provo, Utah Phone 374-5389

REPORT OF X-RAY SPECTOGRAPHIC (FLUORESCENCE) ANALYSIS — COMPLETE

Type:** Qualitative ☐ Semi-Quantitative ☐ Semi-Quantitative ☒ Quantitative ☐

R.R.A No. 9567-6 Customer's Identification of Sample Number 4 1130-1135

Elements in Sample:

	Antimony		Germanium		Osmium*		Thallium
.3%	Arsenic	Tr	Gold*		Palladium*		Thulium
.5%	Barium		Hafnium		Platinum*		Thorium
	Bismuth		Holmium		Praseodymium	Tr	Tin
	Cadmium		Indium		Rhenium	1.6%	Titanium
	Cerium		Iodine		Rhodium	.1%	Tungsten*
	Cesium		Iridium	.2%	Rubidium		Uranium
.1%	Chromium	2.6%	Iron		Ruthenium*		Vanadium
	Cobalt		Lanthanum		Samarium		Ytterbium
	Columbium (Niobium)	.1%	Lead		Scandium*		Yttrium
.3%	Copper		Lutecium*		Selenium	.2%	Zinc
	Dysprosium	.4%	Manganese	2 oz/Ton	Silver*	.4%	Zirconium
	Erbium		Mercury	.3%	Strontium		
	Europium	Tr	Molybdenum		Tantalum		
	Gadolinium		Neodymium		Tellerium		
	Gallium	Tr	Nickel		Terbium		

* Limited detection

COMPLETE ANALYSIS: An identification of all the detectable elements present in the sample with an atomic number of 22 or higher.

By E. W. Rogers
ROGERS RESEARCH & ANALYSIS CO.

** REPORT SYMBOLS:

- ☐ Qualitative — P = Present, Blank = Non-Present
- ☐ Semi-Quantitative Qualitative — T = Below .03%, W = .03% to .3%, S = .3% to 3.0%, L = 3.0% to 30.0%, Q = Above 30.0%
- ☒ Semi-Quantitative — Given in % within ± 10% to 25% of the Element's Concentration
- ☐ Quantitative — Given in %

TOTAL SERVICE CHARGE $ 17.00

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

Made for James Stuart Co. Tempe, Arizona, Sept. 8, 1967

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			TOTAL	
	GOLD				SILVER											
	AT 35.00 PER OUNCE				AT 1.60 PER OUNCE				AT 0.38 PER LB.			AT PER LB.				
	OZS.	100's	$	CTS.	OZS.	100's	$	CTS.	%	$	CTS.	%	$	CTS.	$	CTS.
1098'					0.	30		48	0.05		38					86
Clyde- 1102	0.	02		70	0.	80	1	28	.10		76				2	74
" 1130	0.	01		35	0.	40		64								
" 1260					0.	60		96	.05		38				1	30
" 1290					0.	40		64								64

REMARKS:

REGISTERED ASSAYER
CERTIFICATE EXPIRES
L. LEE
BUYER
DEC. 31, 1967
ARIZONA, U.S.A.

NO.

BY L. Lee Boyer
Registered Assayer.

CHARGE $ 21.00

VALLEY ASSAY OFFICE
AND ORE TESTING LABORATORY
MEMORANDUM OF ASSAY

Made for James Stuart Co. Tempe, Arizona, Sept. 8, 19 67

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			~~#### OR~~ Nickel			TOTAL	
	GOLD				SILVER											
	AT		PER OUNCE		AT		PER OUNCE		AT		PER LB.	AT		PER LB.		
	OZS.	100's	$	CTS.	OZS.	100's	$	CTS.	%	$	CTS.	%	$	CTS.	$	CTS.
860' to 887'												0.15				

REMARKS:

REGISTERED ASSAYER CERTIFICATE EXPIRES L. LEE BOYER DEC. 31, 1967 ARIZONA, U.S.A.

NO.

BY L. Lee Boyer
Registered Assayer.

CHARGE $ 7.50 Pd.
L.L.B.

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

Made for James Stuart Co. Tempe, Arizona, Sept. 11, 19 67

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			TOTAL	
	GOLD				SILVER											
	AT		PER OUNCE		AT 1.60		PER OUNCE		AT 0.38		PER LB.	AT		PER LB.		
	OZS.	100's	$	CTS.	OZS.	100's	$	CTS.	%	$	CTS.	%	$	CTS.	$	CTS.
860 to 864'					0.	60		96	.10		76				1	72
893 to 904'					0.	40		64	.05		38				1	02

REMARKS:

REGISTERED ASSAYER CERTIFICATE EXPIRES L. LEE BOYER DEC. 31, 1967 ARIZONA, U.S.A.

NO.

BY L. Lee Boyer
Registered Assayer.

CHARGE $ 8.00 - Pd. Ck. 2411 9/11/67

24 6

VALLEY ASSAY OFFICE
AND ORE TESTING LABORATORY
MEMORANDUM OF ASSAY

Made for James Stuart Co. Tempe, Arizona, Sept. 7, 19 67

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			~~PLATINUM~~ OR Nickel			TOTAL	
	GOLD				SILVER											
	AT		PER OUNCE		AT		PER OUNCE		AT		PER LB.	AT		PER LB.		
D.D.Core	OZS.	100's	$	CTS.	OZS.	100's	$	CTS.	%	$	CTS.	%	$	CTS.	$	CTS.
860'to887'												Present				
887'to930'												Present				

REMARKS: The Core from the 860' to 887'is high in Copper in places.

NO.

CHARGE $ 4.00

BY L. Lee Boyer
Registered Assayer.

REGISTERED ASSAYER
CERTIFICATE EXPIRES
L. LEE
BOYER
DEC. 31, 1967
ARIZONA, U.S.A.

Shop No. 7456
File No. 1988 S T

Date 16 AUG 1967

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

JAMES STEWART CO
3033 N.Central
Phoenix Arizona

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON		GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON		TOTAL VALUE PER TON of Gold & Silver		PERCENTAGE COPPER	PERCENTAGE LEAD	PERCENTAGE ZINC		REMARKS
CHARLESTON # 20		.8	$1.	20		.03	$1.	05			0.055	TRACE	2.00		510'

Charges $ 10.00 PAID

Assayer

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK E. A. STONE
DEC. 31, 19
JACK STONE REG. NO. 5470

ANDY CHUKA, PRINT

Shop No. 7465
File No. 1989 S T

Date 21 AUG 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

JAMES STEWART CO
3033 N.CENTRAL
PHOENIX ARIZONA

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

THIS CERTIFIES
Samples submitted for assay contain as follows:

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON	GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE COPPER	PERCENTAGE LEAD	PERCENTAGE ZINC		REMARKS
# 21		.4	$ .60		.03	$1.05		0.04	0.20			898'
# 22		.4	$ .60		.02	$ .70		0.045	TRACE			810'
# 23		.6	$ .90		.01	$ .35						Lpin surface
# 102		.4	$ .60		.02	$ .70		0.055	0.20	1.00		864. 869

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK E. A. STONE
DEC. 31, 19[illegible]
ARIZONA, U.S.A.

Charges $ 29.00

Assayer.....
JACK STONE REG. NO. 5479

ANDY CHUKA, PRINT

Shop No. 7410S
File No. 1999 ST

Date 13 SEPT 1967

VALUES
Latest Quotation

1 oz. Gold
1 oz. Silver
1 lb. Copper
1 lb. Lead
1 lb. Zinc

THIS CERTIFIES
Samples submitted for assay contain as follows:

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

JAMES STEWART CO
3033 N.CENTRAL
PHOENIX ARIZONA

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON	GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE COPPER	REMARKS
1541		.3	$.45					0.07	
Hole #1									

Charges $ 5.00

Assayer

JACK STONE REG. No. 5479

ANDY CHUKA, PRINT

Shop No. 7428
File No. 1375 CO

Date 28 SEPT 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

RECEIVED
SEP 21 1967
JAMES STEWART COMPANY
PHOENIX, ARIZONA

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

MR.COSGROVE
JAMES STEWART CO

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON		GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON		TOTAL VALUE PER TON of Gold & Silver		% PERCENTAGE COPPER				REMARKS
											0.025				

Charges $ 2.50 PAID

Assayer REGISTERED ASSAYER CERTIFICATE EXPIRES DEC. 31, 1967 JACK STONE ARIZONA
JACK STONE, REG. NO. 5479

ANDY CHUKA, PRINT

Shop No. 7425
File No. 2003 ST

Date 22 SEPT 1967

VALUES
Latest Quotation

1 oz. Gold
1 oz. Silver $1.50
1 lb. Copper
1 lb. Lead
1 lb. Zinc

THIS CERTIFIES
Samples submitted for assay contain as follows:

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

JAMES STEWART CO
707 MAYER CENTRAL BLDG
3033 N.Central Ave
Phoenix Arizona 85012

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON		GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON		TOTAL VALUE PER TON of Gold & Silver		PERCENTAGE Copper	PERCENTAGE LEAD	PERCENTAGE ZINC	PERCENTAGE Ni.	REMARKS
720		.8	$1.	20								TRACE	11.4		
60											0.08			X	

Ni.will follow when complete

Charges $ 28.50

Assayer

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK E. STONE
DEC. 31, 1967
ARIZONA, U.S.A.

JACK STONE Reg. No. 5479

ANDY CHUKA, PRINT

Shop No. 7425
File No. 2003 ST

Date 22 SEPT 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

JAMES STEWART CO

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON		GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON		TOTAL VALUE PER TON of Gold & Silver		PERCENTAGE Ni.				REMARKS
720											NIL				
60											NIL				

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK E. A. STONE
DEC. 31, 19 69
ARIZONA, U.S.A.

Charges $ XXXXX

Assayer.....
JACK STONE REG. No. 5479

ANDY CHUKA, PRINT

Shop No. 7500
File No. 1986 S T

Date 15 AUG 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

JAMES STEWART CO
Clarence Cosgrove
3033 N.Central
Phoenix Arizona

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON	GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE COPPER	PERCENTAGE LEAD	PERCENTAGE ZINC	REMARKS
54' # 10 - Quartz								0.26	TRACE	1.20	
55' #13 - High Grade Qtz		.7	$1.05		.11	$3.85		0.25	TRACE	4.90	

REGISTERED ASSAYER
CERTIFICATE EXPIRES
DEC. 31, 1967
ARIZONA, U.S.A.
JACK W. STONE Reg. No. 5479

Charges $ 18.50

Assayer .....

ANDY CHUKA, PRINT

Shop No. 7446
File No. 1996 ST

Date 8 SEPT 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

JAMES STEWART CO
3033 N.CENTRAL
PHOENIX ARIZONA

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON		GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON		TOTAL VALUE PER TON of Gold & Silver		PERCENTAGE				REMARKS
CORE	2.	1	$3.	15											

Charges $ 2.50

Assayer

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK STONE
DEC. 31, 19
ARIZONA, U.S.A.
JACK STONE REG. No. 5479

ANDY CHUKA, PRINT

Shop No. 7434S
File No. 1993 ST

Date 31 AUG 1967

Arizona Assay Office

815 NORTH FIRST STREET
Phone: 253-4001

Phoenix, Arizona 85001
P. O. BOX 1148

VALUES
Latest Quotation

1 oz. Gold.....
1 oz. Silver.....
1 lb. Copper.....
1 lb. Lead.....
1 lb. Zinc.....

THIS CERTIFIES
Samples submitted for assay contain as follows:

JAMES STEWART CO
3033 N.CENTRAL
PHOENIX ARIZONA

Short Ton ..... 2000 Lbs.
Short Ton Unit ..... 20 Lbs.
Long Ton ..... 2240 Lbs.
Long Ton Unit ..... 22.4 Lbs.

MARKS	SILVER PER TON Ozs.	SILVER PER TON Tenths	VALUE PER TON	GOLD PER TON Ozs.	GOLD PER TON 100ths	VALUE PER TON	TOTAL VALUE PER TON of Gold & Silver	PERCENTAGE COPPER				REMARKS
# 120		.7	$1.05	TRACE				0.485				1102-1106
# 121		.4	$.60	NIL				0.095				1108
#122		.4	$.60	NIL				0.035				1104-1108

REGISTERED ASSAYER
CERTIFICATE EXPIRES
JACK E. STONE
DEC. 31, 1967
ARIZONA, U.S.A.

Charges $ 16.50

Assayer.....
JACK STONE REG. No. 5479

ANDY CHUKA, PRINT

HECTOR C. ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2472

CERTIFICATE OF ASSAY

Name James Stewart Co. Address 3033 N Central Ave. Phoenix, Arizona

	GOLD OZS	SILVER OZS	COPPER %	LEAD %					
Lab 21468 # 101	Tr	Tr	0.029						
21469 # 102	Tr	0.04	0.033						

REGISTERED ASSAYER CERTIFICATE 4073 H. C. ROCHIN ARIZONA, U.S.A.

REMARKS:
Run in duplicate

DATE: 26 Sept 67

CHARGES: $ 13.00

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ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemists . . . Engineers

For: Clarence Cosgrove
1001 West Amelia
Phoenix, Arizona

Date: September 19, 1967

Lab. No.: 1708

Sample: Ore

Marked: 1508 Hole #1 Depth 150 8'

Received: 9-13-67

Submitted by: Same

Report of Laboratory Tests

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element	Approximate Percent
Boron	0.005
Silicon	Major Constituent
Aluminum	Intermediate Constituent
Manganese	0.2
Magnesium	3.0
Gallium	0.003
Iron	3.0
Vanadium	0.005
Calcium	2.0
Copper	0.02
Sodium	1.0
Titanium	0.4
Zirconium	0.5

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

Claude E. McLean, Jr.

CHEMICAL • RESEARCH • ASSAY • ORE TESTING • PHYSICAL TESTING

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ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemists . . . Engineers

For: **James Stewart Company**
3033 North Central Avenue
Phoenix, Arizona

Date: **August 8, 1967**

Lab. No.: **1622**

Sample:

Marked: ----

Received:

Submitted by: **Same**

Report of Laboratory Tests

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element	Approximate Percent
Boron	0.01
Silicon	Major Constituent
Aluminum	2.0
Manganese	0.02
Magnesium	0.2
Lead	5.0
Gallium	0.003
Copper	0.2
Iron	9.0
Niobium	Nil
Zinc	5.0
Titanium	0.1
Silver	0.05
Tantalum	Nil

Respectfully submitted

ARIZONA TESTING LABORATORIES

Claude E. McLean

Claude E. McLean, Jr.

Charleston Mine
Wart Ashley Pit - 15% lead

55
6
7e.

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemists . . . Engineers

For: James Stewart Company
3033 North Central
Phoenix, Arizona

Date: September 6, 1967

Lab. No.: 1687

Sample: Marked: Crystal from limestone interface

Received: 9-1-67

Submitted by: Mr. Jones

Report of Laboratory Tests

REPORT OF QUALITATIVE SPECTROGRAPHIC ANALYSIS

Element	Approximate Percent
Manganese	0.3
Magnesium	0.3
Lead	1.0
Silicon	2.0
Copper	0.1
Iron	Major Constituent
Aluminum	1.0
Calcium	9.0
Titanium	0.01
Silver	Nil

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

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ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemists . . . Engineers . . . Geologists

For James Stewart Company
3033 North Central Avenue
Phoenix, Arizona

Date September 6, 1967

Sample of Ore

Received: 9-1-67

Submitted by: Mr. Jones

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce

Silver figured at $ 1.80 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER *		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE		
1693	LWP #2, 4' from bottom	nil		nil*			

* Determined chemically.

Respectfully submitted,
ARIZONA TESTING LABORATORIES
Claude E. McLean, Jr.

ASSAY & DETERMINATION

	depth		Cu	Ag	Au	Ni	Pb	Zn
1	265		0.09	0.4			0.16	0.44
	280		0.05			.03		
	315	~~EM~~ International nickel assay	⊕ 1.0%					
2	360		0.03				0.07	0.21
3	415		0.1				0.06	0.10
4	510	Chemical	0.03				0.16	0.21
		~~Check~~ Fire assay	0.055		.03		Tr	2.0
5	525	Chemical	0.01				.06	.10
		~~Check~~ Fire assay	0.25	.7	.11		Tr	
6	541		.01				.06	.12
	642		.26				Tr	1.2
	703 - 713	} Highest Concentration of Pyrites	.08			.01		
	720		.08			NONE		
	810		.02		.02			
	860 - 887					.15		
	869	Analyser	3.0					
	864 -		.055	.4	.02		.02	1.0
	898		.04	0.7	.03			
	1102 - 6	Fire assay	.485	0.7	Tr			
		Spec - Utah	.5	1.0	Tr	0.2	Tr	0.1
	1108	Fire assay	.095	.04				
		Spec - Utah	.30	Tr	0.1		1.0	0.2
	1106 - 08	Fire assay	.10	3.0	Tr		0.6	
		Spec - Utah	.3	Tr	.10	0.2	.10	0.2
	1148		.035	.04				
	1130 - 35	Spec Utah	0.3	2.0	Tr			0.2
	1300		.02	.02				
	1541		.07	.3				
	1508	Spec - Phinx	.01				1.0	
	1632		01	Nil	Nil	.03		
	1636		.08	0.5	Nil	.03	5.6	8.05

Hawley -

#280 - Cu .05
Ni (-.03)

1632 Cu .01
Ni (-.03)

1636 PB 5.60
Cu .08
Zn 8.05
Ni (-.03)

Invoice # 7425

Anzona assay. 9/22/6

#720 - Ag .8
Pb Trace -
Zn 11.40 %
Ni

60 - Cu - .08
Ni

Jacobs Assay - 622-0813

703 - 713 - Cu .08
Ni (-.01)

ACCURACY PAPERS BY Westab
NO. 8300 10 SQUARES PER INCH - QUAD

		Cu	Ag oz	Au	Ni	Pb %	Zn %	
Surface Sericite	B		.05			5.2	5.9	B West Side +15' Spec 1622
	A		0.8			Tr	11.4	A Zinc Vein - Assay
(1) 265		.09	0.4			.16	0.44	
280		.05			.03			
(2) 360		.03				.09	.21	
(3) 415		.01				.06	.10	
(4) 510		.03				11.6	.21	Chem
Check		.055		.03		Tr	2.0	Fire
(5) 525		.01				.06	.10	Chem
Check		.25	.7	.11		Tr		Fire
(6) 541		.01				.06	.12	
636		—				—	—	
642		.26				Tr	1.2	
703-13		.08			.01			Jacobs Assay
720		.08			None			Highest Concentration of Pyrites
810		.02		.02				
869 - Clyde		3.0						Analyser
864		.055	.4	.02		.02	1.0	
898		.04	0.7	.03				
1102-6 Fire		.485	0.7	Tr				
Clyde		.5	1.0	Tr	0.2	Tr	0.1	
1108		.095	.04	—	—	—	—	
Clyde		.30	Tr	0.1		1.0	0.2	
1106-08		.10	3.0	Trace		0.6	1.2	
1140 Fire		.035	.04	—				
1130-35 Clyde		0.3	3.0	Tr			0.2	
1300		.02	.02	—				
1541		.07	.3					
1508	Spect	.01				1.0		
1632		.01	N.I	N.I	.03			
1636		.08	0.5	N.I	.03	5.6	8.05	

Samples Correlated with Clyde

JSCo		Clyde	Cu	Ag	Cu spec	Ag
A -	1074 - 1078					
B -	1096					
C	1102 - 1107	# 1	.05	TR	0.5	1oz
D	1108 - 1110	# 2				
E	1106 - 1108	# 3	.05	0.4	0.1	3.0oz
F	1130 - 1135	# 4	.10	TR	0.3	2.0oz
G	1143 - 1148					
H	1148 - 1149					

JSCo		Cu	Ag
#120 = E = 1106 - 1108 = #3		0.485	0.7
121 = C = 1102 - 1107 = #1		.095	0.4
122 = H = 1148 - 1149		.035	0.4
123 - LWP #2 Surface			
1541' -		.07	0.3

ACCURACY PAPER Westab NO. 4364 5 SQUARES TO THE CENTIMETER

Misc Assays.

Arizona Assay - Core - 1300' 2oz Silver
#7446 - File 1996 ST.
Taken in By Harlow.

Arizona Assay			Au	Cu	Ag	Pb	Zn
#7434	#120	1102-1106	Trace	.485	0.7		
	121	1108	Nil	.095	0.4		
	122	1148	Nil	.035	0.4		
#7465	#21	898'	.03	.04	.4	.02 ~~.04~~	~~.03~~
	#22	816'	.02	.045	.4	TR ~~.045~~	~~TR~~
	#23		.01		.6		
	#102	864-869	.02	.055	.4	.02 ~~.045~~	1.0
7456	#20	Check # A.T. Lab.	.03	.055	.8	TR	2.0
7500	#10	642'		.26		TR	1.0
	#13	525'	.11	.25	.7	TR	4.9

Arizona Testing Lab.					
1	265'	.09	0.4	0.16	.44
2	360'	.03	—	.09	.21
3	415'	.01	—	.06	.10
4	510'	.03	—	0.16	.21
5	525'	.01	—	.06	.09
6	541'	.01	—	.06	.12
Spec #1622				5.0	5.

Note: Sample 102 - Clyde's Analyzer Shows 3% Cu.

ACCURACY PAPER westab NO. 8364 5 SQUARES TO THE CENTIMETER

62

Valley

Sack Samples - Split Core

				Ag	Cu
101 -		860.5 - 864.5	→ Sample 1A To Lee Boyer	0.6	.10
~~102~~ 101	864.5				
102	869.5				
103	874.0				
104	878.7				
105	882				
106	887.5				
107	893				
108	898	Sample 2A - To Lee Boyer 9/10/67		0.40	.05
109	904.2				
110	909.2				
111	913.6				

Hawley

Au	Nil	
Ag	.02 oz	
Cu	.02 %	

Test 1300' zone

$9.00

336 897

ASSAYS.

		Cu	Au	Ag	Ni	Pb	Zn
#280	Hawley	.05%			(-.03)		
1632	✓	.01			-(.03)		
1636	✓	.08			-(.03)	.5.6%	8.05%
#720	Arizona #7425	.08			None		
60	✓ ✓			0.8	None	TR	11.40%
703-13	Jacobs 622-0813	.08			.01		

ACCURACY PAPER by Westab
NO. 8304 5 SQUARES TO THE CENTIMETER

#	Samples Prepared	Samples Assayed
10	642	**
11	636	
12	541	
13	525	*
14	510'	
15	415	
16	360	
17	265'	
18	516-520	

ACCURACY PAPER westab
NO. 8384 5 SQUARES TO THE CENTIMETER

T Box Checks-

Box #	Cu ' "	Ag ' "	Comparative Cu	Comparative Ag	Footage
43	5½	10"	.01		411-419
37	12	14"	.03		356-366
53	10	15"	.055-.03		505-514
55	15	7"			523-532
56	15	9"	.01		532-542
187	11	12"	3.0		837-847
192	0 37	1 - 09			882-893
193	7' 26"	1' 19	.04	0.7	893-904
194	5' 27"	0 18			904-914
195	0 38	0 23			914-922
196	1 03	0 11			922-932
30	25	24			292-301.6
29	19	20	.05		282 292
28	27	27			294-282
27	20	14			264-274
26	15	12			254-264
25	5	3			245 .254
24	5	3			235.5-245
23	10	6			227-235.5
22 B	10	5			217-227
22 A	5	5			209-217
21 L	4	5			199-209
20	6	8			189-199
19	5	6			179-189
242	12"	2' 10"			1367-77
243	18"	1' 53"			1377-1386
239	27	3' 38"			1340 1350
238	51"	2' 09"			1330-1340
233	20"	2' 06"	(Reverse Curve) .02	.02	1290-1300

Not significant

Tests By Glen Peterson

Not valid method
Per Del Peterson

ACCURACY PAPERS BY Westab
NO. 8360 10 SQUARES PER INCH—QUAD

	% Cu	oz Ag	Pb	Zn	Au	Ni
1541'	.07	.3				
860-887						.15
* 1098	.05	.3				
1102	.10	0.8			.02	
1130		0.4			.01	
1260	.05	0.6				
1290	.04					
720		.8	Tr	11.4		
60	.08					
280	.05	—			—	Tr
1632	.01	—			—	
1636	.08	0.5	5.60	8.05		$32.76
713	.08					Tr

19

Assay Hole #1

	Cu	Ag	Au	Pb	Zn	Ni
60	.08					
280	.05					
510	.055					
525						
541						
642						

CHARLESTON - Hole # 1

Valid 8

		Cu	Ag	Pb	Zn	Au		
	265'	.09	0.4	0.16	.44			
	360	.03		.09	.21			
	415	.01		.06	.10			
	510	.03		.16	.21			
	525	01		06	.09			
	~~525~~							
	541	01		06	.12			
#10	649	.26	*	Tr	1.20	*	AA	5.40
#13	525	.25	.7	Tr	4.90	.11	AA	21.12
20	510	.055	.8	Tr	2.0	03	AA	8.94
	541	.07	.3				AA	
21	898'	.04	.4			03	AA	
22	810'	.045	.4			.02	AA	
~~23~~	~~1 foot~~		~~.6~~			~~.01~~	~~AA~~	
102	864-869	.055	.4	02	1.0	.02	AA	
120	1102-1106	.485	.7			Tr	AA	5.75
121	~~1106~~-1108	.095	.4				AA	
122	1106-1105	.035	.4				AA	
Core			2.1 oz				AA	504
	860-864	.10	0.6				VA	
	893-904	.05	0.4				VA	

Questionable

OUR MOTTO. — WHAT THERE IS IN IT, NO MORE NO LESS

M. E. PHILLIPS, SECRETARY

EDMUND E. PHILLIPS, VICE-PRES.—GEN. MGR.

THE COLORADO ASSAYING COMPANY

(INCORPORATED)

ASSAYERS AND CHEMISTS

2214 BROADWAY

DENVER 1, COLORADO March 25, 1967

REPORT ON DETERMINATIONS MADE FOR — Golden Cycle Corp.,
Colorado Springs, Colorado

SAMPLE MARKS	METALS	Amount per Ton Ozs	Amount per Ton Hds.	PER CENT	Value per Ton Dollars	Value per Ton Cents
#1	Silver	0.80				
	Copper			2.35		
#2	Silver	4.90				
	Copper			4.50		
#3	Silver	3.40				
	Copper			3.35		
#4	Silver	3.40				
	Copper			2.80		
	Molybdenum Sulphide			0.01		

THE COLORADO ASSAYING COMPANY

GOLD AT _____ PER OUNCE
LEAD AT _____ PER UNIT

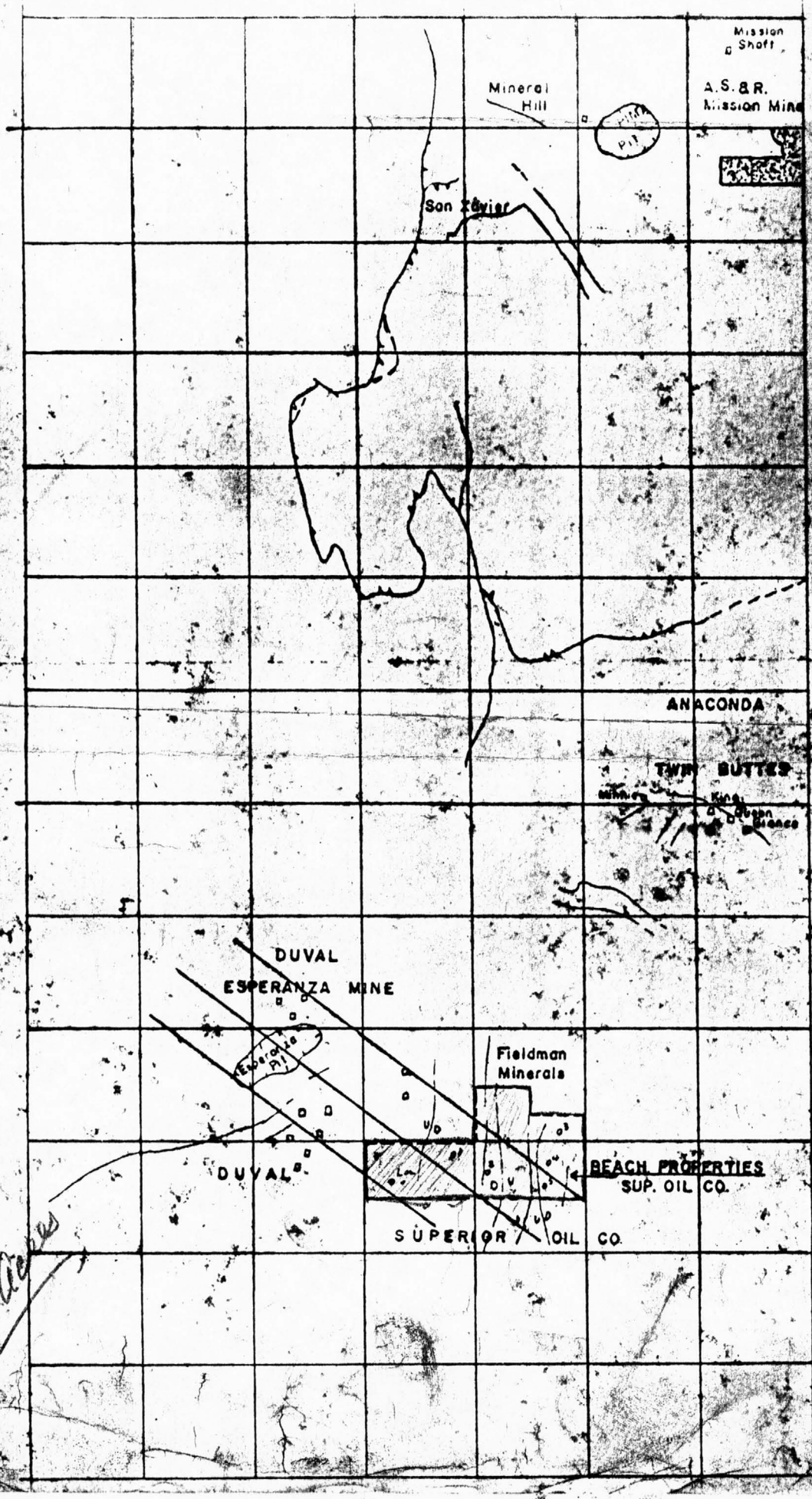
SILVER AT _____ PER OUNCE
COPPER AT _____ PER UNIT

By Ed. Phillips

NOTE:

Average Value Silver $ 4.03 @ 1.30 oz
Average Value Copper 24.70

Total Average Value $28.73


Mission Shaft
Mineral Hill
A.S.&R. Mission Mine
Pit
San Xavier
ANACONDA
TWIN BUTTES
Mission
King
Queen
Esperanza
DUVAL
ESPERANZA MINE
Esperanza Pit
Fieldman Minerals
DUVAL
BEACH PROPERTIES
SUP. OIL CO.
SUPERIOR OIL CO.

860 acres

JAMES STEWART COMPANY

Wed P.M.

Clyde

Sorry to have missed you

I have samples as follows:

A - 1074 - 1078

B - 1096

#1 C - 1102 - 1107

D - 1108 - 1110

#3 E - 1106 - 1108

#4 F - 1130 - 1135

G - 1143 - 1148

H 1148 - 1149

Ok I have like samples.

Previously we took samples up to

1056 -

Clarence

363-2563

893
913

SETH
AU 42181

*	Cu	Ag	Pb	Zn	Reported —
1 (265)	.09	.40	.16	.44	
2 (360)	.03	—	.09	.21	
3 (415)	.01	—	06	.10	
4 (510)	.03	—	.16	.21	
5 (525)	.01		.06	.09	
6 (541)	.01		.06	.12	

Anyone testing fab.

FORM 140 1M 8-58 AMPCO 18740

MINE

JAMES STEWART COMPANY

Place this number on your invoices.

Assey Samples -

Aug 19, 1967

Order No._____

_____, 19____

JAMES STEWART COMPANY (the Contractor), agrees to purchase and _____(the Seller) agrees to deliver the following material.

Sack No.	Footage
101	860.5 – 864.5
102	864.5 – 869.5
103	869.5 – 874
104	874 – 878.7
105	878.7 – 882
106	882 – 887.5
107	887.5 – 893 (Dark Brown material)
108	893 – 898 (" " ")
109	898 – 904.2 (" " ")
110	904.2 – 909.2 (Some dark Brown)
111	909.2 – 913.6

Render copies of invoice direct to this office and two copies of shipping list to our field office.

Unless otherwise specified any and all materials furnished must be very best quality, and all material failing to meet the proper requirements or specifications is to be immediately removed from the premises by the Seller at his own expense and replaced with satisfactory material without delay to the work or buildings. The seller assumes all risk for material until delivered to the Contractor and all rejected material is held only at Seller's risk.

Unless otherwise stated above, payment shall be made on or about the 20th of the month for all material delivered the preceding month.

The Contractor reserves the right to control routing, freight rates being equal.

Kindly sign and return_____copies to Contractor, retaining the original for your files.

Accepted:_____

JAMES STEWART COMPANY

By_____

Order No._____

3226 East 46th Street

File #2-31 D.D. #1

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Hewitt Enterprises

DATE Oct. 8, 1970

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	Percent Ni
DDH # 1 13[illegible]-1339.5								.0043

RECEIVED
OCT 19 1970
JAMES STEWART CO...
PHOENIX, ARIZONA

Invoice #5387

CHARGES $ 3.00

Peter S. Hour
10/8/70

ASSAYER-CHEMIST

Memorandum To File

Charleston Mine

Samples - For assay on Monday 8/21/67

21 - Grab Sample - 898 ft. - Diabase rock.
Dark Blue grey quartz
Very fine grained + tight
Crystalls of Pyrites + Calcopyrites
Isolated + sparse - Veinlets
of Iron Copper yellowish brown
at Fractures.

22 - Grab Sample - Light grey andesite
with yellow Crystal
masses with contacts of
green - Veins of Bluish
Quartz with yellow
material in contact
@ 810'

23 - Redish rock from LWP Claim
being assayed for silver and gold.

102
~~#24~~ - Sample - Split Core from 864.5 to 869.5.

6.

16

JAMES STEWART COMPANY

GENERAL CONTRACTORS

707 MAYER CENTRAL BUILDING
3033 NORTH CENTRAL AVENUE • PHOENIX, ARIZONA 85012
602-264-2181

RE: Charleston Mine
Assay Record - Hole #1

August 2, 1968

Depth	% Cu	Oz Ag	Oz Au	% Ni	% Pb	% ZN
60'	.08					
265'	.09	.04			0.16	0.44
280'	.05			.03		
315'	1.0					
360'	.03				.09	.21
415'	0.1				.06	.10
510'	.055		.03			
525'	.25	0.7	0.11		Tr	
541'	.01				.06	.12
642'	.26				Tr	1.2
703' - 713'	.08			.01		
720'	.08					
810'	.02		.02			
860' - 887'				.15		
864'	.055	.4	.02		.02	1.0
898'	.04	.7	.03			
1098'	.05	.3				
1102' - 1106'	.485	0.7	Tr			
1108'	.095					
1106'	.10	3.0	Tr		0.6	
1130'	-	0.4	.01			
1148'	.035	.04				
1130' - 1135'	0.3	2.0	Tr			0.2
1260'	.05	0.6				
1300'	.02	.02				
1541'	.07	.3				
1632'	.01	Nil	Nil	.03		
1636'	.08	0.5	Nil	.03	5.6	8.05

MASTER

Hole #1

HOLE #1 Assay Summary

6/18/70 - Copies to CAC and Hewitt

6/18/70

78

CHARLESTON MINE

Assay Summary

HOLE #1

Depth	% Cu	oz/Ton Ag	oz/Ton Au	% Ni	% Pb	% Zn
265	.09	0.4	--	--	.16	.44
280	.05	--	--	.03	--	--
315	1.0	--	--	--	--	--
360	.03	--	--	--	.09	.21
415	.10	--	--	--	.06	.10
510	.03	--	.03	--	.16	.21
525	.25	.7	.11	--	Tr	4.90
541	.01	--	--	--	.06	.12
642	.26	--	--	--	Tr	1.2
703 - 713	.08	--	--	.01	--	--
720	.08	--	--	--	--	11.40
810	.02	--	.02	--	--	--
860 - 887	--	--	--	.15	--	--
864	.055	.4	.02	--	.02	1.0
898	.04	0.7	.03	--	--	--
1102 - 1106	.485	0.7	Tr	--	--	--
1108	.095	.04	--	--	--	--
1106 - 1108	.10	3.0	Tr	--	0.6	--
1148	.035	.04	--	--	--	--
1300	.02	.02				
1541	.07	.3				
1632	.01	--	--	.03	--	--
1636	.08	.5	--	.03	5.6	8.05

Hole # 1 Charleston

depth	Box #	Depth	Box #	Depth	Box #
179.3		292		400	
	19		30		42
189.3		301.6		411	
	20		31		43
199.3		310		419	
	21		32		44
209.3		318		429	
	22		33		45
217		328		436	
	22 B		34		46
227		338		446	
~~235.5~~	23		35		47
235.5		346.8		455.5	
	24		36		48
245		356.1		465	
	25		37		49
254		366		476.2	
	26		38		50
264		373.5		485.2	
	27		39		51
274.3		384.5		495.2	
	28		40		5
282.5		393		505	
	29		41		53
292.		400		514	
					54
				523	
					55
				532.5	
					56
				542	
					57
				552	
					58
				562	
					59
				572	

80

572
581
589
592
601.6
611
618.2
636.2
649
659
667.4
685.5
694
703
713
722
731.4

160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175

731.4
740.2
749.4
758
768
778
788
796
804
813
822.6
829.8
837.8
847
856
864.5
874
882
893

176
177
178 Cupule nature
179
180
180
181
182
183
184
185
186
187
188
189
190
191
192

893
904.2
914.6
922
932
941
950
960.8
969.3
985
995
1004.3
1023.
1028
1036
1042
1051
1061
1070
1080
1089.6

193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212

1089.6
1098.1
1110
1117.5
1127.5
1135.5
1143
1152.5
1162.3
1171
1179.8
1189
1198.1
1207.1
1217
1227
1240
1249
1249

213
214
215
216
217
218
219
220
221
222
223
224
225
226
226A
226B
227
227

228
1258
229
1264.5
230
1274
231
1283.5
232
1290
233
1300
234
1310
235
1311
236
1320.5
237
1330.2
238
1340.2
239
1350.2
240
1357.2
240
1367
242
1377
243
1386
244
1396
245
1406

246
1416
247
1425
248
1435
249
1445
250
1455
251
1464.5
252
1474.5
253
1484.5
254
1494.5
255
1503
256
1510
257
1521.2
258
1531.2
259
1536.
260
1546
261
1556
262
1566
263
1574.5
264
1583
265
1593

266
1603
267
1613
268
1620.3
269
1630.3
270
1640.3
271
1650
272
1660
273
1668
274
1677
275
1686
276
1695.5
277
1705.5
278
1715
279
1724
280
1734
281
1744
282
1754
283
1763
284
1769

8

1769	285
1778	286
1787.4	287
1796.5	288
1806	289
1816	290
1825	291
1834	292
1844	

WESTRAY WESTAB

D.D. #2 LOGS

FORM 225-A
11-66

Nov 17th)

F 3-13

PROPERTY Charleston Mine

SHEET NO. 1

HOLE NO. #2 DEPTH ANGLE V STRIKE ELEVATION 4,170

CO-ORDINATES

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & N
00	Collar									
10	Casing									
39	Tuff-gray and tan,weathered									
	bleached-thick alt'd punky									
	to clay-like zones									
105	Tuff-andesitic gy to purple									
	var frag content and frag									
	size loc fg frag poor mass									
	then bxt'd with darker									
	hema fillings									
171	Tuff-purple andesitic-									
	much as pre loc sects bxt'd									
	sht zones w/rndd frags to									
	2" prob conglomerate									
311	Tuff-gy cs to fn frag loc									
	sects bxt'd zones of uni-									
	form fg sed looking-prob									
	interbedded tuff sed-gray									
	lithic wacke									
347	Tuff-gy purple cs to f,									
	frag loc bxt'd open pack-									
	ing of cs frags mx is purple									
	frag green									
424	Tuff-purple andesitic genly									
	is green frag in purple									
	mx fine grained zones									
	lithic wacke no bedding									
	may be air winnowed									
	material									
500	Tuff-interbedded gy and purple									
	andesitic-genly cs frags									
	gnty fairly mass occ									
	high % calcite strings									
	End of Nx Core									
520	Ditto									

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PROPERTY Charleston Mine

SHEET NO. 2

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____ CO-ORDINATES _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & N
591	Tuff-gy and purple much as pre but genly w/finer frags and strong zones of shring - altn sericite kaolin - w/fracts -broken and bleached core									
	531-537									
	544-546									
	558-560									
	565-567									
	577-585									
609	Felsite dike-tuff gy to pk much sh'd and alt'd w/punky core zone of felsite and alt'd bleached tuff-shr zone abundant lime diss py chip sample 591-609 assay Cu-Ag- Zn									
627	Tuff? shr zone loosely cemented broken tuff- random diss py									
683	Graywacke-lithic wacke med g greeish frags fg much alt'd to epidote irregular patches and stringers of epidotte- this is prob first good run of seds in hole so far									
772	Ditto-loc zones rich in pyrite as v small dis cubes									
785	Conglomerate-color as pr but pebls and frags now up to 2" very prob basal zone of pre wacke appears to lie conformably on									

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PROPERTY Charleston

SHEET NO. 3

HOLE NO. #2 DEPTH ANGLE V STRIKE ELEVATION CO-ORDINATES

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS FEET X PER CENT NICKEL	PROGRESSIVE TOTALS FEET X PER CENT CU. & N
	following enty w/only minor strings									
881	Quartzite-fairly uniform gray to buff somewhat pebbly in upper portion runs of broken core									
916	Quartzite-variable mud and fg mixed silty zones sht bxt'd xone w/narrow stringers py poss minor spiral.									
1004	Siltstone-gray to greenish gray somewhat varigated loc sects bxt'd and vuggy w/patches pale green epidote poss flow from 945-956 a lighter green more fragmental rock genly w/diss. py									
1028	Siltstone-quartzite interbedded and patches of cs dk sp.hal and occ cpy chip sample 1004-1007									
1077	Siltstone-quartzite conglomerate top of enty silty interbedded w/qtzite becomes pebbly to conglom from 1050 and a beautifully close packed basal conglomerate from 1080 to 1094- poss repetition of conglom from 772 to 785)									
1114	Porphyry,-purple andesitic 15/20% pale phenos. of feld largely replaced by epidote contacts chilled andsomewhat bxt'd									

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PROPERTY Charleston

SHEET NO. 4

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____ CO-ORDINATES _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & N
1173	Quartzite - gray to purple silty arkosic sed graywacke to occ pebbly w/impure lt gy silt stone									
1185	Conglomeratic qtzite lt gy silty-kaolinized bxt'd zone loc w/hvy py and some cpy									
1196	Silty gy quartzite									
1210	Silty gy atzite diss py ophal chip sample 14' assay Zn-Ag									
1275	Quartzite-lt gy med to fg genly more uniform than pre									
1323	Otzite-variable upper sects loc pebbly to conglom w/purple silty bands, bxt'd lower portion of enty more uniform gy mass									
1335	Ditto bot of enty-diss sphal chip sample 1323-1335 assay Zn-Ag									
1357	Otzite, gy to occ silty red to fg calcite vein no sulp									
1375	Ditto									
1397	Otzite-lt gy weakly min py Pb, sphal chip sample from split core 1375-1397									
1422	Otzite lt to dk gy-heavier sulp py, sphal, pb minor cpy chip sample 1397-1422									
1460	Quartzite-lt gry uniform									

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PROPERTY Charleston

SHEET NO. 5

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____

CO-ORDINATES _____ _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & N
	very sparse sulp chip									
	1422-1460 sulp mainly									
	sphal									
1545	Quartzite-lt gry locally									
	shrd and broken w/hvy py									
	seams									
	1518 - 1520									
	1524 - 1526									
	1533 - 1535									
	Sample from 1533 to 1536									
	Assay Ag PMs hvy fault									
	gauge 1544 - 1546									
1637	Silt stone - varigated									
	purple-lt gry, buff to									
	dk gy local bleb lime									
	silicate-grades into fg									
	silty quartzite with 1/8"									
	milky qtz pebbles.									
1720	Gritty siltstone to fg									
	graywacke-dense siliceous									
	lt to drk gy var low									
	sulp sphal-Pb Py grab									
	sample from 1650 - 1720									
	Assay Zn, Pb									
1741	Siltstone qtzite v fg									
	dk gr-green gy siltstone									
	w/med g dk to lt gy qtzite									
	Heavy diss py in quartzite									
	silty zones mottled and									
	bxt'd w/pebbly bands-sulp									
	is v fn diss py									
	(grab - 1721-1741) Assay									
	Pb-Zn-Ag									
1760	Siltstone-gy green to									
	purplish bxt'd and occ									
	w/gritty zones and relic									

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SHEET NO. 6

HOLE NO. #2 DEPTH ANGLE V STRIKE ELEVATION

CO-ORDINATES

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & NI
	vugs sulp mnly cs cubes									
	py									
1803	Siltstone ditto diss and									
	seams py - grab 1760 to									
	1803									
1893	Siltstone - ditto qtzite									
	from 1850 - 1867 w/occ									
	sphal stringers									
1905	Siltstone - gy green and									
	purple									
1922	Qtzite-gy last 10" w/Cpy									
	sphal									
1983	Lithic siltstone - gy green to									
	prple local banding(bedding?)									
	of frags at 45°suggests									
	poss flow tuff diss Py									
	thruout.									
1995	Qtzite-gy fg silty									
2023	Siltstone purple and green									
2032	Qtzite gy silty									
2045	Siltstone - val mud? gritty									
	bxt'd buff gray to purplish									
	gy									
2082	Siltstone - lithic mud									
	fg tuff not unlike pre									
	entys but more varigated									
	occ flow? banding									
2102	Qtzite - fg silty gy green									
	grades from pre enty to better									
	looking qtzite at bot									
2157	Siltstone - fg tuff bxt'd									
	occ lg incls and fine									
	frags not as muddy looking									
	as pre thin(< 1/16") high									
	veins of sphal occ present									
	the sequence from 2045									

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PROPERTY Charleston

SHEET NO. 7

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____ CO-ORDINATES _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	NICKEL %	CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	NICKEL	CU. & NI
	seems to be more tuff-									
	acious than the previous									
	runs of siltstone-(from									
	2145 call it good tuff)									
2165	Ditto									
2210	Tuff and siltstone buff,									
	gy green, dk green and									
	purple fragmental tuff									
	and interbedded v fg									
	lithic muds 1/8" seams									
	of sphal w/diss py									
2212	Silicified contact bx									
	gy altd rock, prob tuff									
2271	Porphyry latite andesitic									
	(Uncle Sam latite por)									
	feldspar-qtz porph dk									
	greenish buff to purple									
	contacts bxt'd and altd									
	composite zone qtz latite									
	porph about 6' at 2222									
2290	Qtzite-and tuff? siltstone									
	dk gy qtzite-bxtd zone									
	w/locally heavy sphal as									
	cs diss clots and high									
	< 1/16" stringers									
2323	Qtzite-grades from fg									
	silty to med g sandy w/									
	calcite cement									
2407	Siltstone-variable gy,									
	purple buff, local sandy									
	zones numerous fn calcite									
	stringers last 10' strongly									
	alt'd, bxt'd kaolinized									
	½" wide replacement stringers									
	of cpy @ 2399 cuts core @ 150									
	to axis									

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PROPERTY Charleston Mine

SHEET NO. 8

HOLE NO. #2 DEPTH ____ ANGLE V STRIKE ____ ELEVATION ____

CO-ORDINATES ____ ____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & N
2435	Qtzite siltstone inter-									
	bedded bxt'd diss sphal									
	2423 over 8" in a dk gy									
	bxt'd qtzite? some cpy diss									
2452	Tuff? dk gy to buff-incls									
	n fg silty mud at bot of									
	enty									
2458	Qtzite - pinkish									
2490	Siltstone-varigated pk and									
	green bleached borders									
	along epidote zones also									
	runs of dk purple mudstone									
	v fg-hemotitic packing									
	(bedding) 45° to core									
2603	Qtzite w/runs (2') of									
	purple and gy siltstone									
	qtzite is silty at top									
	becomes mass gy w/calcite									
	cement-sulp zone 2522-2530 diss									
	sphal-cpy in dk gy qtzite									
	some epidote but no signif									
	altn									
2604	Qtzite-siltstone as pre-loc									
	bxt'd contacts but 2 w/cs									
	diss sphal blebs, silt-									
	stones usually w/diss py									
2622	Siltstone									
2626	Qtzite-dk gy w/hvy diss									
	sphal and some cpy contact									
	w/ ss bxt'd vuggy epidote									
	and sphal									
2719	Qtzite-w/runs of siltstone									
	which are locally gritty									
	some bx'n w/epidote vugs									
	and stringers then genly									
	pk and gn varigated									

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PROPERTY Charleston Mine

SHEET NO. 9

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____ CO-ORDINATES _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & NI
2777	Qtzite-silt zone as pre sht sects appear to be somewhat silicified calcite cement in qtzite									
2878	Siltstone w/runs of gy to pk qtzites buff to pale green occ gritty few purple bands									
2931	Siltstone as pre grades into silty qtzite w/prple mud bands hvy cpy over 6' @ 2890									
2983	Qtzite fg, pk and green occ silty loc bx'td w/ qtz veining some hvy diss cpy in 6" zones 2945 - 2955 v heavy cpy diss and ½" stringer over 18" at 2959 in bxt'd recemented qtzite									
2998	Qtzite - gy mass uniform barren									
3031	Siltstone dk gy to buff									
3062	Tuff-gy green to buff-varigated conspic oval green vugs and frangs mai ly epidotezd sht runs of dk purple mudstone									
3071	Porphyry-siltstone contact sheard and altd to gy koalin									
3136	Porphyry - green andesitic fold pheno to epidote dk green fg mix with dk ferro-mag diss py lower contact shrd and broken									

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PROPERTY Charleston Mine

SHEET NO. 10

HOLE NO. #2 DEPTH _____ ANGLE V STRIKE _____ ELEVATION _____ CO-ORDINATES _____

DEPTH FEET	FORMATION	SAMPLE NO.	LENGTH FT.	ANALYSIS COPPER %	ANALYSIS NICKEL %	ANALYSIS CU. & NI. %	LENGTH FEET	PROGRESSIVE TOTALS FEET X PER CENT COPPER	PROGRESSIVE TOTALS NICKEL	PROGRESSIVE TOTALS CU. & NI
3212	Qtzite and siltstone much as pre enty of this type- 3180-3190 qtzite is altd greenish w/some diss cpy siltstone at bot of enty buff-tan occ rounded vugs (con dk glass epidote halos.									
	End of Hole									

92

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
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Page 1
By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

0-10 No Core

10-248 Weathered meta-andesite tuff. Fragmental to 123, then fine. At 151, 4" breccia. Fragmental interval 165-168. At 181 - bedding 30° to axis. To 189.5, fragmental to 197. Bedding at 199-65°. Fine to 209, fragmental to 248.

50

100

150

200

248-394 Fine to 262, fragmental to 270, fine and fragmental mixed to 278. Tuff to 323. Fragmental 323-327, fine to 329, fragmental to 394.

250

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
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By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type		
								300	
								350	
								400	394-506 Meta-andesite tuff-coarsely fragmental, bedding at 442 50° to asix to 437.5, bedded tuff to 453, then fragmental to 506.
								450	
								500	

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

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Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type		
									506-534 Meta-andesite tuff - fragmental in part to 527, strongly fragmental to 534.
									534-537 Meta-andesite, bleached, some sericite, fault zone at 536.
									537-566 Meta-andesite tuff to 566.
								550	566-567.5 Gouge and breccia - fault zone.
									567.5-577.5 Fine grained meta-andesite tuff.
									577.5-578.5 Gouge and breccia - fault zone.
									578.5-582 Fine grained meta-andesite tuff.
									582-591 Fragmental meta-andesite tuff.
									591-598 Bleached meta-andesite sericite, specks of galena, some silicification, argillic alt. FeOx stain.
								600	
									598-603 Crushed zone, clay, sericite.
									603-604 Bleached meta-andesite.
									604-605 Fault Zone.
									605-623 Crushed and broken zone, bleached meta-andesite tuff 40° dip to axis (fault).
								650	623-628 Bleached meta-andesite.
									628-675.5 Sericitized meta-andesite tuff, grading downward to shloritic meta-andesite tuff.
									675.5-699.5 Andesite tuff (?).
									699.5-737.5 Meta-andesite tuff (see specimen at 706.5) dark gray, fine grained, feldspars altered, ferromags altered to chlorite, could also be a meta-volcanic tuff. Splotches of epidote. Epidote bands may reflect bedding? (40° to core) On the whole, prefer to consider this a tuff. Some fine pyrite with epidote. Small fault, 4" gouge and breccia at 724.
								700	
								750	737.5-761 12" gouge fault at 30° to axis of core. Meta-andesite tuff, intercalated bands fine grained medium gray siltstone

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

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Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

after 741. Crushed zone, 760-761, thereafter gray siltstone.

761-770 Arkose, granular nondescript, specked with fine pyrite cubes. Sercite

770-781 Coarse conglomeratic arkose to 779.5, fine grained light gray siltstone to fault at 781. Bedding at 85° to axis.

781-783 Gouge and breccia, some fine pyrite.

783-912 Quartzite, light grey, medium grained, sericite. Becomes fine grained after 869 to 877.5, then medium again to 912. At 911, bedding 56° to axis.

800

850

900

912-1005 Fine grained gray siltstone

1005-1007 Fine grained quartzite with sphalerite, galena, and pyrite, about 5% total sulfide.

1007-1015 Quartzite, medium grained, light grey

1015-1052 Siltstone, some fine qtz (1/16" veins sphalerite 1019-1020) to pyrite veinlets to 1028, then two or three 1/8" sphalerite veinlets. Siltstone to 1031.5. Quartzite with two or three 1/16" sphalerite veinlets to 1034, then darker gray fine grained siltstone, becoming lighter to 1039, medium grained arkosic qtz. after 1039 to fault zone 1052-1056.

950

1000

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
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By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1052-1056 Fault zone

1050

1056-1094 Arkose, in part conglomeratic with pebbles up to 3/8" to 1070, then pebbles become larger to base at 1094.

1094-1102 Fine grained gray arkosic siltstone, locally medium grained quartzitic. 1/8" band pyrite and sphalerite at 1099. Fine grained to 1102.

1100 1102-1118 Meta-andesite (?) dike. Thoroughly altered prophyritic dike. Chilled border about 18" 1102-1104, then stony groundmass, epidote alt. of feldspars, chlorite. At contact at 1118, 2' mixed rock, contact irregular, welded at 30° to axis.

1118-1173 Fine grained gray arkosic rock grades into gray quartzite. An occasional 1/16 vlt of sphalerite and pyrite. Total sulfide per any 10' int. < 0.1%

1150

1173-1187 Changes from grey to light grey at 1173-1175, then conglomeratic and somewhat mineralized from 1175-1187. Vuggy, some calcite, sphalerite, galena. Perhaps 2-4% total sulfide.

1187-1196.5 Fine grained silicitized arkose

1200

1196.5-1202 Sericitized arkose (?) speckled with galena, pyrite, and sphalerite, total sulfides about 4-6% to 1200.

1202-1249 Quartzite, fine grained, light gray, grades to medium grained.

1250

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

1249-1280 Fine grained light gray arkose-has stony look, not much quartz. Beddings locally present, one at 1262.5 40° to axis. Rock becomes mottled 1270.5-1275, then gray granular (about 1mm), grading into quartzite at 1280.

1280-1330 Quartzite to 1281, then back to granular gray arkose, as above, rock gradually becoming more quartzitic, fair qtz. after 1301.

1300

1330-1363 Arkose, dense granular to 1332, then fine grained siltstone with minor sulfide on bedding (less than 1$ sulfide), to 1334. Quartzitic arkose to 1347.5, then gray granular arkose to 1349.5, then quartz-ark. to 1363.

1350

1363-1368.6 Fine grained gray siltstone.

1368.6-1395 Quartzite with sericite, occasional grain of galena or pyrite. At 1397, 10" altered (bleached) shale and qtz. bedding 45° to axis.

1395-1410 Disseminated sulfides in qtz. after 1397. ½" py ve at 1401, 25° to asix, 1% total sulfides to 1405, then 5%> to 1406.5 then 1% again. Sulfides are galena, sphalerite, minor cpy and pyrite. Sulfide content drops to much less than 1% with rock change (1410)

1400

1410-1416 Dense greenish massive lime silicate rock (diopside?) specimen at 1409-Possible fault at 1416-no gouge but badly broken core.

1450

1416-1457.5 Dense light gray fine grained quartzite. Minor py on seams 1% sulfide. Quartzite gradually becomes coarser, about 1mm at 1454, sulfide content picks up to 2-3%, mostly galena and sphalerite for interval 1454-1457.5

1457.5-1477 Dense light gray fine grained quartzite (sericitized) At 1477, bedding plane 50° to core. Sulfide < 1%.

1500

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
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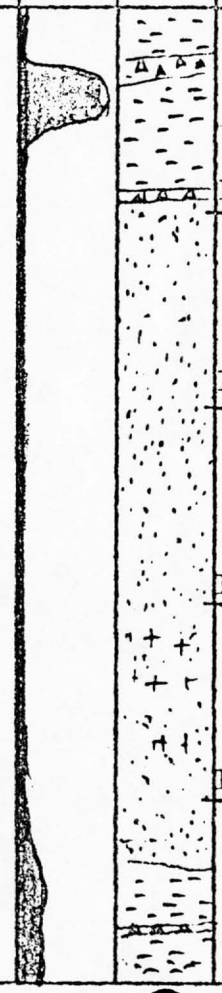
Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar



1477-1512 Quartzite-medium grained (less than 1lm but granular) Sulfide < 1%.
1512-1518.5 Fault zone, minor gouge, poor core
1518.5-1532 Quartzite, somewhat silicified.
1532-1533.6 12" heavy pyrite
1533.6-1543 Quartzite, about 1mm, broken
1543-1546 Gouge and breccia - barren
1546-1594 Purplish siltstone to 1549, then bleaching to gray with lime silicate spots, grading to quartzite at 1552. (Fine grained-gray)
1594-1625 Gray siltstone, scattered blebs of py, changing color to lt gy and from siltstone to fine qtz with lime silicate streaks at 1601
1625-1727 Dense gy silicified siltstone, blobs of lime silicate minerals, some scattered py, still much less than 1% sulfide This silicified siltstone has a porphyritic look with the quartz grains separate in a dense stony groundmass. Siltstone persists to 1725, then changes to medium grained quartzite, to
1727-1733.5 1-2mm quartzite-sericite, from 1-5% total sulfides, sphalerite, cpy, py, minor galena.
1733.5 6" fault gouge
1733.5-1820 Quartzite, dense, fine grained, py cubes, less than 1% sulfide. Changes from gray to reddish, becoming purplish

1550
1600
1650
1700
1750

Drill Hole No. 2
Collar Elevation
Coordinates
Bearing
Depth
Inclination 90°

Charleston Project
Cochise County Arizona

Scale
Started
Completed

By

Core Recovery	Alteration	Chalcopyrite	Sphalerite	Galena	Ag	Pyrite	Rock Type

Alteration

	Sericite		Garnet
	Kaolin		Serpentine
	Silica		Biotite
	Chlorite		K Feldspar

siltstone at 1748. Purplish siltstone to 1759, then back to dense, fine to coarse cubic pyrite. Minor lime silicate veining. Gray to 1803 then purplish to 1811, then gray as above. Somewhat coarser 1813-1818, denser 1818-1820

1800

1820-1852 Siltstone, dark gray 1820-1831, then light gray 1831-1837, 1mm quartzite 1837-1839, then purple siltstone followed by dull stony quartzite(?) at 1843 - granular. (probably lime silicates) to 1850, then fine grained siltstone to 1852

1850

1852-1853 Arkose? with sphalerite and cpy < 15% sulfides
1853-1923 Quartzite, 1-2mm, becoming finer grained, more stony looking. Minor sphalerite-galena, up to 5% for 4" interval, otherwise negligible (less than 1%). Fine grained gray q to 1865, then purplish siltstone to 1875. Lighter colored to 1878.5, then purplish again to 1892. Dense light gray 1892-1897.5, purplish to 1901. Lime silicates vlt at 1901 (½", 5% sulfide, mostly sphalerite). Fine grained light gy to 1905.5, becomes granular (fine) more quartzitic to 1923.

1900

1923-1924 Arkose, heavy sphalerite, galena. About 10% Z, 3% lead 15-20% total sulfide.
1924-1935 Quartzite with less than 1% sulfide to 1925, then purplish siltstone, becoming dark gray at 1927, then light greenish gray lime silicates with minor py (2% sulfides) to 1928.5. Dark gray siltstone grading to purple siltstone, then to greenish dense lime silicates to 1935.

1950

1935-2002.3 Dense, fine gray siltstone to 1939, greenish gray lime silicates to 1939.5, purplish dense siltstone to 1943.5,

2000