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0067

Volume 5 ; Book 2

TOMBSTONE

Mining District

Cochise County

ARIZONA

Newmont Drilling 1954 to 1955

Southwestern
Exploration
Associates

Mineral Exploration &
Natural Resource
Consultants
Tucson, Arizona

NEWMONT
1950's

Dr. Wilson

September 1, 1954

Diamond Drill Hole Number		Diamond Drill Station Number	Drill Contractor
1	at	T-501	MacPherson
#2 1-A	at	T-501	Joy
A	at	T-506A	MacPherson
B	at	T-506A	MacPherson
4	at	T-506A	MacPherson
5	at	T-506A	MacPherson
6	at	WS-601	Joy

D-6

406

NEWMONT DRILLING SUMMARY

Diamond Drill Hole Number	Location	Remarks
DDH- 7 #8	Silver Thread	Intervals of very high-grade Ag, Pb, Cu, & Zn.
DDH- 9 #10	West Side	Same as above.

TOMBSTONE - LIST OF DRILL HOLES

DRILL HOLE NUMBER	DATE DRILLED	DRILL TYPE	TOTAL DEPTH	INCLINATION	DRILLED BY	LOCATION
CDH 1	1936	Churn	380	-90°	Eugene Picher	BLUE MONDAY claim
CDH 2	1936-7	"	75	-90°	"	S. Ext. of Toughnut "
CDH 3	1936-7	"	460	"	"	Toughnut claim (or 1st S. Ext) "
4	"	"	430	"	"	" " "
5	1937	"	385	"	"	Hawkeye Little Wonder claim "
6	"	"	295	"	"	" "
7	"	"	506	"	"	Mesquite claim "
8	"	"	298	"	"	Manzanita claim "
9	"	"	295	"	"	Two Tequila claim "
10	"	"	385	"	"	Cholla claim "
11	"	"	502	"	"	" "
12	"	"	215	"	"	Ugalas claim "
DDH 1		Diamond	23	-83°		West Side mine 500 Level
2		"	75	-83°		" "
3		"	123	-60°		" "
4	1936	"	151	-75°		Sulphuret 500 Level
5	"	"	78	-70°		" "
6	"	"	20	-75°		West Side mine 500 Level
7	"	"	6	-65°		Empire mine "
8	"	"	40	+65°		" "
9	"	"	56	-64°		Sulphuret mine 500 Level
10	"	"	197	-74°		" "
11	"	"	211	-62°		" "
12	1937	"	75	-60°		" "
Comet DDH	1956	"	1500	-59°	Newmont	Tim 1 & 3 End lines
DDH A	1954	"	40'	0°	"	Toughnut T506A Tranquillity 50
DDH B	"	"	53'	0°	"	T506A "
DDH 1	"	"	200	-80°	"	T506A " T5
DDH 4	1954	"	90	+70°	"	T506A "
DDH 5	"	"	66	+70°	"	T506A "
DDH 1A	1954	"	21	-80°	"	T501 Tranquillity 50
DDH 6	1954	"	1,500 ~~[illegible]~~	-84	"	West Side 601

For location of CDH holes see May 1950 claim map (Folder, in map file)

Newmont Exploration, Limited

Tombstone Development Co,

LOG HOLE NO. 1 PAGE 1

DATE STARTED June 25,1954 LEVEL Tranquility 500 COORDINATE POS-1049S N 1243E E

DATE FINISHED July 19,1954 EL. COLLAR 4119 COURSE S45°-00'E INCLINATION -80° down

LOGGED BY J.P.McDahiel & H.S.W. REMARKS LENGTH OF HOLE 200' SIZE OF HOLE AX

Recovered = 22.65'

DEPTH INTERVAL	FEET core	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 20	0.7	Bisbee sh	nil	sandstone,light gray to sl reddish
20 - 25	2.3	"	"	" " " " "
25 - 30	0.7	"	"	" " " " "
30 - 35	1.8	"	"	" " " " "
35 - 40	1.8	"	"	" ,or qtzte,mottled light gray to sl pinkish,hard,dense
40 - 45	0.7	"	"	" ,mostly reddish,some light gray pcs.
45 - 50	0.3	"	"	" ,light gray to sl reddish
50 - 55	0.7	"	"	" ,red to yellow
55 - 60	0.8	"	"	" ,to shale,red,pink,yellow
60 - 65	1.0	"	"	" ,yellow to light gray
65 - 70	0.9	"	"	" ,light gray to reddish
70 - 75	1.9	"	"	" ,red to 71.3' thence light gray
75 - 80	0.6	"	"	" ,red to light gray
80 - 85	0.9	"	"	" ,mostly light gray,some red pcs.
85 - 90	1.4	"	"	" ,light gray to reddish
90 - 95	1.1	"	"	shale,mostly chocalte red,some sandstone
95 - 100	0.4	"	"	sandstone,red to light gray
100 - 105	0.7	"	"	" ,mostly light gray
105 - 110	2.5	"	"	" ,light gray to reddish
110 - 115	2.9	"	"	" " " "
115 - 120	2.2	"	"	" " " "
120 - 125	1.0	"	"	" " " "
125 - 130	1.5	"	"	" " " "
130 - 135	1.9	"	"	" " " "
135 - 140	1.9	"	"	" " " "
140 - 145	1.0	intrusive	"	andesite,dark gray-green,f.g.,v.finely porphyritic (Feldspars
145 - 150	4.0	"	"	" " " " "
150 - 155	1.0	Bisbee sh	"	shale,reddish brown
155 - 160	1.8	"	"	" " "
160 - 165	1.5	int & sh	"	andesite & red shale
165 - 170	0.7	Bisbee sh	"	shale,reddish brown
170 - 175	0.6	"	"	" " "
175 - 180	0.5	"	"	" " "
180 - 185	0.2	"	"	" " "
185 - 187	0.1	"	"	" " "
187 - 190	0.3	int & sh	"	red shale & andesite more or less parallel core
190 - 195	1.0	" "	"	" " " " " " "
195 - 200	0.0	?	?	hole abandoned at 200' due to cave

73

Newmont Exploration, Limited

Tombstone Development Co.

Joy Machine

LOG HOLE NO. 1A PAGE 1

DATE STARTED August 17,1954 LEVEL Tranquility 500 COORDINATE POS. approx. 1049S N 1243E E

DATE FINISHED August 21,1954 EL. COLLAR 4119 COURSE S45°-00'E INCLINATION -80°down

LOGGED BY H.S.Wilson REMARKS Joy Machine LENGTH OF HOLE 21' SIZE OF HOLE NX & BX

DEPTH INTERVAL	Recovery FEET core	FORMATION	MINERALIZATION	DESCRIPTION OF CORE	
0 - 8	1.2	Bisbee sh	nil	sandstone,light gray to ~~l~~ reddish	- NX
8 - 10.5	0.0	"	"	" " " "	- NX
10.5-11	0.3	"	"	" " " "	- BX
11 - 13.5	1.5	"	"	" " " "	"
13.5-15.5	1.8	"	"	" " " "	"
15.5-17	1.3	"	"	" " " "	"
17 - 18.5	0.6	"	"	" " " "	"
18.5-20	0.0	?	?	?	"
20 - 21	0.0	?	?	?	"
21				Hole abandoned at 21' due to cave	
	6.7			Core recovery - 31.9%	

31.9% core recovery

Newmont Exploration, Limited

Tombstone Development Co.

LOG HOLE NO. A PAGE 1

DATE STARTED July 26,1954 LEVEL Tranquility 500 COORDINATE POS. 740 S N 689 E

DATE FINISHED July 27,1954 EL. COLLAR 4122 COURSE N26°-30'W INCLINATION flat

LOGGED BY H.S.Wilson REMARKS LENGTH OF HOLE 40' SIZE OF HOLE EX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 5	0.8	dike	nil	buff to pink to reddish
5 - 9	1.9	"	"	" " "
9 - 13	2.5	blue ls	"	dike to about 9.6',thence blue-gray ls.
13 - 18	3.3	"	"	fine-grained,blue-gray
18 - 23	3.2	"	"	" " " "
23 - 27	2.7	"	"	" " " " ,calcite lined vug at 24.3'
27 - 32	4.2	"	"	" " " " ,becoming mottled from 28.2'
32 - 36	1.1	"	"	" " " "
36 - 40	0.0	" ?	" ?	
40				END OF HOLE

Newmont Exploration, Limited

Tombstone Development Co.

LOG HOLE NO. B PAGE 1

DATE STARTED July 28,1954 LEVEL Tranquility 500 COORDINATE POS. 745 S N 686 E

DATE FINISHED July 30,1954 EL. COLLAR 4123 COURSE N86°-30'W INCLINATION flat

LOGGED BY J.P.McDaniel & H.S.Wilson REMARKS LENGTH OF HOLE 58' SIZE OF HOLE EX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 3	1.9	dike	nil	buff to pink and red
3 - 7	1.6	"	"	" " " ,½" calcite @ 5'
7 - 12	2.0	dike & ls	"	dike to 9' thence blue-gray ls,½" vuggy calcite @ 7'
12 - 17	3.1	blue ls	"	fine-grained,blue-gray
17 - 22	1.8	"	"	" " " "
22 - 25	0.8	"	"	" " " "
25 - 29	2.7	"	"	" " " "
29 - 30	0.2	"	"	" " " "
30 - 32	1.1	"	"	" " " "
32 - 35	1.8	"	"	" " " "
35 - 38	1.7	"	"	" " " "
38 - 40	0.7	"	"	" " " " ,several calcite stringers
40 - 43	0.7	"	"	" " " " ,more or less mottled
43 - 48	2.4	"	"	" " " " " " "
48 - 53	2.4	"	"	brecciated and silicified
53 - 58	0.5	shale	"	brownish red to dark gray
58				END OF HOLE

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Tombstone Development Co.

LOG HOLE NO. 4 PAGE 1

DATE STARTED August 9,1954 LEVEL Tranquility 500 COORDINATE POS. 742 S N 688 E

DATE FINISHED August 14,1954 EL. COLLAR 4141 COURSE N36°-30'W INCLINATION plus 70°

LOGGED BY H.S.Wilson REMARKS LENGTH OF HOLE 90' SIZE OF HOLE AX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 3	1.8	dike	nil	f.g.,brown to red
3 - 10	6.8	"	"	" " "
10 - 15	1.0	novaculite	"	f.g.,pale to dark gray
15 - 20	1.7	"	"	" " " " ,locally somewhat reddish
20 - 25	2.7	"	"	" " " " " " "
25 - 35	6.9	"	"	" " " " " " "
35 - 45	5.0	nov & ls	"	novaculite to about 38' thence blue-gray limestone
45 - 50	2.6	blue ls	"	dark blue-gray to more or less mottled brown
50 - 60	7.5	"	"	" " "
60 - 70	9.4	"	"	" " " ,locally fossiliferous
70 - 80	5.4	shale	"	brecciated,reddish brown to dark gray,more or less calcareous
80 - 90	4.1	"	"	much shattered from 82',gray to rddish brown,last 2' looks like decomposed dike (red mud).
90				END OF HOLE

76

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Tombstone Development Co.

LOG HOLE NO. 5 PAGE 1

DATE STARTED August 5,1954 LEVEL Tranquility 500 COORDINATE POS. 742 S N 688 E

DATE FINISHED August 9,1954 EL. COLLAR 4141 COURSE N56°-30'W INCLINATION plus 70°

LOGGED BY J.P.McDaniel & H.S.W. REMARKS LENGTH OF HOLE 66' SIZE OF HOLE AX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 5	3.5	dike	nil	fine-grained pink to red
5 - 10	2.3	dike & nov	9' to 10'	" " " " ,novaculite from 9'
10 - 13	1.3	novaculite	10 to 12'	f.g.pale gray to reddish,little ccp,FeOx,Cu st,silicified
13 - 17	1.0	"	nil	as above
17 - 19	0.6	"	"	"
19 - 20	1.0	"	"	"
20 - 24	1.3	"	"	"
24 - 35	0.8	"	"	" ,calcareous,only few pcs core
35 - 40	3.5	blue ls	"	f.g.dark blue-gray,beds @ 40°
40 - 45	2.4	"	"	" " " " ,locally fossiliferous
45 - 52	2.5	"	"	" mostly pale gray
52 - 59	3.9	shale	"	much shattered,reddish brown to dark gray
59 - 62	2.0	"	"	as above
62 - 66	4.0	"	"m	"
66				END OF HOLE

77

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LOG HOLE NO. A PAGE 1

DATE STARTED July 26,1954 LEVEL Tranquility 500 COORDINATE POS. 740 S N 689 E

DATE FINISHED July 27,1954 EL. COLLAR 4122 COURSE N26°-30'W INCLINATION flat

LOGGED BY H.S.Wilson REMARKS LENGTH OF HOLE 40' SIZE OF HOLE EX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 5	0.8	dike	nil	buff to pink to reddish
5 - 9	1.9	"	"	" " "
9 - 13	2.5	blue ls	"	dike to about 9.6',thence blue-gray ls.
13 - 18	3.3	"	"	fine-grained,blue-gray
18 - 23	3.2	"	"	" " " "
23 - 27	2.7	"	"	" " " " ,calcite lined vug at 24.3'
27 - 32	4.2	"	"	" " " " ,becoming mottled from 28.2'
32 - 36	1.1	"	"	" " " "
36 - 40	0.0	" ?	" ?	
40				END OF HOLE

79

Newmont Exploration, Limited

Tombstone Development Co.

LOG HOLE NO. B PAGE 1

DATE STARTED July 28,1954 LEVEL Tranquility 500 COORDINATE POS. 745 S N 686 E

DATE FINISHED July 30,1954 EL. COLLAR 4123 COURSE N86°-30'W INCLINATION flat

LOGGED BY J.P.McDaniel & H.S.Wilson REMARKS LENGTH OF HOLE 58' SIZE OF HOLE EX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 3	1.9	dike	nil	buff to pink and red
3 - 7	1.6	"	"	" " " ,½" calcite @ 5'
7 - 12	2.0	dike & ls	"	dike to 9' thence blue-gray ls,½" vuggy calcite @ 7'
12 - 17	3.1	blue ls	"	fine-grained,blue-gray
17 - 22	1.8	"	"	" " " "
22 - 25	0.8	"	"	" " " "
25 - 29	2.7	"	"	" " " "
29 - 30	0.2	"	"	" " " "
30 - 32	1.1	"	"	" " " "
32 - 35	1.8	"	"	" " " "
35 - 38	1.7	"	"	" " " "
38 - 40	0.7	"	"	" " " " ,several calcite stringers
40 - 43	0.7	"	"	" " " " ,more or less mottled
43 - 48	2.4	"	"	" " " " " " "
48 - 53	2.4	"	"	brecciated and silicified
53 - 58	0.5	shale	"	brownish red to dark gray
58				END OF HOLE

Newmont Exploration, Limited — Joy Machine

Tombstone Development Co.

LOG HOLE NO. 6 PAGE 1

DATE STARTED August 24, 1954

LEVEL West Side 600 COORDINATE POS. -915.0S N -491.3W E

DATE FINISHED

EL. COLLAR 4118.3 COURSE N 65°-00'W INCLINATION -84° down

LOGGED BY H.S.W. & REMARKS LENGTH OF HOLE SIZE OF HOLE NX, BX, AX

	DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
NX	0 - 10	8.5	Bisbee	nil	Limestone conglomerate, mostly light gray, fragments of chert, etc in siliceous to calcareous matrix.
BX	10 - 17.5	6.9	"	"	" " , as above, gradually becomes more siliceous with fewer fragments.
BX	17.5 - 19	1.1	"	"	Quartzite (novaculite), f.g., light gray to white, hard, dense, mas
BX	19 - 24	3.6	"	"	" " , as above
AX	24 - 29	2.7	"	"	" " "
	29 - 33	3.7	"	"	" " "
	33 - 36	2.8	"	"	" " "
	36 - 43	6.6	"	"	" " "
	43 - 44.5	1.5	"	"	" " " , few small irreg qtzitic frags
	44.5 - 45	0.4	"	"	" " " " " " "
	45 - 52	7.0	"	"	" " "
	52 - 56	2.3	"	"	" " "
	56 - 61	4.1	"	"	" " "
	61 - 63	2.0	"	"	" " "
	63 - 65.5	2.6	"	"	" " "
	65.5 - 66.5	1.0	"	"	" " "
	66.5 - 68	1.5	"	"	" " "
	68 - 71	2.9	"	"	" " "
	71 - 75	4.0	"	"	" " "
	75 - 79.5	3.3	"	"	" " "
	79.5 - 83.5	3.8	"	"	" " "
	83.5 - 88	4.3	"	"	" " " , locally sl calcareous
	88 - 91	3.0	"	"	" " " " " "
	91 - 98	6.7	"	"	" " " " " " @ 100'
	98 - 101	2.7	"	"	" " " , FeOx on joint.
	101 - 110	7.9	"	"	" " " , FeOx 109 to 110
	110 - 112	2.6	"	"	" " "
	112 - 122	10.0	"	"	" " " , bedding @ 80°
	122 - 130	8.0	"	"	" " " , ¼% fluorite more or less parallel to core
	130 - 134	4.0	"	"	" " " , locally sl calcareous
	134 - 144	10.0	"	py @ 139'	" " " , " " " " , bxted with irreg qtz-carb-FeOx & locally some fine pyrite from 139' to 141.5'

124

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Tombstone Development Co.

LOG HOLE NO. 6 PAGE 2

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
144 - 153	7.3	Bisbee	nil	Qtzte (novac),f.g.,light gray to white,hard,dense,massive, ¼" qtz-carb @ 40° @ 144.5',irreg FeOx 154 to 155', epidote @ 152' & 155' to 156'.
153 - 157	4.4	"	"	" " ,as above,sl calcareous.
157 - 164	6.3	"	"	" " ,f.g.light to dark gray,locally more or less epidotized in spots & bands.
164 - 169.5	5.2	"	"	" " ,light to dark gray,sl epidotized,as above.
169.5- 175	3.3	"	"	" " ,as above,locally some FeOx,bedding @ 75°- 80°
175 - 179	2.7	"	"	" " , " " ,1½" clay gouge @ 178.9'. 180
179 - 186	7.2	"	"	" " , " " ,spots & dendritic MnO in epidote @ 179-
186 - 193	7.5	"	"	" " , " " ,locally sl epidotized,bedding @ 75-80°.
193 - 200	7.3	Naco		

125

Newmont Exploration, Limited Joy Machine

Tom[illegible]one Development Co. LOG HOLE NO. 6 PAGE 1

DATE STARTED August 24, 1954 LEVEL West Side 600 COORDINATE POS. -915.0S N-491.3W E

DATE FINISHED EL. COLLAR 4118.3 COURSE N 65°-00'W INCLINATION -84° down

LOGGED BY H.S.W. & REMARKS LENGTH OF HOLE SIZE OF HOLE NX, BX, AX

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
0 - 17.5	17.5	Bisbee	nil	Limestone conglomerate, mostly light gray, fragments of chert, etc in silicious to calcareous matrix which gradually becomes more silicious with fewer frags & grades into below.
17.5 - 193.7	176.2	"	139 to 141	Qtzte (novaculite), f.g. light gray to white, hard, dense, massive, locally sl calcareous from 83.5' to 144', light to dark gray, locally more or less epidotized in spots & bands from 155' to 193.7'. FeOx in joints from 100' m/l to 110', & @ 175', m/l bxted with irreg qtz-carb-FeOx & locally some fine pyrit from 139' to 141.5'. Bedding @ 80° @ 112', @ 75-80° @ 169.5'. 1½" clay gouge @ 178.9', ¼" fluorite m/l parallel core 122' to 130'.
193.7 - 405	211.3	Naco	204 & 240.6	White ls, white to pink to pale gray, f.g. to locally quite coarse textured, local bedding @ 80°, FeOx @ 282 - 283', a little fine pyrite @ 204' & @ 240.6'.
405 - 407.4	2.4	"	nil	argillite, altered, f.g., v.hard, bedding @ 70°
407.4 - 417.4	10.0	"	"	white ls, white to dark gray, bedding @ 70°
417.4 - 428.0	10.6	"	little py	argillite, altered, in part to epidote, bxted, pale green to white v.hard, locally a little fine pyrite.
428.0 - 433.0	5.0	"	nil	white ls, f.g. white to dark gray, m/l bxted.
433.0 - 441.0	8.0	"	little py	argillite, altered, in part to epidote, bxted, hard, a little pyrit
441.0 - 448.0	7.0	"	nil	white ls, white
448.0 - 462.5	14.5	"	little py	argillite, alt in part to epidote, f.g., hard, locaaly a little p
462.5 - 467.5	5.0	"	nil	white ls, gray
467.5 - 469.4	1.9	"	"	argillite, alt in part to epidote, f.g. hard,
469.4 - 498.0	28.6	"	"	white ls, white to gray
498.0 - 507.0	9.0	"	"	argillite, alt in part to epidote & bxted, f.g., m/l white, hard
507.0 - 517.0	10.0	"	"	white ls, f.g. white
517.0 - 535.1	18.1	"	py @ 524.5	argillite, alt & bxted, with epidote, pale brown to white, bedding @ 70°, 12" gray ls @ 527.4', little fine py @ 524.5'
535.1 - 540.5	5.4	"	nil	white ls, f.g. gray
540.5 - 553.0	12.5	"	"	argillite, alt & bxted, with f.g. epidote, pale brown to white.
553.0 - 561.0	8.0	"	"	white ls, pale gray
561.0 - 565.5	4.5	"	"	argillite, alt & bxted with epidote, hard
565.5 - 574.3	8.8	"	"	white ls, pale to medium gray, m/l bxted.
574.3 - 577.4	3.1	"	"	argillite, alt in part to epidote & bxted, hard

126

Newmont Exploration, Limited Joy Machine

Tombstone Development Co.

LOG HOLE NO. 6 PAGE 2

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
577.4 - 599.0	21.6	Naco	nil	white ls,pale to dark gray,to sl pink,locally m/l bxted.
599.0 - 607.3	8.3	"	"	argillite,alt in part to epidote & bxted,pale brown to white,
607.3 - 612.0	4.7	"	"	white ls,f.g. pale gray.
612.0 - 617.1	5.1	"	""	argillite,alt in part to epidote & bxted,pale brown to white.
617.1 - 632.3	15.2	"	"	white ls,pale to dark gray,locally m/l bxted,bedding @ 70°
632.3 - 657.4	25.1	"	"	argillite,alt in part to epidote & bxted,white to dark gray, v hard,contacts & local thin bedding @ 70°. @ 65°.
657.4 - 690.1	32.7	"	"	white ls,white to dark gray,locally coarsely cryst.,bedding
690.1 - 699.0	8.9	"	"	argillite,alt in part to epidote & bxted,pale to dark gray.
699.0 - 709.0	10.0	"	"	white ls,white to pale gray,locally bxted,thin seams serp @ 60°- 70° @ 701' to 703'.
709.0 - 720.7	11.7	"	"	argillite,alt in part to epidote & bxted,v hard.
720.7 - 731.0	10.3	"	"	white ls,white to gray,local thin bedding @ 60°
731.0 - 734.0	3.0	"	"	argillite,alt in part to epidote & bxted,v hard.
734.0 - 742.0	8.0	"	py @ 740.5	white ls,white,f.g.,a little fine pyrite @ 740.5'.
742.0 - 744.0	2.0	"	nil	argillite,alt in part to epidote & bxted,gray to sl pink,hard
744.0 -				white ls,white to pink to bright red,m/l argillaceous,locally thinly bedded @ 60°,bedding @ 810' @ 80°,locally m/l bxted 2.0' alt & bxted argillite @ 767'(cemented by calcite).

127

Newmont Exploration, Limited Joy Machine

TOMBSTONE DEVELOPMENT COMPANY

Tombstone, Arizona

LOG HOLE NO. 6 PAGE 3

DATE STARTED August 24, 1954 LEVEL West Side 600 COORDINATE POS. -915.0S N -491.3W E

DATE FINISHED EL. COLLAR 4118.3 COURSE N65°-00'W INCLINATION -84° down

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE SIZE OF HOLE NX, BX, AX

DEPTH INTERVAL	Core FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
746 -747	1.1			Naco-White Ls - white and bright red dolomite.
747 752	2.2			" " " - bright red to white dolomite.
752 757	5.0			" " " - mostly pink dolomite.
757 767	8.1			" " " - pink to grey dolomite. locally thinly bedded to 60' @ 40°.
767 769	1.6			" " " - mostly dark greyarg and bxted, cemented by calcite.
769 772.5	2.5			" " " - red and white Ls.
772.5-781.5	9.4			" " " - sl pink and white and pale grEy Ls.
781.5-785.0	2.7			" " " - " " " " " " "
785.0-793.0	8.2			" " " - " " " " " " ", brecciated
793.0-797	3.8			" " " - pink and white and grey ls - bxtd.
797 -799	1.3			" " " - " " " " " bxted.
799 801	1.7			" " " - " " " " " "
801 802	1.3			" " " - " " " " " " , bedding@65°
802 805	3.1			" " " - " " " " " " , 6" alt arg. @ 802'.
805 817	11.2			" " " - " " " " " " , bedding@85°
817 820	2.6			" " " - " " " " " " .
820 822	2.1			" " " - " " " " " " , grey and red breccia, frags mostly grey argillite.
822 828	5.2			" " " - light grey to sl pinkish ls, arpy (fine)@827'
828 834	5.1			" " " - " " " " " , local thin bedding @ 80°.
834 837	2.4			Naco - dark grey to red, somewhat bxted sandstone.
837 844	4.1			" - above ss to 838' thence white to pinkish ls, bxted.
844 849	4.0			" - pink plus or minus bxted, sandy ls.
849 852	1.3			" - " " " " " " "
852 856	3.1			" - red to pink ls.
856 861	3.6			" - greenish grey FG Qtzite - becomes calcareous @ 860'.
861 864	2.9			" - pale to dark grey bxted ls.
864 868	4.4			" - grey plus or minus calcareous sandstone.
868 870	1.5			" - " " " " " " " "
870 873	3.0			" - red bxted plus or minus calcareous - fractures healed with calcite.
873 875	2.0			" - pink and grey plus or minus bxted. fractured.pink calc

Newmont Exploration, Limited — by Machi

TOMBSTONE DEVELOPMENT COMPANY — WS-601

Tombstone, Arizona

LOG HOLE NO. 6 PAGE 4

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
875 -878.5	3.0			Naco - lt brn, white, lt green ls. Little Al.S.O_3. Little gouge.
878.5-882	2.8			" - lt grey-pink-lt green. plus or minus calc. fractured some AlS.O_3.
882 883	2.0			" - broken pcs lt brown, white, lt. blue. greasy non-calc. (AlS.O_3)
883 885.5	2.5			" - " " white, lt grey, lt green. non calc. Als.O_3 spot wh.Fe.
885.5-886	0.3			" - dense dark grey dolomite. little calc.
886 888	1.4			" - some crushed, white calc. sandstone, balck specks. Some AlS.O_3.
888 889	0.9			" - white AlS.$_3$0, some dark grey. non calc. little pyrite.
889 891	1.5			" - calc. gouge, black and lt green dolo. some AlS.O_3.
891 893	1.7			" - dark grey, lt green bands. some epidote. slightly calc
893 895	1.7			" - lt grey-cark grey-some epidote slightly calc.
895 897	1.5			" - Dark grey-fractured-some epidote " "
897 903	3.3			" - Dark to lt grey-grac. " " " "
903 905.5	0.3			" - grey-green fractured, little calc.
905.5-906	0.3			" - broken pcs.-white-pink-calc.
906 908	1.2			" - white-grey-bxted-little calc.
908 911	2.0			" - lt grey-green-little calc. frac.
911 914	2.2			" - " " " fractured. healed with calc. argil.
914 916	0.4			" - br pcs. wh-drk grey-frac. healed with calc. argil.
916 918	1.0			" - " " " " " " " ". some argil
918 922	2.4			" - Dark grey to lt green-fractured-argillaceous-slightly ~~xka~~ calc.
922 923	0.3			" - brkn pcs. wh. to drk grey. blue stain-little pyrite. slightly calc.
923 925	1.4			" - " " " " " . argil. little pyrite and marcasite.
925 927	1.1			" - white to lt.green to blk. Argil. Little pyrite. frac. some slaty.
927 928	0.7			" - wh. to blk-to green. slightly calc. dense.
928 931	1.8			" " " " " . argil. very little calc. little pyrite.

129

Newmont Exploration, Limited — Diamond Machine No. 1

TOMBSTONE DEVELOPMENT COMPANY — WS-601

Tombstone, Arizona

LOG HOLE NO. 6 PAGE 5

DATE STARTED August 24, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	Core FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
931.5 to 933.0	1.9			Naco, Dark green to black. Very little Calc. Fractured. Seams healed with calcite. Pyrite in some seams.
933.0 to 939.0	6.5			" Light green to black. Atleast 2 fracture patterns. Frac healed with calcite. Fe pyrite introduced with calc. in fracture. Some very fine diss. black min. (Magnetite?) out in rock. Rock not calc. green color due to min. intro.- banded - min. gets sparse after 936'.
939.0 to 939.5	0.5			" Few pcs white fg non calc. little black min. Blue streak
939.5 to 946.0	4.0			" Mostly black fg. fract. healed w/calcite-little py on some fract. Rock not calc.
946.0 to 946.5	0.2			" Few pcs white fg non calc. little scattered pyrite.
946.5 to 954.0	6.0			" Green-black. F.G. Fractures healed with calcite, epidote and pyrite. Later fractures filled with calcite only. Rock not calc.
954.0 to 958.0	2.0			" Mostly black. Some py in fract. and some diss. in rock. Rock not calc.
958.0 to 973.0	13.0			" Light to dark grey-green banding. Fract. healed w/calcite. Epidote and some pyrite in some fract. with calc. Later calc. not min. Spot @ 958.5, 1" wide and at 962, 1" wide with considerable pyrite. Some diss. py. @ 970 little hem.(?). Rock not calc. Little black min in fract @ 972. Min above normal.
973.0 to 980.0	4.5			" Light grey to med grey-banded, Fract. Calc. filled. Rock not calc. From 976 to 980 lots of fract. Consid. pyrite, epidote (?) and $CuCO_3$ (?) Some pyrite. diss. Assay 976.
980.0 to 983.5	1.1			" Light grey banded. Some min. @ 983. 2" of min breccia. Min. introduced after brecciation with fracturing and calc. filling.
983.5 to 987.0	3.3			" Definite change. Mottled lt grey with/diss. dark min. Sandy texture. Rock partly calcareous. 985 lt pink, lt green and lt blue. Little black min. 986-987 Bxted. dark grey. Very little pyrite. Assay 984.
987.0 to 989.0	2.0			" Some Bxted. Lt grey. Some diss. pyrite and black min. very fine- Rock sandy and quite calc.

Tombstone p. 3

Oct. 1954

180

Newmont Exploration, Limited — Copy Machine No. 1

TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA — WS-601 — LOG HOLE NO. 6 PAGE 6

DATE STARTED August 24, 1954 — LEVEL — COORDINATE POS. N E

DATE FINISHED — EL. COLLAR — COURSE — INCLINATION

LOGGED BY Don Hargrove — REMARKS — LENGTH OF HOLE — SIZE OF HOLE

Typed 11-17-54

DEPTH INTERVAL		Depth Interval	Core Ft.	DESCRIPTION OF CORE
989.0	to	992.0	3.0	Naco. Light grey to dark grey banded. Little red, considerable green. Fract. consid. pyrite in fract and diss. Little black min. little of rock is calc. Mostly argillaceous. Some epidote.
992.0	"	993.0	1.0	" Lt grey banded. Little pyrite. Argillaceous.
993.0	"	994.0	1.0	" Lt grey fract. Rock somewhat calc. diss. pyrite. Specks Cu(?) and Ag(?). Little Pb(?) Assay--sample #18028.
994.0	"	998.0	5.0	" Lt to drk grey--little green banded. Pyrite on cleavage and some diss. Little blk min. Consid pyrite. Rock calc in few spots. Frect healed w/calcite. Little epidote.
998.0	"	1001.0	2.0	" Lt grey--banded. Little pyrite. Little epidote. Argillaceous. Little bxted @ 1000. Some calcareous @ 999.
1001.0	"	1009.0	7.0	" Lt grey banded. Little green and blue silicated(?) at 1002. Little pyrite. Some diss. Very fine blk and red min. in occasional fractures. Bxted in spots. All fractured. Nearly all quite calc.
1009.0	"	1011.0	1.9	" Lt to drk grey. Mottled. Consid fine diss blk min. Assay--sample #18029.
1011.0	"	1013.0	2.0	" Lt grey. Some green. Bxted. Little pyrite. Some fine blk diss min. Fine red min. Rock quite calcareous.
1012.0	"	1022.0	10.0	" Lt grey. Mottled in places. Little epidote. No pyrite. Consid very fine black and red diss min. Little breccia. Most of rock is calcareous.
1022.0	"	1030.0	5.0	" Lt grey. Little green. Fract. Some bxted. Very little min. No pyrite. Core mainly small broken pcs. Fairly calcareous.
1030.0	"	1033.0	2.0	" Grey and green. Consid diss blk and red min. Core all broken pcs. No pyrite. Very little calcareous.
1033.0	"	1034.0	1.0	" Grey. Bxted spots. Consid black and red diss min. Core all broken pcs. No pyrite. Quite calcareous.
1034.0	"	1039.0	4.0	" Grey. Pink. Little green. Fract some breccia. Blk & red diss fine min. No pyrite. Little hematite. Rock bleached, mostly calcareous.
1039.0	"	1041.5	2.0	" Grey. Bxted in places. Fine red & blk Min. Fract. Some sandy-mostly calcareous.

Crosskhorse 2-3

131

Newmont Exploration, Limited — Machine No. 1

TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

WS-601 LOG HOLE NO. 6 PAGE 7

DATE STARTED August 24, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

T(11-17-54)

DEPTH INTERVAL	to ~~XXXX~~	Depth Interval ~~XXXXXXXX~~	Core Ft. ~~XXXXXXXXX~~		DESCRIPTION OF CORE
1041.5	"	1043.5	1.8	Naco	Grey. Fract. Very little pyrite. Some fine red & blk mi Little breccia. Quite calcareous.
1043.5	"	1047.5	4.5	"	Grey. Some bxted. Consid red (cuprite?). Some black min. Very little pyrite. Quite calcareous.
1047.5	"	1053.0	5.0	"	Grey, white, pink, red, green. Fract. Little red & blk min banded. Very little fine pyrite. Little epidote. Mostly calcareous.
1053.0	"	1060.0	5.0	"	Grey, white, pink, red, brown. Mottled. Some red min. Little pyrite. Little black min. Quite calcareous.
1060.0	"	1065.0	5.0	"	Grey, green, blue, banded. Malachite @ 1061. Little pyrite. Black min (argentite?). Fractured.
1065.0	"	1066.5	1.5	"	Lt grey, lt green, white, black banded. Little min. Calcareous.
1066.5	"	1074.0	7.2	"	Lt grey, green, red, pink, banded. Beautiful. Very little min. Calcareous.
1074.0	"	1086.0	12.0	"	Lt grey, green, bxted, mottled. Little blk min.
1086.0	"	1094.0	5.0	"	White (cream), lt grey, blk mottled bxted. Veined w/blk Nearly all calcareous. Very little pyrite.
1094.0	"	1099.0	5.0	"	Variegated. Mottled. Some bxted. Banded. Little scheelite @ 1096. Very little pyrite. Some Cu(?) min. Rock calcareous.
1099.0	"	1105.0	5.5	"	Same as 1094.0-1099.0, except mostly calcareous.
1105.0	"	1111.0	5.9	"	Lt grey, white & variegated. Consid hematite. Some Cu min. Pb? Ag?. Some bxted & mottled. Most rock calcareou Mineralization in fractures & diss.
1111.0	"	1116.0	5.0	"	Bleached, altered. White. Very little pyrite & diss. Black & red min. Rock not calcareous.
1116.0	"	1119.5	3.5	"	Lt grey. Green. Banded. Speckled. Beautiful. Consid epidote some dendrites, some diss blk min. Mainly calc.
1119.5	"	1121.0	2.0	"	Banded. Mottled. Fract. Some pyrite. Some Cu? @ 1120. Red min. Some epidote. Some calc.
1121.0	"	1127.0	5.3	"	Lt brown. Fract. Vert. F.G. Little min except in fract. Not calc. Fault @ 1127 w/Cu min.
1127.0	"	1136.0	8.0	"	Grey. Banded. Argill to 1130.5. Then calc. Cons epidote Diss black min. Red min. (Cu?). Mottled green, red. Beautiful. 1" streak of non-calc. Talc.

132

Newmont Exploration, Limited — Machine No. 1.

TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

WS-601 LOG HOLE NO. 6 PAGE 8

DATE STARTED August 24, 1954 LEVEL COORDINATE POS. N E

DATE FINISHED EL. COLLAR COURSE INCLINATION

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE SIZE OF HOLE

1137.0	to	1143.5	8.5	Lt grey banded. Little epidote & pyrite. Little red min. Mostly C.G. Calc.
1145.0	"	1148.0	2.5	" White to drk grey. Some diss pyrite. 1' highly altered 2ith pyrite. Little chalcopyrite. Calc.
1148.0	"	1156.0	8.8	" White to drk grey. Banded. Mottled. Little veinlets filled w/blk hard min. Some epidote, consid pyrite and some blue & blk sulphide. Some very fine pyrite @1155' May carry Cu.
1156.0	"	1159.0	2.1	" Mostly drk grey to black. Little epidote, little rhodochrosite, diss fine blk min @ 1158.5. Broken pcs core, Rocks calc.
1159.0	"	1161.0	1.1	Naco Fault. Pyrite and blk min. Some red min. 6" core. calc.
1161.0	"	1164.0	3.0	" Drk grey to blk. Some quite heavy blk min. Little pyrite. Looks good. Calc.
1164.0	"	1169.0	4.9	" Lt grey - Varieg, bxted in places. Some epidote & (Hornblend?). Little pyrite. Calc.
1169.0	"	1174.0	5.0	Lt grey to drk grey. Cu min @ 1170 & 1174', not much between Some epidote and hornblende. Rock calc.
1174.0	"	1179.0	5.0	Naco Lt grey-white f.g. Bleached. Metamorphosed. Only min introduced is of Amphibole group (Tremolite-etc.). Rock hard (over S.S.) Not calc.
1179.0	"	1184.0	5.0	" Banded, mottled. Fractures filled with pyroxene and amphibole group minerals. Little fine pyrite in places White, black, brown, green. Rock calc.
1184.5	"	1193.0	9.0	Mostly lt grey. Banded in places. Fract filled by Pryoxcue and or Amph min. Little pyrite. Consid diss blk min in spots. Course grained. Calcareous.
1193.0	1203.5		9.0	Naco White to blk green, red, banded. Very little pyrite. Diss blk min in spots. Some diopside (?) & other pyroxe min. Very little pyrite. Rock calc.
1203.5	To	1210.0	6.2	" Mostly lt grey. Some banding. Little pyrite. Some diss blk min. Some pyroxene min. Rock calc.
1210.5	"	1211.5	1.4	" White, soft, Alt, ls - Fault? Caving. Little Scheelite.
1211.5	"	1214.5	3.5	" Bleached. Very little banding or color. Little pyrite. Little pyroxene. Calc.
1214.5	"	1217.0	2.5	" Lt to drk grey banded. Lots blk min (Hornblende?). Calc.

133

Newmont Exploration, Limited — **J. Machine No. 1**

TO THE DEVELOPMENT COMPANY — WS-601

Tombstone, Arizona

LOG HOLE NO. 6 PAGE 9

DATE STARTED August 21, 1951 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~BETCX~~	Depth Interval ~~FORMATION~~	Core Ft. ~~MINERALIZATION~~	DESCRIPTION OF CORE (Typed 12/1/54)
1217.0	to	1246.5	25.0	Naco Lt grey to dark grey, red, pink, green banding. Little pyrite min. Little $AlSiO_3$. No important min. Calc.
1246.5	"	1270.0	25.0	" ~~XX Metamagnetite~~ core starts @ 1250. Dark grey to white. some pink, little tactite min. Little limonite and hemotite-- very little pyrite. No commercial min. Calc.
1270.0	"	1296.0	25.0	" Lt grey. Some tactite. Some hematite and limonite. Very little pyrite. Little montmorillonite (?). Calc. Caving @ 1285.
1296.0	"	1321.0	25.0	" About 5' tactite. Rest lt to drk grey. Little fractured. Very little pyrite. Calc.
1321.0	"	1347.0	25.0	" Lt to drk grey Ls. Tactite min in spots. Hematite, Limonite, little pyrite. Fractured. Nearly all calc.
1347.0	"	1372.0	25.0	" Lt to drk grey. Little Amphibole and pyroxene min. Some tiny veinlets of Limonite. Very little pyrite. Soft material 1357 to 1358'. Montmorillonite (?). Mostly all calc.

134

Newmont Exploration, Limited
TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine #1
WS 01

LOG HOLE NO. 6 PAGE 10

DATE STARTED August 24, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to	Depth Interval	Ft. cored		DESCRIPTION OF CORE (Typed 12/17/54)
1372.0	to	1377.0	3.5	Naco.	Brkn. pcs. highly alt. $AlSiO_3$. soft. white & lt. grey. Little fine hem. min. Calc.
1377.0	"	1382.5	5.0	"	White to drk. grey Ls. Fine veinlets with fine specks of hem. of limonite. Alt. by tactite min. Calc.
1382.5	"	1396.0	11.0	"	Brkn. pcs. Highly alt. $AlSiO_3$. Little pyrite @ 1383. Very little is Calc. Bleached white.
1396.0	"	1401.5	5.0	"	1398 to 1401 grey Ls. Fract. narrow erratic veinlets filled with black fine mineral, looks like graphite. Rock calc. Rest alt. by tactite type min. Calc.
1401.5	"	1500.0			Logged by Hal Norman

135

Newmont Exploration, Limited WS-601 J. Machine

TOMBSTONE, ARIZONA

LOG HOLE NO. 6 PAGE 11

DATE STARTED August 24, 1954 LEVEL COORDINATE POS. N E

DATE FINISHED EL. COLLAR COURSE INCLINATION

LOGGED BY J. W. H. Norman REMARKS LENGTH OF HOLE SIZE OF HOLE

DEPTH INTERVAL	To	Depth Interval	Core ft.	DESCRIPTION OF CORE (Typed 12/20/54)
1398.0	to	1412.0	12.5	Naco Limestone, dark grey-med. grey. 1406-1407 pale grey.
1412.0	"	1416.0	3.5	" Argil quite hard, locally soft at borders and altered to clay minerals.
1416.0	"	1425/	9.0	" Limestone, grey to dark grey, medium grained, local developed pyrite & amph. prism bedding 80° to core.
1425/	"	1426/	1.0	" Alteration silicates & Limestone, Argil.
1426/	"	1476.0	47.0	" Limestone medium grain, grey white - dark pyrabole needles for 1 ft. at 1431. 1455 iron stained slip. Little kaolin. 25° to core.
1476.0	"	1500.0	24.0	" Limestone, dark grey - medium grey. 1479 1 or 2" dark kaolin. 80° to core with few inches of dark limestone on each border. 1481-1483 black & white irregular streaks. 1488-1490 bleached, probably some kaolin at 1489. 1491-1495 bleached, some hard argil. 1493-1494 banded 30° to core.

136

1398 1412 Limestone dark grey med gr

1403 1407 pale grey

1412 1416 Argil quite hard locally soft at borders & altered to clay minerals.

1416 1425+ Limestone grey to dk grey medium gr local developed pyrite & amph prism bedding 80° to core

1425+ — 1426+ alteration silicates & limes argil

1426+ — 1476 Limestone ~~grey~~ med grain to grey white ~~m~~ dark pyrrhotite needles for 1 ft at 1431

1455 1455+ in stringer slig bitten Kalin 25° to core

1476 1500 limestone dk grey med gr

1479 1 or 2" dk Kalin 80° to core with few " of dk lime on end borders

1481 1483 black & white irreg streaks

1488 1490 bleached prob some Kalin at 1489.

1491 1495+ bleached some hard argil

1493-1494 banded 30° to core

TOMBSTONE
Hole 6

0-17½	Limestone Conglomerate	
17½-193.7	Quartzite Novaculite	17.5-144 (Novaculite) fine grained grey silica rich rock, locally shows fine granular structure like quartzite. Some seams and blotches of lime silicates as Spec. 48. Spec. 70 shows granular texture. Rock has carbonate filled fractures and seams locally and a little pyrite in fine seams: Spec. 96 granular quartz grains in chalky white matrix.
144-159	Argillite	At about 144 changes to a more dense variety with pale green grey cast. Spec. 157
159-193.7		Variegated dense pale greenish yellow, dark brown, dark grey, light grey in irregular streaks and bands 80° to core. Spec. 160. Epidote present.
193.7-405	Naco White Limestone	193.7-198 limestone banded; some white hard bands up to 1" of hard lime silicates? Spec. 197 hard band. 198-221 Limestone uniform fine grained white, grey, pink 221-229 Lime silicates (argillite or quartzite altered) Spec. 222 229-237 Limestone banded 229-231 white grey fairly uniform to 238 237-268 Limestone speckled dark with lime silicate needles and prisms. Matrix has fine sugary texture. Spec. 258 grey color 268-326 Limestone medium to coarse grained. locally has areas similar to 237-268, color mottled white grey pink, but mostly white. 326-395 Limestone coarse grain grey white, only rare bands with dark prisms 395-405 Limestone fine to medium grained dark grey to white
405-407.4	Argillite	(Lime silicates and quartz some $CaCO_3$) fine grained uniform pale green grey to banded 80° to core with some dark brown bands, resembles 144-193.7 in appearance and mineralogy. Spec. 407.
407.4-417.4	Limestone	White to grey medium grained banded 75° to core
417-424	"Argillite" 70-75°	Similar to 405-407.4, banded and streaked dark brown, green, grey
424-429½	Lime Silicates & minor Limestone	Mostly hard white. Spec.
429½-433	Limestone	White to grey medium grained
433-441	Argillite	Streaky grey, white brown minor white fine grained, hard banding 45° at 434 and 70° at 436
441-448	Limestone	Grey medium grained, 6" argillite 442
448-463	Argillite	Streaky grey white dark brown pale green hard fine grained. Spec. 451

Hole 6 - Continued - 2

463-467	Limestone	Grey to dark grey some white hard bands. Bedding 75°∠ to core
467-469	Argillite	Same as 448-463
469-498	Limestone	Grey to dark grey medium grained streaked by dark bands 1/16"∠. Also some 1"-6"∠ bands with coarse pyroxene or amphibole. Spec. 481 Green Epidote developed later than dark pyraboles.
498-507	Argillite	Light grey streaked with brown at 15° to core at 502
507-517	Limestone Spec. 516	White grey lightly streaked with dark grey medium grained. contact 50° at 517
517-535	Argillite Spec. 525	As above banding 45°-70° to core. 527-528 banded dark fine grained limestone with some epidote.
535-541	Limestone	Mostly dark grey medium grained some white
541-552½	Argillite	Banding 40° to core and contact at 40°∠ at 552
552½-560	Limestone	Medium grey fine grained with two 1" argillite partings at 40° to core
560-566	Argillite	Banding 40° to core
566-574½	Limestone	Fine grained grey white, narrow dark regular to irregular streaks, altered to light green epidote in partings along fractures. Spec. 568
574½-577½	Argillite	40° to core bedding
577½-598½	Limestone	Light to dark grey fine to medium grained slightly streaked by dark lines cut by epidote along calcite filled fractures. Contact 45°∠
598½-606.5	Argillite	Banding 45°∠
606.5-611.8	Limestone	Medium grey streaked by light calcite medium grained
611.8-617	Argillite	Fine grained hard mostly light grey very minor brown
617-632½	Limestone	Light to dark grey medium grained. Contact 65°
632½-657	Argillite	Part banded Spec. 635, part massive grey Spec. 653. Banding 65-70° to core. Some fibrous lime silicate present
657-690	Limestone	Banded dark and light 657-663 at 60°∠ to core Light grey medium grained 663-670 Light grey coarse grained 670-679½ Grey medium grained 679½-690
690-700	Argillite	Light grey minor dark streaks
700-709 0	Limestone	Banded 700-704 55°∠ to core . Light grey medium grained
709-721	Argillite	Banded 45° to core 717
721-730	Limestone	Partly banded 55° to core. Grey banded replaced by white grey carbonate
730-745	Argillite	Limestone 1' at 736
744-749	Sheared zone	Banded and streaked with hematite. Assay at 747
745-760½	Limestone	Pink staining to 759 and 763-760½
760½-769	Argillite	Fractured and iron stained
769-792	Limestone	769-769½ much hematite. Assay 769-775 fractured and iron stained 775-780 grey Iron stained locally 780-790 and strongly at 790

Hole 6 - Continued - 3

792-794	Limestone	Sheared streaked with solft clay seams. Spec. 793
794-797½	Argillite	Sheared, iron stained, cut by carbonate seams
797½-801	Limestone	Pink medium grained
801-802½	Calcareous Argillite?	Soft clayey
802½-804½	Limestone	
804½-808	Calcareous Clayey Argillite?	Spec. 807
808-817½	Limestone	Medium grained fractured pink stained reddish clay gouge at 817½
817½-822	Argillite	Fractured, brecciated iron stained
822-830	Limestone	Banded 80° ∠ to core 829-830 Argillite 2" at 827
830-834	Limestone and Breccia	Limestone 1' widths alternate with breccia 3" containing argillite fragments
834-838	Argillite	Fractured and iron stained. Bedding 60° ? to core
838-844	Limestone and Breccia	Argillite fragments in breccia-cal. cement pink stained limestone
844-854	Argillite	Fractured iron stained. Spec. 845
854-856	Limestone and Breccia	
856-874	Argillite	More normal hard appearance but fractured dark brown, green, grey fine grained 865-874 softer. Spec. 873 At 862 carbonate veining and breccia 863-864 limestone Bedding 60° to core 858 Bedding 75° to core 867 Becomes bleached toward 874
874-876	Limestone	
876-882	Argillite	Hard to medium hard. Bleached pale whitish. Spec. 881½
882-885	"Kaolin"	White Soft. Spec. 883
885-886	Argillite	Grey hard
886-888½	"Kaolin"	
888½-889	Argillite	Hard
889-890	"Kaolin"	
890-973	Argillite	Hard. Spec. 893½. Color dark brown some epidote Bedding 900 75° to core, core blocky Soft kaolin 905-906, 911, 914, 916, 922, 923 939, 946 dropped down hole Spec. 948. Typical hard argillite Bedding 965 at 65° Rock begins to get bleached again at 973, slightly calcareous where strongly bleached and softer Spec. 987
973-1043.5	Argillite	Bleached bedding 60° at 997 1034-1037 calcareous soft. Spec. 1037
1043.6-1048	Argillite	Soft bleached locally brecciated and cemented by calcite

Hole 6 - Continued - 4

1048-1052	Limestone	Sheared 60-80° to core. Argillite inclusions or partings
1052-1055	Argillite	Much fractured and carbonate cemented 1" red gouge and iron stain for 5" at 1055
1055-1059	Limestone	Sheared 70° to core Argillite inclusions
1059-1064	Argillite	Slightly fractured and carbonated
1064-1067	Limestone	Greenish, finely banded 75° to core fine grained
1067-1075	Limestone	Grey medium grained streaked irregularly white
1075-1077	Calcareous Argillite	Pale green dense, fine grained. Spec. 1076
1077-1091	Limestone	Brecciated appearance due to white carbonate replacement and veining, colors grey to white, to greenish with some dark streaks, inclusions or narrow bands of pale green calcareous argillite.
1091-1093	Argillite	Mostly bleached white, minor dark brown
1093-1111	Breccia	Olive green, grey, brown variegated rock, local sections 6" to 1' of grey limestone or pale soft argillite, mostly 1" finely banded calcareous argillite in limestone or calcite Spec. 1100 Scheelite noted 1097 Locally crushed. Crush zone 2" at 1102
1111-1116	Argillite	Soft white . Spec. 1115
1116-1118	Argillite	Hard dark streaked with epidote
1118-1120½	Limestone	Streaked with epidote. Locally banded. Light grey, dark grey fine to medium grained.
1120½-1131	Argillite	Brown banded at 70°
1131-1135	Limestone	Fine grained, rudely banded, some epidote streaks pale grey
1135-1170	Limestone	Medium to dark grey medium grained medium grey flecked streaked with white to pale grey green. Some epidote local clots of pyraboles. Dark green irregular streaks at 1135-1136 1" band of "Kaolin" cuts limestone at 15° to core. Spec. 1135½ (Spec. 1154 with wide dark streak) Hard argillite bands 1145, 1155, 1167 Bedding at 1155 60° to core
1170-1174	Limestone	1" hard argillite at 1170 1170-1171 finely banded with pale brown laminae 85° grey medium grained 1171-1174
1174-1179	"Silicates"	Hard white like quartzite some radiating "Tremolite". Spec. 1179
1179-1194	Limestone	Medium grey-medium grained, frequent narrow brown bands at 75°∠ at intervals of one to several feet. Spec. 1183
1194-1232.6	Limestone	Medium grey with white bands at 1195 2" 1211 12", 1213 6" These resemble 1174-1179 but are softer and effervesce weakly 1210-1211 soft "Kaolin" 1217-1232 infrequent ½" brown bands at 75°

Hole 6 - Continued - 5

1232.6-1237	Limestone	Grey white medium grained
1237-1244	Argillite	Small broken fragments 1' core recovery. Some Kaolin?
1244-1246.5	Broken Core	Incomplete? Grey white limestone, kaolin 1246-1246.5 broken argillite
1246.5-1372	Limestone	Grey white medium grained 1246.5-1252 at 1252 ½" kaolin seam and rock is slightly crushed adjacent. Spec. 1248 1252-1270 dark to medium grey 1264 2" white calcite 1266 crushed 2" "Kolinitic" 1283-1284 slight iron stain and white alteration 1284-1286.5 1' core only part white clay part soft dense white very sparse pyrite and (Tetra?) at margins of this band 1288 1" hard white. Spec. 1288 1295-1299 Light grey, some white "kaolin" alteration, iron stain, epidote in bands Spec. 1299 1321, 1326, 1331, 1346 2-3" areas of white alteration and epidote
1246.5-1372	Limestone	Pale to dark grey medium grained 1351 clots of pyraboles 1357-1358 a few pieces only of "Kaolin" 1365-1369 iron stained 1372 slight indication of "Kaolin" Spec. 1362 of limestone
1372-1377	Argillite?	White medium hard fine grained core broken and locally clay coated
1377-1382½	Limestone	Grey medium grained
1382½-1398	Argillite	White fine grained. Pyrite sparse at 1382½ 1382½-1388 medium to hard some clay alteration 1385-1382½ very hard 1382½ 1398 medium hard
1398-1412	Limestone	Grey to dark grey medium grained 1403-1407 pale grey
1412-1416	Argillite	White hard, locally soft at borders and altered to clay minerals
1416-1425½	Limestone	Grey to dark grey, medium grained Local developed dark pyrabole prisms Bedding 80° to core
1425½ - 1426½	(Alteration Silicates and Limestone and Argillite)	
1426½ - 1476	Limestone	Grey to grey white, medium grained Dark pyrabole needles for 1' at 1431 1455 iron stained slip with a little Kaolin 25° to core
1476-1500 (End)	Limestone	Dark grey, medium grained 1479 1-2" soft Kaolin 80° to core with a few inches bleached limestone on each border 1481-1483 Black & white irregular streaks Spec. 1482 1488-1490 Bleached probably some Kaolin 1489 1491-1495 Bleached some hard Argillite 1493-1494 Banding 30° to core

Newmont Exploration, Limited

Tombstone, Arizona

G.S.I. Surface Rotary Drill Hole No. D-1-A Page 1

D-1-A

DATE STARTED September 14, 1954

DATE FINISHED September 28, 1954

LOGGED BY Don Hargrove

REMARKS

LEVEL Surface

EL. COLLAR 4584.5

COURSE - - - - -

LENGTH OF HOLE 1005

COORDINATE POS. -1075.7S N +1266.2E E

INCLINATION Vertical

SIZE OF HOLE 4-3/4"

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
560				Start Sampling. Variegated Shale (?). Few pieces calcareous.
562½	2½			Highly Siliceous " " " " "
565	2½			" " " " " " " "
567½	2½			" " " " " " " "
570	2½			" " " " " " " "
572½	2½			" " " " " " " "
575	2½			" " " " More calcareous than above.
577½	2½			" " " " " " " "
580	2½			" " " " " " " "
582½	2½			" " " " Same as 560-575.
585	2½			" " " " " " "
587½	2½			" " " " " " "
590	2½			" " " " " " "
592½	2½			Less " " " More calcareous than 577-582.
595	2½			Siliceous " " Same as 577-582
597½	2½			Mostly siliceous. " " (?) 2 pieces brown vuggy Ls.
600	2½			(1 piece Calcite deposit on rounded pebble)
602½	2½			Mostly siliceous. Variegated shale (?) 1 pc., flat, black (basalt?) Calcareous, same as 560-575.
605	2½			" " Variegated shale (?) Calc. " " "
607½	2½			Siliceous " " " " " "
610	2½			Very siliceous " " Very little Calc. material.
612½	2½			" " " " " " "
615	2½			" " " " Few Calc. pcs.
617½	2½			" " " " " " "
620	2½			" " " " Very little Calc.
622½	2½			" " " " Few Calc. pcs.
625	2½			" " " " Very few Calc. pcs.
627½	2½			" " " " Few pebbles coated with Ls.
630	2½			" " " " Very little Calc.
632½	2½			" " " " " " "
635	2½			" " " " " " "
637½	2½			Siliceous " " More Calc. (Same as 577-582).
640	2½			" " " Very little Calc.

82

Newmont Exploration, Limited

Tombstone, Arizona

G.S.I. Rotary Drill Surface

LOG HOLE NO. D-1-A PAGE 2

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
642½	2½			Less Siliceous. Varig. Shale(?).Thin Ls beds?? Most Calc.yet.
645	2½			Still less Sil. " " " " More Calc. than 642½.
647½	2½			" " " " " " " Same as 645.
650	2½			More Siliceous. " " " " Less Calc. than 645.
652½	2½			" " " " Less Calc. than 650.
655	2½			Less " " " More Calcareous than 652½.
657½	2½			More " " " Less Calc. than 655.
660	2½			" " " " Very little Calc.
662½	2½			Very " " " " " "
662½				" " (2nd bag.) " " " "
665	2½			" " Varig. " " " "
665				Less " 2nd Bag " " More Calc.
667½	2½			Very " " " Very little Calc.
670	2½			Siliceous " " " " "
672½	2½			" " " " " "
675	2½			" Red dense Sil. (40% Red) Varig Shale. Very little Ca
677½	2½			" (25% Red) " " " "
680	2½			" (15% Red) " " " Little oxidize Pyrite.
682½	2½			Very Siliceous. Varig. Shale(?) Very little Calc.
685	2½			" " Very little red. Varig Shale(?).Very little Ca
687½	2½			Siliceous. Mostly grey. Few pcs. Calc. Material.
690	2½			" " " . Varig. Shale (?). Very little Calc.
692½	2½			" " " " " " " "
695	2½			Very Siliceous. Varig. Shale(?). Fine FeO in Lt. Brown and Red Qtz. No Calc.
697½	2½			" " (20% Red Qtz.)" . Some fine Pyrite. Very little Calc.
700	2½			" " (50% " "). Fine Pyrite - Assay Au 0.0 Ag 0.2. Very little Calc.
702½	2½			" " (60% " "). Fine Pyrite.- Assay Au 0.0 Ag 0.3. Very little Calc.
705	2½			" " (50% " "). Little Pyrite - Sandstone pcs. No Calc.
707½	2½			" " (40% " "). Qts(ite?) - Pyrite. Few Calc pcs.

83

Newmont Exploration, Limited

Tombstone, Arizona

G.S.I. Rotary
Drill Surface

LOG HOLE NO. D-1-A PAGE 3

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
710	2½			Very Sil. 10% Red Qtzite - little Pyrite - No Calc.
712½	2½			" " Some Red and Brown Qtzite.- No. Calc.
715	2½			" " " " " " " "
717½	2½			" " " " " " Little Calc.
720	2½			" " Mainly brownish-grey. Little Pyrite. Little Calc.
722½	2½			" " Light greyish brown. Little Calc.
725	2½			" " Variegated. No. Calc.
727½	2½			" " " . Little Calc.
730	2½			" " " " "
732½	2½			" " " " . No Calc.
735	2½			" " " " "
737½	2½			" " " " "
740	2½			Siliceous. Variegated Shale(?). No Calc.
742½	2½			" " " " Few pcs. Calc.
745	2½			Missing.
747½	2½			Siliceous. " " Few pcs. Py.(ox). No Calc.
750	2½			" " " " " " " " "
752½	2½			" " " " " " " " "
755	2½			" " " " " " " " "
757½	2½			" " " " No Calc.
760	2½			" " " " " "
762½	2½			" " " " Few pcs. MnO_2. " "
765	2½			" " " " " " " " "
767½	2½			" " " " Few pcs. Ls.
770	2½			" " " " " "
772½	2½			" " " " " "
775	2½			" " " " Few spots FeO. No Calc.
777½	2½			" " " " " " " " "
780	2½			" " " " No. Calc.
782½	2½			" " " " Few pcs. Calcite.
785	2½			" " " " No Calc.
787½	2½			" " " " Few pcs. FeO_2. No Calc.
790	2½			" " " " " " " "
792½	2½			" " " " Few pcs. Calc.
795	2½			" " " " No Calc.

84

Newmont Exploration, Limited G.S.I. Rotary Drill, Surface

Tombstone, Arizona

LOG HOLE NO. D-1-A PAGE 4

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
797½	2½			Siliceous. Varig. Shale. No Calc.
800	2½			" " " . 2 pcs. Ls.
802½	2½			" " " No Ls.
805	2½			" " " 1 pc. Ls.
807½	2½			" " " No Calc.
810	2½			" " " " "
812½	2½			" " " " "
815	2½			" " " 1 long pc. Ls.
817½	2½			" " " " " " "
820	2½			" " " Red mainly. No Calc.
822½	2½			" " " " " " "
825	2½			" " " " " 3 pcs. Ls.
827½	2½			" " " " " Very little Ls.
830	2½			" " " " " No Calc.
832½	2½			" " " " " " "
835	2½			" " " " " " "
837½	2½			" " " Mainly deep Red. 6 pcs. Ls.
840	2½			" " " " " " . 4 pcs. Ls.
842½	2½			" " " " " " . 4 " "
845	2½			" " " . No Ls.
847½	2½	Thin Ls. Bed		" " " Light grey-Brown. Quite Calc.
850	2½	" " "		" " " " " . Quite Calc. Little MnO_2.
852½	2½	" " "		" " " " " " " " " " "
855	2½	" " "		" " " Mainly brown. Less Calc. " " "
857½	2½	" " "		" " " Brown and grey. Little Calc.
860	2½			" " " " " " " " Little MnO_2.
862½	2½			" " " " " " . Very sparse Calc. Little MnO_2.
865	2½			" " " " " " . Very sparse Calc. Little MnO_2.
867½	2½			" " " Brown Mainly. Very sparse Calc. Little MnO_2.
870	2½			" " " Little Pyrite & MnO_2. No Calc.

95

Newmont Exploration, Limited

G.S.I. Rotary
Drill Surface

LOG HOLE NO. D-1-A PAGE 5

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
872½	2½			Siliceous. Variegated Shale. Brown. No Calc.
875	2½			" " " " . Little Pyrite. Little Calc.
877½	2½			" " " " . More Pyrite. Very little Calc.
880	2½			" " " " . Little Pyrite. Dark. 1 pc Ls.
882½	2½			" " " " . Very little Pyrite. 1 round Ls Pebble.
885	2½			" " " " . Little Pyrite. Little Calc.
887½	2½			" " " " . " " . Very little Calc.
890	2½			" " " "(Dark) " " " " " 1 Ls. pc.
892½	2½			" " " " " " " . Very little Calc.
895	2½			" " " " " " " " " "
897½	2½			" " " " " " " . No Calc.
900	2½			" " " " " " . 1 pc. Ls.
902½	2½			" " " " Lt.Br. Very little Pyrite.Little Cal
905	2½			" " " " " " &grey " " " . 4 pcs.L
907½	2½			" " " " Dark. No. Calc.
910	2½			" " " " " . Little Pyrite. No Calc.
912½	2½			" " " " " " " . 3 pcs. Ls.
915	2½			" " " " " " " . 4 " "
917½	2½			" " " " . Little Pyrite. No Calc.
920	2½			" " " " " " . Little Calc.
922½	2½			Less Sil. Limey Shale. Little Pyrite. Little MnO_2.
925	2½			" " . Most Calc. material in hole. Little MnO_2. Dark.
927½	2½			Nearly all Ls. Few samll pcs Sulphide. Dark.
930	2½			Less Ls. but mainly Calc. Very little mineralization. Dark.
932½	2½			" " " " " . Little MnO_2. Dark.
				Drill Report Soft. Several rounded pebbles - (Fault?-) Some flat flakes of FeO. Dark. Drill stuck - used oil.
935	2½			Nearly all Ls. Little Mineralization.
937½	2½			Siliceous. Very little Calc. Shale. Believe this sample may not be representative - Drill stuck @ 930' for 10 hours.
940	2½			About ½ Calc. Little MnO_2. Dark.
942½	2½			" ½ " " " "
945	2½			Mainly Siliceous. Little MnO_2. Lighter color. Some Ls.

Newmont Exploration, Limited G.S.I. Rotary Drill Surface

LOG HOLE NO. D-1-A PAGE 6

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
947½	2½			Mainly Siliceous. Little MnO_2. Lighter Color. Some Ls.
950	2½			" " " " . Darker " " "
952½	2½			" " " " " " . Very little Cal
955	2½			" " . Shale. Dark. Very little Calc.
957½	2½			" " " " . No Calc. 1 pc. CuO.
960	2½			" " " " . Very little Calc.
962½	2½			" " " " . Some Calc.
965	2½	Ls Dol		About 1/2 Calc. Dark.
967½	2½	"		Mainly Calc. Lighter. Some Oxide min.?
970	2½	"		" " . Still lighter.
972½	2½	"		" ". Light color. Little MnO_2.
975	2½	"		" " . " " .
977½	2½	"		" " " " . Little MnO_2.
980	2½	"		" " " " . " "
982½	2½	"		" " " " .
985	2½	"		Limestone. Lighter color. Little MnO_2.
987½	2½	"		Mainly Ls. Light color. Little Pyrite.
990	2½	"		" " " . Little Pyrite.
992½	2½	"		" " " . " "
995	2½	"		" " " . Little MnO_2 and Pyrite.
997½	2½	"		" " " .
1000	2½	"		" " ". Round Pebbles. Little flat iron oxide pcs.
1002½	2½	"		" " " " " " " " " "
1005				" " " . Little MnO_2 and Pyrite.
1005				END OF HOLE.

87

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

October 1, 1954

RECEIVED OCT 8 1954

PRELIMINARY PULSE REPORT ON TOMBSTONE SURFACE DRILL HOLES

REPORT NO. 1 - DRILL HOLE D-1-A

PRELIMINARY

Newmont Exploration Tombstone Lease Account has started on a series of 10 surface drill holes in the Tranquility shaft area. Due to the broken nature of the ground these holes are being drilled with 4-inch rotary rigs operated by Geophysical Services Incorporated. With these holes it is intended to explore the down faulted (NE) side of the Tranquility fault zone for continuation of base metal bodies previously discovered and mined on the SW side. Dimensions of expected bodies would be small.

Pulse logging of these holes is anticipated to detect sulphides away from the hole, and to delineate bed contacts where possible. From expected dimensions and sulphide content, it is expected detection would be only within 25' to 50' maximum.

This report deals with pulse and resistivity results from the first hole logged: D-1-A.

LOGGING DATA

Two array pulse and resistivity curves were obtained with spacings of 10', 35', and 85'.

Work was completed the last 6 days in September, this time including drafting, interpretation, and report.

CONCLUSIONS

(a) No significant sulphide bodies lie within detection distance of this drill hole.

(b) Two slight anomalies were noted, being due probably to formations. These anomalies might be used as marker horizons in future work. The second of these is the shale associated with the Naco limestone noted from 965' to bottom.

(c) There is no geophysical evidence of having crossed a major fault at any level; and in fact assumption that the Tranquility fault had not been crossed would better explain results.

RECOMMENDATIONS

Pulse logging of these drill holes should be continued as they become available. Under normal circumstances it is thought that Cretaceous-Naco division can be indicated by this logging, with the additional chance that a sulphide body might be narrowly missed by the hole.

DISCUSSION

Results

Pulse and Resistivity values show only normal inter-formational variations except at 650' - 680', and 800' - 900'. At the first of these a pulse and resistivity high are noted. The pulse high is likely associated with the small amounts of pyrite shown lower in the hole (see Techniques), with the resistivity relative high due to high siliceous content. It is quite possible that this bed will extend along formation strike and thus become a marker bed for future use. The second of these anomalies is of low order (a pulse and resistivity increase) and of such character as to be definitely due to the at-hole formation. This has been considered to be the shale associated and interbedded with the Naco Limestone which appears immediately below in the geologic log. From previous geophysical work we would expect the limestone to exhibit considerably higher resistivity. The fact that it does not, may be an indication of close proximity to a major fault with its associated lower resistivity area. If this interpretation were correct, it would indicate that the major Tranquility fault had not yet been intercepted. The apparent fault at 930-935' might be a minor fault break coming off the main fault. Also the position of the Naco at the bottom of the hole would be better explained. Had the drill intersected a major fault, I would have expected lower resistivity than was noted.

Techniques

Work in rotary drill holes requires considerations in addition to those usually encountered in diamond drill holes. Among these is the early entry required after completion of the hole. There is an apparent settling of particles with time, which makes complete entry of the hole difficult or impossible after possibly 10 hours.

Drill hole cables should be taped at least every 100' as there is increased room for wire 'bunching' within the hole. It would be good practice to start work from the bottom of the hole, working upward. As in unconsolidated diamond drill holes every effort should be made to complete all possible work with one run of the hole.

It should be noted that core logging is done by examination of cuttings pumped up to surface by the drilling mud. This makes accurate boundaries difficult to ascertain, and in addition probably entails an error in absolute position of contacts (due to time lag in cuttings reaching surface). This should be taken into account in correlating geophysical and geologic logs. It also points up the desirability of determining markers or contact margins geophysically.

It should be noted that high 60 cycle interference was noted in this area. This would make pulse azimuth readings questionable except under unusual signal response. However, it would not affect resistivity azimuth and this will be attempted in future holes. It may be possible with the latter to give some idea of proximity and direction to major fault zones and resistivity contrast formations.

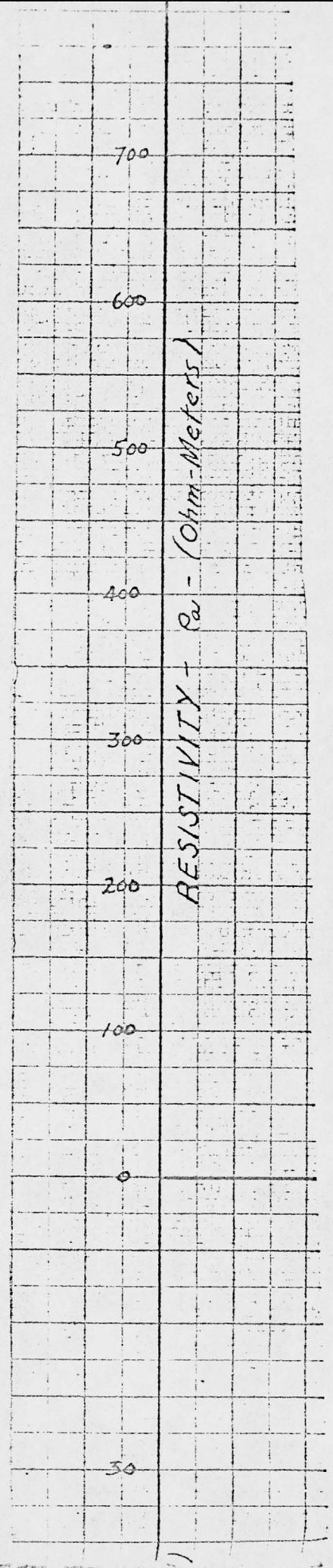
Don M Wagg

DMW:lu

Don M. Wagg

cc: F. Searls, Jr.
H. Norman
D. Hargrove
A. Brant

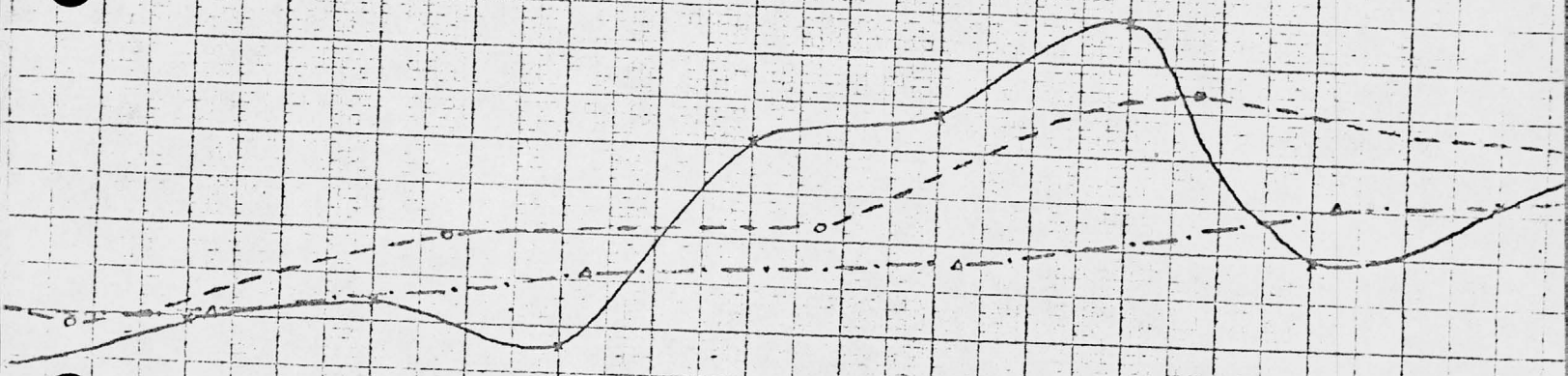
A-1



A-2

NEWMONT EXPLORAT

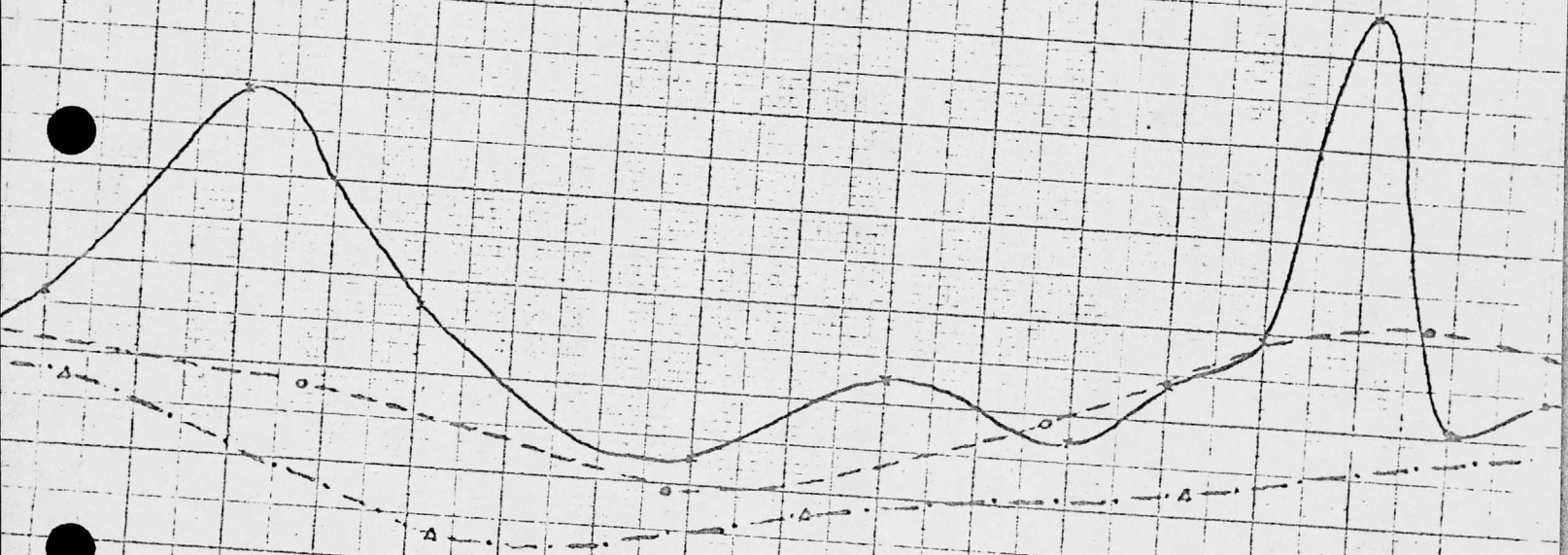
A-3

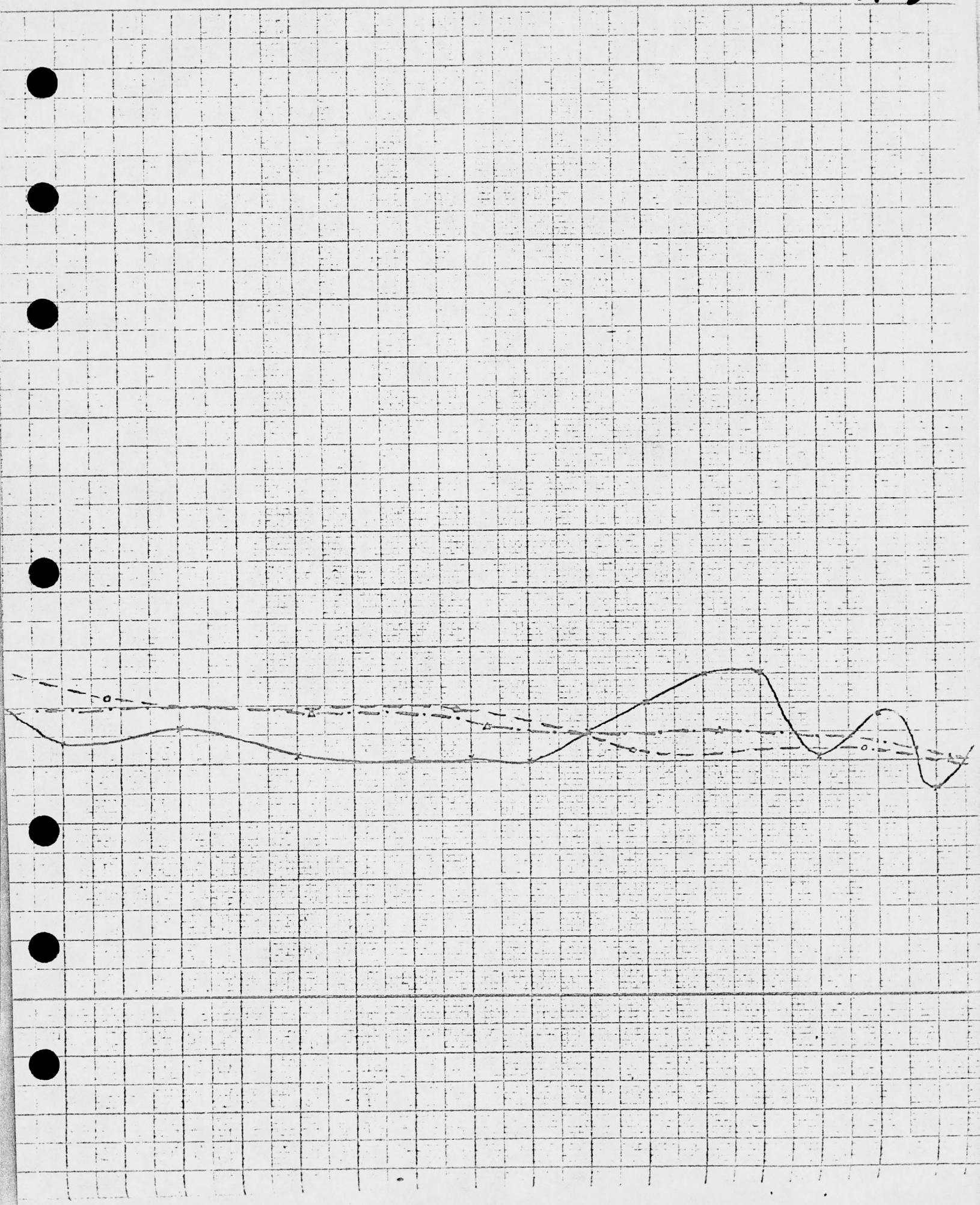


TOMBSTONE

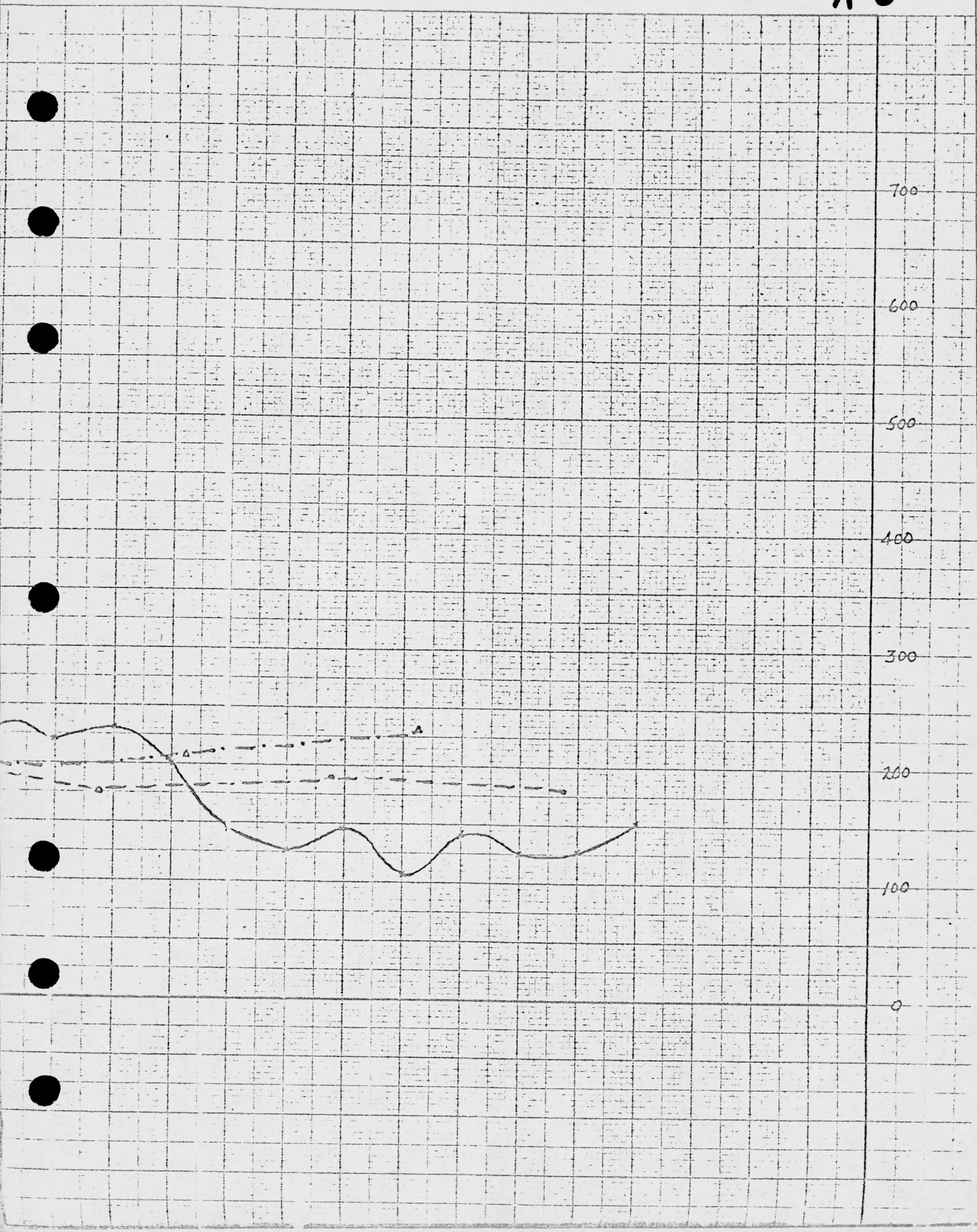
D-1-A

A-4





A-6



B-1

PULSE - Vs/Vp - KSecs

25

20

15

10.0

5.0

0

10/25

#17

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SS SECTION 10 x 10 TO THE HALF INCH
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PULSE PROFILE

B-2

Legend

10' ———

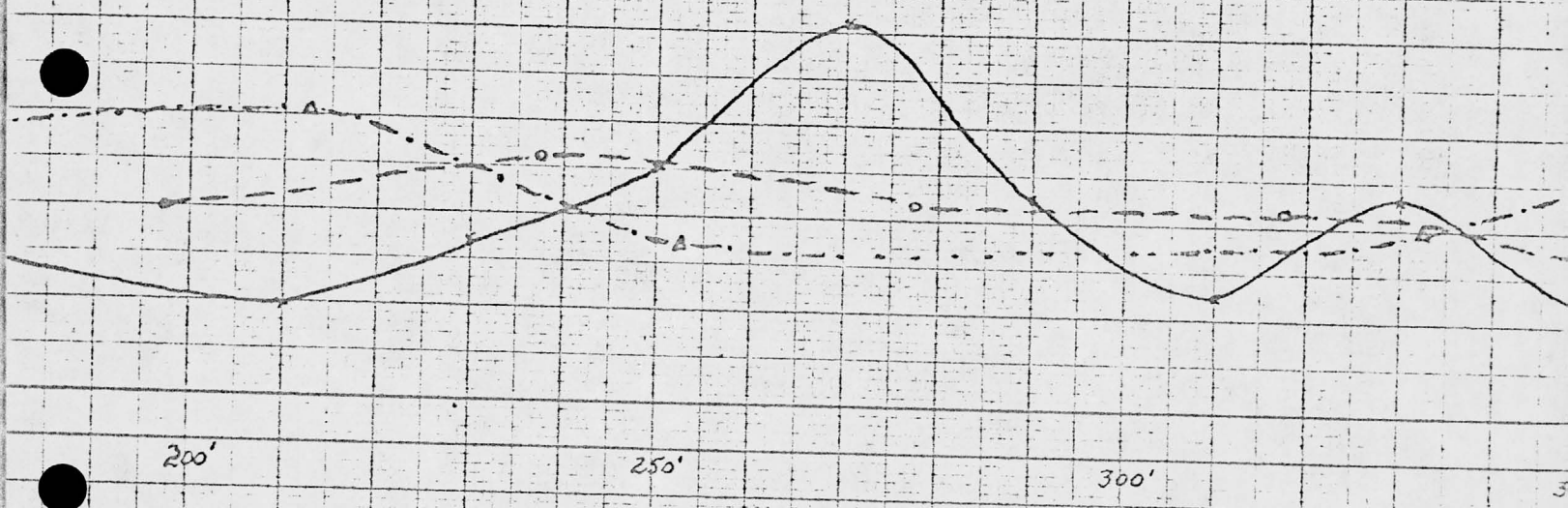
5' - - - o - - -

5 -·-·-Δ-·-·-

T=3.2 Sec.

Two-Array

Sept 1954



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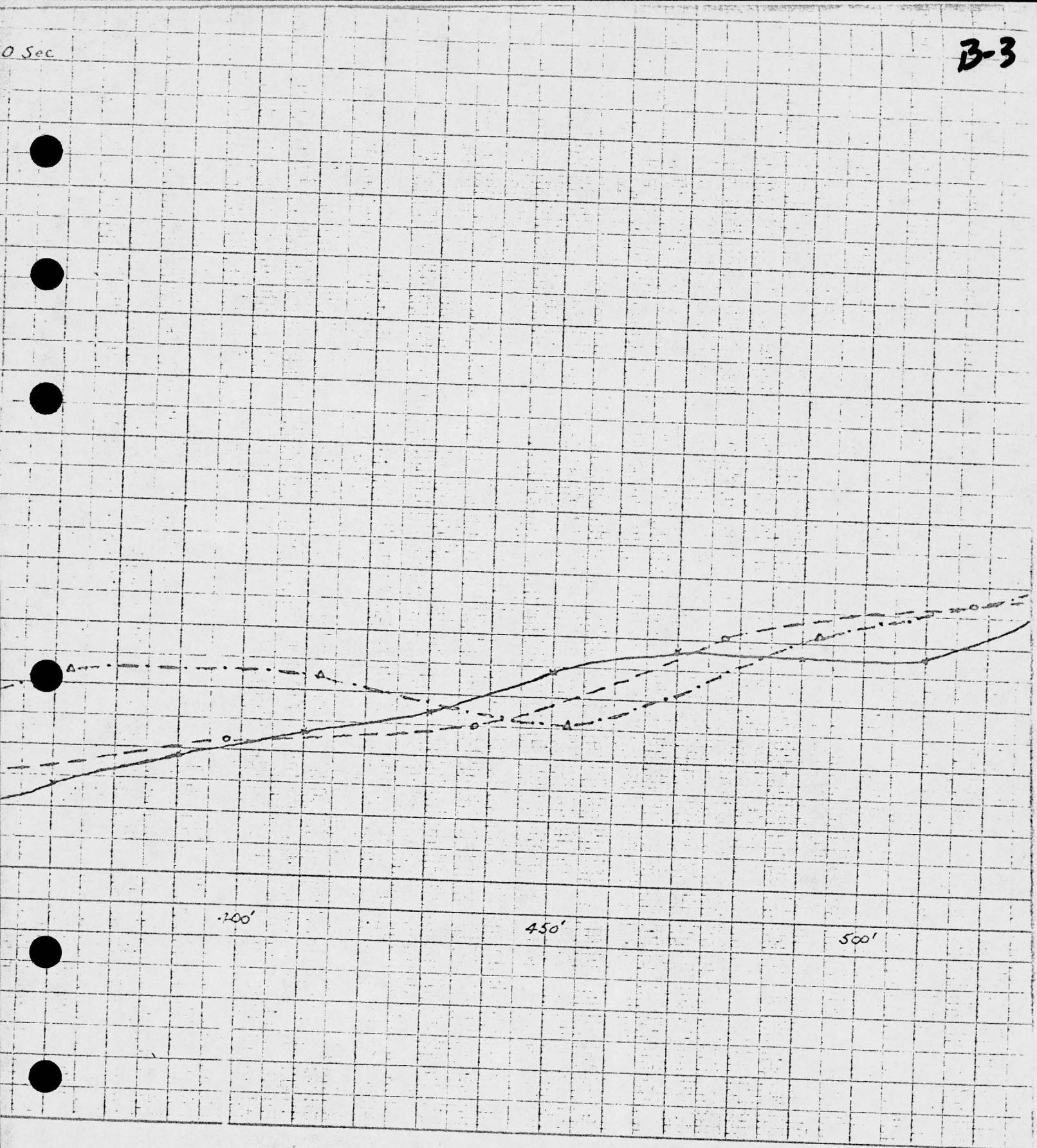
0 Sec

B-3



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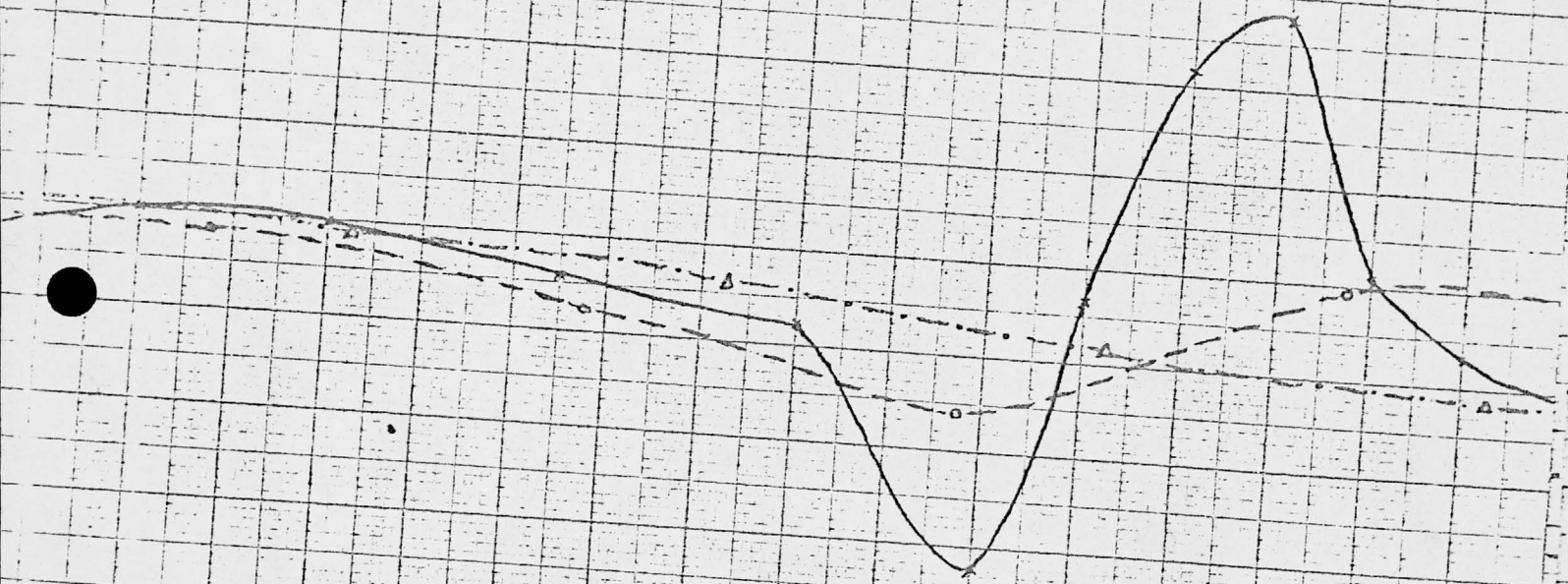
B-4



550'	High Sil	Less Sil. 600'	Very Sil.	(L St?) Much Less Sil. 650'	V. Siliceous	Py?	Silic.	P 75

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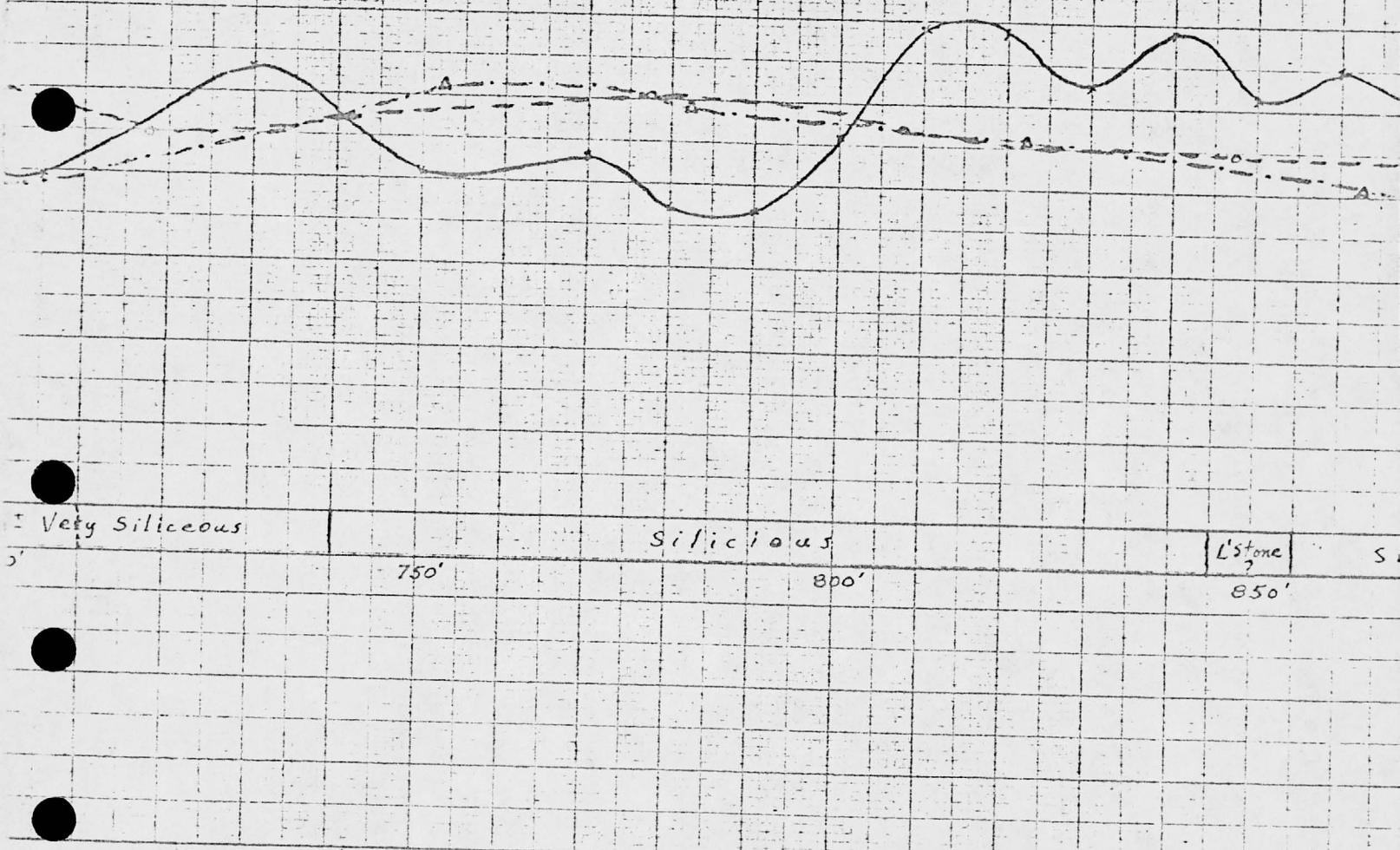
NEW YORK

B-5



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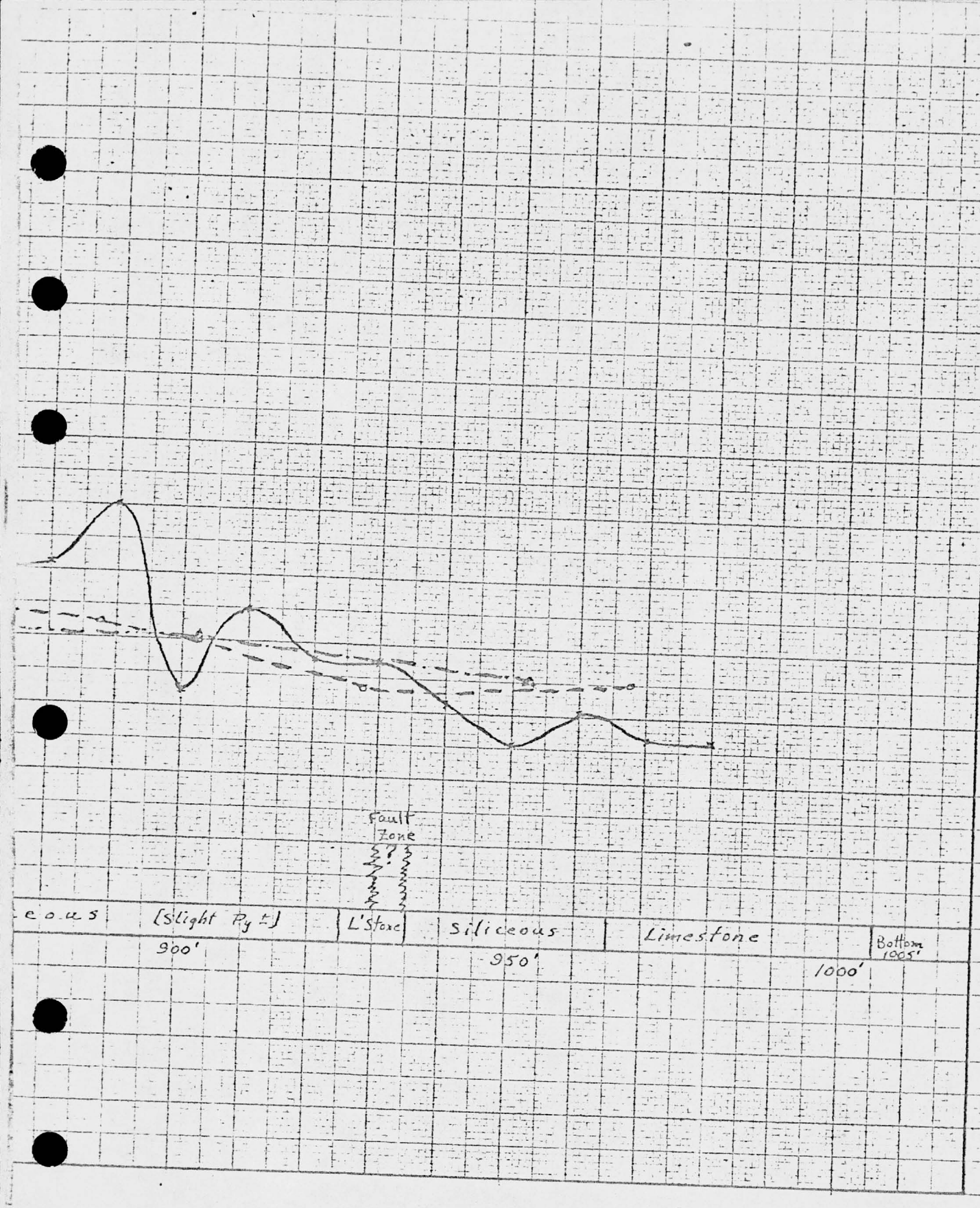
B-6



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NEW YORK

Newmo[illegible] Exploration, Limited Rotary D[illegible]11

[illegible], Arizona

LOG HOLE NO. [illegible]-2 PAGE 1

DATE STARTED October 12, 1954 LEVEL Surface COORDINATE POS. 13635 N 1095.5[illegible] E

DATE FINISHED October 25, 1954 EL. COLLAR 4588.5 COURSE - - - - - INCLINATION Vertical

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE 1155 SIZE OF HOLE 4-3/4"

DEPTH INTERVAL	FEET	Character FORMATION	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE } Highly Calcareous
0	200			Variegated shale. Started sampling at 200'.
200	200	3% Calcareous	Variegated Shale Mainly Brown	Considerable pyrite. Started sampling.
202½	2½	5% "	" Mainly Brown	Some pyrite.
205	2½	5% "	" " "	" " . Looks good.
207½	2½	3% "	" " "	Cons. " . " "
210	2½	50	" "	Little " .
212½	2½	25% "	" " "	Some " .
215	2½	20% "	"	Little " . Coarse chips.
217½	2½	20% "	"	Some " . " "
220	2½	10% "	"	Little " . " "
222½	2½	60%	Lt-Grey	" " . " "
225	2½	40%	Grey-red	" " . " "
227½	2½	50%	"	" " . Fine "
230	2½	20% "	" Red-brn.	" " . " "
232½	2½	40%	Red-grey	Very Little pyrite. Fine chips.
235	2½	30% "	" " "	" " " " "
237½	2½	10% "	" "	" " " Medium "
240	2½	2% "	" "	" " " " coarse.
242½	2½	-1% "	" " -white	Little pyrite. Very fine chips.
245	2½	-1% "	" " "	" " . Medium coarse.
247½	2½	-1% "	" " -brn.	Considerable Mn. Some pyrite. Medium fine chips.
250	2½	-1% "	" " "	" " " " " "" " "
252½	2½	-1% "	" " "	" " " " " " " " . Assay.
255	2½	5% "		Some Mn. Some pyrite. Medium chips.
257½	2½	10% "	" Brown	Little pyrite. Medium fine chips.
260	2½	2% "	" " brn	Very little pyrite. " " "
262½	2½	-1% "	" " br-grey	" " " " " "" "
265	2½	-1% "	" Mainly brn.	" " " " " "
267½	2½	40%	" "	" " " " " "
270	2½	1% "	" " "	" " " " Chips.
272½	2½	1% "	" " "	" " " Fine " .
275	2½	1%	" " "	" " " " " . Assay.

95

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Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 2

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
277½	2½	Variegated Shale 10% Calc.	Mainly Brown	Very little pyrite. Fine chips.
280	2½	2% "	" " "	" " " Medium chips.
282½	2½	40% "		Some pyrite. " "
285	2½	60% "		" " " " . Some Mn.
287½	2½	75% "		" " " " " "
290	2½	75% "		" " " "
292½	2½	75% "		" " " "
295	2½	40% "	Mainly grey	Very little pyrite. " "
297½	2½	5% "	Varieg.Sh. Mainly grey	" " " " "
300	2½	-1% "	"	" " " " "
302½	2½	1% "	"	" " " " "
305	2½	1% "	" " red	Little pyrite. " fine chips.
307½	2½	-1% "	" " "	Some " Fine chips.
310	2½	-1% "	" " "-grey	" " " "
312½	2½	1% "	" " reddish	" " Medium Chips.
315	2½	1% "	"	Little pyrite. " "
317½	2½	40% "	" "	" " Coarse "
320	2½	5% "	" " red-grey	" " Fine "
322½	2½	1% "	"	Some " " "
325	2½	1% "	"	Very little pyrite. " "
327½	2½	40% "	" red-grey	Little pyrite. " "
330	2½	40% "	" "	" " " "
332½	2½	25% "	" " grey	Very little pyrite. " "
335	2½	30% "	" " "	" " " " "
337½	2½	20 "	" " "	Little pyrite. " "
340	2½	20% "	" " red-grey	Some " " "
342½	2½	5% "	" " " "	Little " " "
345	2½	5% "	" " red	" " " "
347½	2½	-1% "	" " " - brn	" " Very fine chips.

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LOG HOLE NO. D-2 PAGE 3

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
350	2½	1% Calc.	Varieg. Sh. Mainly red-brn.	Some pyrite. Very fine chips.
352½	2½	1% "	" " red-grey	" " " " "
355	2½	5% "	" " red-brown.	Little pyrite. Very fine chips.
357½	2½	-1% "	" " "	" " " " "
360	2½	-1% "	" " " -grey.	" " " " "
362½	2½	1% "	" " " "	" " " " "
365	2½	1% "	" " " "	Very little pyrite. Very fine chips.
367½	2½	1% "	" " " "	Little pyrite. Very fine chips.
370	2½	25% "	" " " "	" " " " "
372½	2½	50% "	" " "	" " " " "
375	2½	40% "	" " -brown.	Some " " " "
377½	2½	25% "	" " " - grey	Little " " " "
380	2½	20% "	" " " "	Some " " " "
382½	2½	1% "	" " grey	Little " Medium " "
385	2½	50% "		Some " " " "
387½	2½	"50% "		Little " Fine chips.
390	2½	70% "	" lt-grey.	" " " "
392½	2½	50% "	" " "	" " " "
395	2½	60% "	" " "	Some " Medium fine chips.
397½	2½	50% "		Little " " " "
400	2½	30% "	"	" " " " "
402½	2½	40% "	" red-grey.	" " " " "
405	2½	50% "	" " "	" " Fine chips.
407½	2½	20% "	" " " "	" " Medium fine chips.
410	2½	30% "	" " Lt-grey	" " " " "
412½	2½	20% "	" " red-grey	" " " " "
415	2½	20% "	" " " "	" " " " "
417½	2½	3% "	" " " "	Some " " " "
420	2½	-1% "	" " " "	Little " " " "
422½	2½	1% "	" " " "	" " Medium chips.
425	2½	-1% "	" " reddish	Very little pyrite. Medium chips.
427½	2½	-1% "	" " " "	" " " " coarse chips.

97

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LOG HOLE NO. D-2 PAGE 4

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
430	2½	-1% Calc.	Varieg.Sh	Mainly reddish. Very little pyrite. Medium chips.
432½	2½	-1% "	" "	" " " " Medium fine chips.
435	2½	-1% "	" "	" Little pyrite. Medium coarse ships.
437½	2½	5% "	"	" " Medium chips.
440	2½	3% "	"	" " " fine chips.
442½	2½	1% "	" " red-grey	" " " chips.
445	2½	-1% "	" " " -brn	Some " " fine chips.
447½	2½	-1% "	" " " "	Little " Fine chips.
450	2½	1% "	" " " "	" " Very fine chips.
452½	2½	1% "	" " " "	Some " Medium fine chips.
455	2½	-1% "	" " " "	Little " " " "
457½	2½	3% "	" " " "	Some " Very fine chips.
460	2½	1% "	" " " -grey	Little " " " "
462½	2½	-1% "	" " " "	" " Fine chips.
465	2½	3% "	" " " "	Very little pyrite. Very fine chips.
467½	2½	-1% "	" " " "	Some pyrite. Medium chips.
470	2½	5% "	" " " "	" " Medium coarse chips.
472½	2½	15% "	" " pink	Very little pyrite. Medium chips.
475	2½	-1% "	" " "	" " " " "
477½	2½	-1% "	" " "	Little pyrite. Medium chips.
480	2½	5% "	" " red-grey	Very little pyrite. Medium chips.
482½	2½	1% "	" " " "	Little pyrite. " "
485	2½	25% "	"	" " Medium coarse chips.
487½	2½	3% "	"	" " " " "
490	2½	5% "	" " red-grey	" " Medium chips.
492½	2½	1% "	" " " "	Very little pyrite. Medium coarse chips. Small sample.
495	2½	3% "	"	" " " " chips. Small sample.
497½	2½	5% "	" " " "	" " " " "
500	2½	10% "	"	" " " " "
502½	2½	10% "	"	" " " " "
505	2½	50% "	" pinkish-grey. Little pyrite. Medium chips.	
507½	2½	50% "	" red-grey	Very little pyrite. Medium coarse chips.
510	2½	70% "	" " "	" " " " "
512½	2½	60% "	" " "	" " " " "

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LOG HOLE NO. D-2 PAGE 5

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
515	2½	60% Calc.	Mainly Sh.	
			Mainly red-grey	Very little pyrite. Fine chips.
517½	2½	70% "	" red-grey	" " " " "
520	2½	70% "	" " "	" " " Medium chips.
522½	2½	70% "		" " " " "
525	2½	60% "	" grey	Little pyrite. Medium chips.
527½	2½	60% "	" "	" " " "
530	2½	50% "	" "	Very little pyrite. Medium fine chips.
532½	2½	30% "	Vr.Sh.	
			Mainly red-grey	Little pyrite. Medium chips.
535	2½	50% "	" grey	Very little pyrite. Medium chips.
537½	2½	50% "	" "	" " " " "
540	2½	40% "	" dark-grey	" " " " "
542½	2½	40% "	" " "	" " " " "
545	2½	50% "	" " " "	" " " " "
547½	2½	50% "	" grey	" " " " "
550	2½	40% "	" red-grey	" " " " "
552½	2½	50% "	" grey	" " " " "
555	2½	50% "	" "	" " " Fine "
557½	2½	40% "	" "	" " " Medium chips.
560	2½	30% "	Vr. Sh.	
			Mainly grey	Little pyrite. Fine chips.
562½	2½	2% "	" " "	Very little pyrite. Medium fine chips.
565	2½	3% "	" " "	Little pyrite. Medium chips.
567½	2½	1% "	"	Very little pyrite. Very coarse chips.
570	2½	25% "	" " red-grey	" " " " " "
572½	2½	40% "	" grey	Little pyrite. " fine chips.
575	2½	3% "	" " red-grey	Very little pyrite. " " "
577½	2½	1% "	" " " "	" " " " " "
580	2½	10% "	" " " "	Little pyrite. Very fine chips.
582½	2½	1% "	" " " "	" " Medium fine chips.
585	2½	5% "	" " " "	" " Very fine chips.
587½	2½	5% "	" " grey	" " " " "
590	2½	40% "	" "	Some pyrite. Fine chips.
592½	2½	50% "	" "	" " " "

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LOG HOLE NO. D-2 PAGE 6

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
595	2½	40% Calc.	Mainly reddish.	Little pyrite. Medium chips.
597½	2½	60% "	" grey	" " " fine chips.
600	2½	60% "		" " " " "
602½	2½	70% "		" " " chips.
605	2½	70% "	" red-brown	" " Fine "
607½	2½	50% "	" lt-grey	Very little pyrite. Fine chips.
610	2½	50% "	" " "	Little pyrite. Very " "
612½	2½	40% "	" " "	Very little pyrite. Very fine chips. Small sample.
615	2½	No sample.		No sample.
617½	2½	" "		No sample.
620	2½	" "		No sample.
622½	2½	80% Calc.	" red-brown	Little pyrite. Extremely fine. Mostly sand.
625	2½	80% "	" " "	Very little pyrite. " " " "
627½	2½	80% "	" " "	" " " " " " "
630	2½	70% "	" " "	Little pyrite. " " " "
632½	2½	50% "	" " "	" " " " " "
635	2½	50% "	" brown	Very little pyrite. " " " "
637½	2½	40% "	" "	" " " " " " "
640	2½	30% "	Vr.SR. "	" " " " " " " "
642½	2½	20% "	" Mainly brown	" " " " " " " "
645	2½	20% "	" " "	" " " " " " " "
647½	2½	40% "	" "	" " " " " " " "
650	2½	40% "	" "	" " " " " " " "
652½	2½	50% "	" "	Little pyrite. " " " " " "
655	2½	30% "	" red-brown	Very little pyrite. " " " " " "
657½	2½	50% "	" " "	Little pyrite. " " " " " "
660	2½	40% "	" " "	Very little pyrite " " " " " "
662½	2½	50% "	" " "	" " " " " " " "
665	2½	50% "	" " "	" " " " " " " "
667½	2½	70% "	" brown	" " " " " " " "
670	2½	70% "	" grey-brown	" " " " " " " "
672½	2½	60% "	" lt-grey	" " " " " " " "
675	2½	70% "	" " "	" " " " " " " "
677½	2½	50% "	" " "	" " " " " " " "
[illegible]	2½	50% "	" " "	" " " " " " " "
682½	2½	40% "	" " "	" " " " " " " "

100

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Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 7

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
			Variegated Shale.	
685	2½	50% Calc.	Mainly lt-grey	Little pyrite. Extermely fine. Mostly sand.
687½	2½	50% "	" lt-grey	" " " " " "
690	2½	25% "	" " " "	" " " " " "
692½	2½	25% "	" " " "	" " " " " "
695	2½	40% "	" Grey-brown	Some pyrite " " " "
697½	2½	40% "	" lt-grey	Little pyrite. " " " "
700	2½	25% "	" " " "	" " " " " "
702½	2½	30% "	" " " "	" " " " " "
705	2½	50% "	" " "	" " " " " "
707½	2½	30% "	" " "	Very " " " " " "
710	2½	40% "	" " "	" " " " " "
712½	2½	40% "	" " "	Little pyrite. " " " "
715	2½	25% "	" " " "	Very little pyrite. " " " "
717½	2½	30% "	" " " "	Little pyrite. " " " "
720	2½	20% "	" " " "	" " " " " "
722½	2½	5% "	" " " "	Very little pyrite " " " "
725	2½	3% "	" " " "	Little pyrite " " " "
727½	2½	3% "	" " " "	Very little pyrite " " " "
730	2½	3% "	" " " "	Little pyrite " " " "
732½	2½	3% "	" " " "	" " " " " "
735	2½	5% "	" " " "	" " " " " "
737½	2½	20% "	" " GREY	Very little pyrite " " " "
740	2½	20% "	" " "	" " " " " "
742½	2½	15% "	" " "	" " " " " "
745	2½	10% "	" " "	" " " " " "
747½	2½	15% "	" " "	" " " " " "
750	2½	15% "	" " "	" " " " " "
752½	2½	20% "	" " "	" " " " " "
755	2½	15% "	" " "	" " " " " "
757½	2½	30% "	" " "	" " " " " "
760	2½	40% "	" "	" " " " " "
762½	2½	30% "	" " "	" " " " " "
765	2½	30% "	" " "	" " " " " "
767½	2½	50% "	" "	" " " " " "
770	2½	40% "	" "	" " " " " "
772½	2½	45% "	" "	" " " " " "

101

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 8

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
			Varieg. Shale Mainly	
775	2½	30% Calc.	" " grey	Very little pyrite. Extremely fine. Mostly sand.
777½	2½	25% "	" " "	" " " " " " "
780	2½	30% "	" " "	" " " " " " "
782½	2½	40% "	" red-grey	Little pyrite Fine chips
785	2½	40% "	" " "	" " " "
787½	2½	40% "	" " "	Very little pyrite " "
790	2½	10% "	" " dark grey	Little pyrite " "
792½	2½	3% "	" " " "	Very little pyrite " "
795	2½	1% "	" " " "	" " " " "
797½	2½	-1% "	" " " "	" " " " "
800	2½	-1% "	" " " "	" " " " "
802½	2½	-1% "	" " red-grey	Little pyrite " "
805	2½	25% "	" " " "	Very little pyrite " "
807½	2½	20% "	" " " "	" " " " "
810	2½	80% "	" " -white	" " " " "
812½	2½	80% "	" " "	" " " Small chips.
815	2½	10% "	" " " "	" " " " "
817½	2½	10% "	" " " "	" " " " "
820	2½	1% "	" " red-grey	" " " " "
822½	2½	1% "	" " " -white	" " " " "
825	2½	-1% "	" " -grey	" " " Fine "
827½	2½	-1% "	" " dark-grey	" " " " "
830	2½	1% "	" " red-grey	" " " " "
832½	2½	25% "	" " " -white	" " " " "
835	2½	1% "	" " " -grey	" " " " "
837½	2½	1% "	" " " "	" " " " "
840	2½	1% "	" " " -white	" " " " "
842½	2½	1% "	" " " -grey	" " " " "
845	2½	3% "	" " " "	" " " " "
847½	2½	1% "	" " dark grey	" " " Fine "
850	2½	1% "	" " " "	" " " " "
852½	2½	1% "	" " " "	" " " " "
855	2½	-1% "	" " grey	" " " Very " "
857½	2½	-1% "	" " "	" " " " " "
860	2½	1% "	" " "	" " " Fine "

102

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 9

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
			Varieg.Shale Mainly	
862½	2½	1% Calc.	" " lt-grey	Very little pyrite. Fine chips.
865	2½	-1% "	" " dark grey (damp).	Very " " Very fine chips. Sand.
867½	2½	-1% "	" " " " "	Very " " " " "
870	2½	-1% "	" " " " "	" " " " " "
872½	2½	-1% "	" " " " "	" " " " " "
875	2½	-1% "	" " " " "	" " " " " "
877½	2½	-1% "	" " " " "	" " " " " "
880	2½	-1% "	" " " " "	" " " " " "
882½	2½	5% "	" " grey	" Little pyrite. " " "
885	2½	50% "	" lt-grey	Very little pyrite. Fine chips.
887½	2½	10% "	" " dark grey (damp)	Very little pyrite. Fine sand.
890	2½	75% "	" " " "	" " " " " "
892½	2½	75% "	" " " "	" " " " " "
895	2½	90% "	" lt-grey	" " " Very fine chips.
897½	2½	90% "	" " "	" " " " " "
900	2½	80% "	" dark grey (damp)	" " " " " "
902½	2½	60% "	" lt-grey "	" " " " " "
905	2½	5% "	" " " "	" " " " " "
907½	2½	5% "	" " dark grey "	" " " " " "
910	2½	-1% "	" " " " "	Some pyrite " " "
912½	2½	-1% "	" " " " "	Very little pyrite." " "
915	2½	-1% "	" " " " "	" " " " "
917½	2½	-1% "	" " " " "	" " " Very " "
920	2½	-1% "	" " " " "	" " " " " "
922½	2½	-1% "	" " " " "	" " " " " "
925	2½	1% "	" " " " "	" " " " " "
927½	2½	1% "	" " " " "	" " " " " "
930	2½	-1% "	" " " " "	" " " " " "
932½	2½	-1% "	" " " " "	" " " " " "
935	2½	-1% "	" " " " "	" " " " " "
937½	2½	-1% "	" " " " "	" " " " " "
940	2½	-1% "	" " " " "	" " " " " "
942½	2½	-1% "	" " " " "	" " " " " "
945	2½	-1% "	" " " " "	" " " " " "

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 10

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
			Variegated Shale. Mainly	
947½	2½	-1% Calc.	" " grey & white	Very little pyrite. Very fine chips.
950	2½	-1% "	" " "	" " " " " "
952½	2½	-1% "	" " brn	" " " " " "
955	2½	-1% "	" " pink & white	" " " " " "
957½	2½	-1% "	" " brn (damp)	" " " " " "
960	2½	10% "	" " "	" " " " " "
962½	2½	80% "	" lt brn "	" " " " " "
965	2½	80% "	" " " & white (damp).	Very little pyrite. Very fine chips.
967½	2½	5% "	" dark grey	" " " " " " "
970	2½	10% "	" " "	" " " " " " "
972½	2½	60% "	" " "	" Little pyrite. " " "
975	2½	70% "	" " "	" Very little pyrite. " " "
977½	2½	80% "	" " "	" " " " " " "
980	2½	60% "	" Pink & white	" " " " " " "
982½	2½	50% "	" " "	" " " " " " "
985	2½	80% "	" " "	" " " " " " "
987½	2½	80% "	" " "	" " " " " " "
990	2½	60% "	" " "	" " " " " " "
992½	2½	-1% "	" " Brown	" " " " " " "
995	2½	-1% "	" " "	" " " " " " "
997½	2½	-1% "	" " "	" " " " " " "
1000	2½	-1% "	" " "	" " " " " " "
1002½	2½	3% "	" " "	" " " " " " "
1005	2½	3% "	" " "	" " " " " " "
1007½	2½	-1% "	" " "	" " " " " " "
1010	2½	-1% "	" " "	" " " " " " "
1012½	2½	2% "	" " "	" " " " " " "
1015	2½	-1% "	" " "	" " " " " " "
1017½	2½	2% "	" " "	" " " " " " "
1020	2½	-1% "	" " "	" " " " " " "
1022½	2½	10% "	" " "	" " " " " " "
1025	2½	30% "	" " "	" " " " " " "
1027½	2½	30% "	" " "	" " " " " " "

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 11

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
			Mainly	
1030	2½	50% Calc.	" brown	(damp) Very little pyrite. Very fine chips.
1032½	2½	75% "	" "	" " " " " " "
1035	2½	80% "	" "	" Little pyrite. " " "
1037½	2½	75% "	" dark red	" Very little pyrite. " " "
1040	2½	60% "	" " "	" " " " " " "
1042½	2½	50% "	" " "	" " " " " " "
1045	2½	60% "	" " "	" " " " " " "
1047½	2½	60% "	" " " "	" " " " " " "
1050	2½	75% "	" " "	" Little pyrite. " " "
1052½	2½	90% "	" Lt reddish	" Very little pyrite. " " "
1055	2½	90% "	" " "	" " " " " " "
1057½	2½	90% "	" " "	" " " " " " "
1060	2½	90% "	" " "	" " " " " " "
1062½	2½	90% "	" " "	" Little pyrite. " " "
1065	2½	80% "	" " "	" Very little pyrite. " " "
1067½	2½	80% "	" " grey	" " " " " " "
1070	2½	75% "	" " "	" " " " " " "
1072½	2½	90% "	" " "	" " " " " " "
1075	2½	90% "	" " "	" " " " " " "
1077½	2½	90% "	" " "	" " " " " " "
1080	2½	90% "	" " Reddish	" " " " " " "
1082½	2½	80% "	" " "	" " " " " " "
1085	2½	90% "	" " "	" " " " " " "
1087½	2½	90% "	" " "	" " " " " " "
1090	2½	90% "	" " "	" " " " " " "
1092½	2½	90% "	" " "	" " " " " " "
1095	2½	90% "	" " "	" " " " " " "
1097½	2½	90% "	" " "	" Little pyrite. " " "
1100	2½	95% "	" " red & white.	" Very little pyrite. " " "
1102½	2½	95% "	" " grey & "	" " " " Fine chips. "
1105	2½	95% "	" " Lt grey & white.	" " " " " " "
1107½	2½	95% "	" " " " " " "	" " " " " " "
1110	2½	95% "	" " " " " " "	" " " " " " "
1112½	2½	95% "	" " " " " " "	" " " " Very fine "

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-2 PAGE 12

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
1115	2½	95% Calc.	Mainly " Lt. Grey	(damp). Very little pyrite. Fine sand. Cuttings round instead of angular.
1117½	2½	95% "	" " "	" Very little pyrite. Fine sand. Cuttings round instead of angular.
1120	2½	95% "	" " "	" Little pyrite. Fine sand. Cuttings round instead of angular.
1122½	2½	90% "	" Grey	" Very little pyrite. Very fine chips.
1125	2½	90% "	" "	" " " " " SAND.
1127½	2½	90% "	" "	" " " " " " "
1130	2½	90% "	" "	" " " " " " sand & chips.
1132½	2½	90% "	" "	" " " " " " chips.
1135	2½	90% "	" "	" " " " " " sand.
1137½	2½	90% "	" "	(dry) Little pyrite. " " chips.
1140	2½	90% "	" "	" Very little pyrite. " " "
1142½	2½	90% "	" "	" " " " " " "
1145	2½	90% "	" "	" " " " " " "
1147½	2½	90% "	" "	" " " " " " "
1150	2½	90% "	" Brown	(damp) Little pyrite. Medium chips.
1152½	2½	60% "		" Very little pyrite. Medium chips.
1155	2½	Sample missing.		Sample missing. END OF HOLE.

106

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

SURFACE HOLE D-2, 4-3/4" HOLE

Calcareous material.

0.0' - 220.0'
220.0'

220.0' - 227.5' -- 7.5'
52.5'

280.0' -- 295.0' -- 15.0'
30.0'

325.0' - 330.0' -- 5.0'
52.5'

382.5' - 405.0' -- 22.5'
97.5'

502.5' - 557.5' -- 55.0'
30.0'

587.5' - 637.5' -- 50.0'
7.5'

645.0' - 687.5' -- 42.5'
5.0'

692.5' - 697.5' -- 5.0'
5.0'

702.5' - 712.5' -- 10.0'
52.5'

765.0' - 775.0' -- 10.0'
5.0'

780.0' - 787.5' -- 7.5'
20.0'

807.5' - 812.5' -- 5.0'
75.0'

887.5' - 902.5' -- 15.0'
57.5'

960.0' - 990.0' -- 30.0'
37.5'

1027.5 - 1155.0' -- 127.5'

747.5' shale, etc.
407.5' calcareous

Newmont Exploration, Limited

Rotary Drill

Tombstone, Arizona

~~XXX~~ HOLE NO. D-6 PAGE 1

DATE STARTED September 28, 1954 LEVEL Surface COORDINATE POS. 875S N1620E E

DATE FINISHED October 9, 1954 EL. COLLAR 4565 COURSE - - - - - INCLINATION Vertical

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE 1187 SIZE OF HOLE 4-3/4"

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
135		60% Calcareous	Bl-Grey	Few pcs. FeO_2. Start of sample
137½	2½	60% "	"	" " "
140	2½	70% "	"	" " "
142½	2½	50% "	"	More pcs. FeO_2.- Lt. brown - looks good.
145	2½	40% "	"	Few pcs. " " "
147½	2½	40% "	"	" " "
150	2½	30% "	"	Very few pcs. FeO_2.
152½	2½	30% "	"	" " " "
155	2½	50% "	"	Few " "
157½	2½	70% "	"	10% pcs. with "
160	2½	20% "	"	Few " " "
162½	2½	5% "	"	Very few pcs with FeO_2.
165	2½	2% "	"	
			10% red	" " " " "
167½	2½	20% "	"	Few " " " "
170	2½	25% "	Bl-Grey	
			5% Red	Few pcs. " "
172½	2½	2% "	"	Very few " " "
175	2½	No "	Bl-Grey	" " " " "
177½	2½	75% "	"	" " " " "
180	2½	50% "	"	" " " " "
182½	2½	60% "	"	Few " " "
185	2½	75% "	"	very " " " "
187½	2½	10% "	" 10% brown	" " " " "
190	2½	5% "	Bl-Grey	" " " " "
192½	2½	No "	"	No " " "
195	2½	No "	"	Few " " "
197½	2½	No "	"	No " " "
200	2½	No "	"	" " " "
202½	2½	No "	"	Few " " "
205	2½	No "	"	Very few " " "
207½	2½	NO "	"	" " " " "
210	2½	NO "	"	" " " " "
212½	2½	NO "	"	" " " " "

High % of Calc.

162

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 2

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
215	2½	2% calc.	Grey-white	Few pcs. with FeO_2.
217½	2½	No "	"	" " " "
220	2½	1% "	Grey	Very few pcs. with FeO_2.
222½	2½	5% "	Grey-black	" " " " "
225	2½	1% "	Grey	" " " " "
227½	2½	1% "	Dark-grey	Very little pyrite, large chips.
230	2½	No "	"	" " " "
232½	2½	No "	Grey	" " " "
235	2½	NO "	"	" " " "
237½	2½	1% "	Lt-Grey	" " " "
240	2½	1% "	"	" " " "
242½	2½	50% "	Grey	" " " "
245	2½	10% "	"	" " " "
247½	2½	80% "	Grey & Br Ls.	" " " "
250	2½	90% "	Grey-vuggy br ls	Few pcs. look very good
252½	2½	50% "	"	Few pcs. pyrite
255	2½	1% "	Grey	Very little pyrite
257½	2½	-1% "	"	" " " "
260	2½	5% "	"	" " " "
262½	2½	5% "	"	" " " "
265	2½	10% "	Lt "	" " " "
267½	2½	50% "	" "	" " " "
270	2½	50% "	" "	Some pyrite.
272½	2½	60% "	" "	Little "
275	2½	2% "	" "	" "
277½	2½	No "	" "	No "
280	2½	-1% "	Grey	" "
282½	2½	1% "	Lt Grey	Little "
285	2½	-01% "	" "	Very little pyrite.
287½	2½	No "	Grey	" " " "
290	2½	NO "	Lt-brown	Some pyrite
292½	2½	NO "	Vari.mainly lt brn	Little "
295	2½	NO "	" " "	Very little pyrite
297½	2½	NO "	" " "	" " " "

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 3

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
300	2½	No Calc.	Lt-grey	Very little pyrite
302½	2½	1% "	"	Little pyrite
305	2½	10% "	"	" "
307½	2½	2% "	"	Very little pyrite
310	2½	30% "	"	" " " "
312½	2½	50% "	"	Little pyrite
315	2½	75% "	"	" " , looks good.
317½	2½	10% "	Lt-brown	Very little pyrite
320	2½	10% calc shale	Mainly brn	" " " "
322½	2½	1% "	"	" " " "
325	2½	25% "		
327½	2½	30% "	Varig-mainly brn	Very little pyrite
330	2½	30% calc. shale varig.	Mainly brn	" " " "
332½	2½	20% "	"	" " " "
335	2½	NO "	" " reddish	" " " "
337½	2½	1% "	" "	Some pyrite
340	2½	5% "	mainly grey	Little pyrite
342½	2½	10% "	"	" "
345	2½	50% "	"	Very little pyrite
347½	2½	5% "	"	" " " "
350	2½	2% "	"	" " " "
352½	2½	-1% "	"	" " " "
355	2½	NO "	"	" " " "
357½	2½	5% "	mainly-brn	" " " "
360	2½	5% "	" grey	" " " "
362½	2½	-1% "	" "	" " " "
365	2½	80% "	" "	" " " "
367½	2½	80% "	grey &brn	" " " "
370	2½	1% "	mainly-brn	" " " "
372½	2½	1% "	" reddish	" " " "
375	2½	1% "	grey	" " " "
377½	2½	-1% "	"	" " " "

164

Newmo Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 4

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
380	2½	-1% calc shale varig	mainly grey	Very little pyrite
382½	2½	-1% "	"	" " " "
385	2½	-1% "	"	" " " "
387½	2½	-1% "	"	" " " "
390	2½	-1% "	" dark red	" " " "
392½	2½	-1% "	" grey	" " " "
395	2½	-1% "	" "	" " " "
397½	2½	-1% "	" "	" " " "
400	2½	-1% "	" drk red	" " " "
402½	2½	NO "	red-grey	" " " "
405	2½	NO "	"	Little pyrite
407½	2½	-1% "	"	Very little pyrite
410	2½	2% Calc.	varig. mainly red-grey	" " " "
412½	2½	5% "	" "	" " " "
415	2½	5% "	" "	" " " "
417½	2½	1% "	" "	" " " "
420	2½	-1% "	varig. mainly red	" " " "
422½	2½	-1% "	" lt-grey	" " " "
425	2½	1% "	" "	" " " "
427½	2½	2% "	" "	" " " "
430	2½	5% "	"red-grey	" " " "
432½	2½	-1% "	" lt-red	" " " "
435	2½	-1% "	" grey	" " " "
437½	2½	-1% "	" reddish grey	Little pyrite
440	2½	-1% "	" " "	Very little pyrite
442½	2½	1% "	" grey	" " " "
445	2½	1% "	" "	" " " "
447½	2½	2% "	" reddish grey	Little pyrite
450	2½	10% "	" grey	Very little pyrite

165

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 5

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
452½	2½	60% calc.	varig mainly brn	Fair amount pyrite and mn.
455	2½	75% "	" "	" " " " " "
457½	2½	80% "	" lt.brn	" " "
460	2½	10% "	" grey	Very little pyrite
462½	2½	-1% "	" "	" " " "
465	2½	-1% "	" "	" " " "
467½	2½	NO "	" red & grey	" " " "
470	2½	NO "	" red	" " " "
472½	2½	NO "	" red & grey	" " " "
475	2½	NO "	"lt grey	" " " "
477½	2½	2% "	" " " "	" " " "
480	2½	2% "	" " " "	" " " "
482½	2½	2% "	" " " "	" " " "
485	2½	75% "	" " " "	" " " "
487½	2½	5% "	" " " "	" " " "
490	2½	5% "	" " " "	" " " "
492½	2½	75% "	" " " "	" " " "
495	2½	80% "	" " " "	" " " "
497½	2½	75% "	" blue grey	" " " "
500	2½	3% "	"reddish	Some pyrite
502½	2½	1% "	" grey	Very little pyrite
505	2½	NO "	" "	" " " "
507½	2½	2% "	" "	Some pyrite
510	2½	60% "	" "	Very little pyrite
512½	2½	25% "	" "	Some pyrite
515	2½	1% "	" "	Very little pyrite
517½	2½	1% "	" "	" " " "
520	2½	-1% "	" "	" " " "
522½	2½	-1% "	" "	Some pyrite
525	2½	1% "	" "	Very little pyrite
527½	2½	60% "	" "	" " " "
530	2½	40% "	" "	" " " "

166

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 6

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
532½	2½	NO Calc.	Varig.	
			Mainly grey	Very little pyrite
535	2½	NO "	" ---	Very little pyrite
537½	2½	10% "	" ---	" " " "
540	2½	10% "	" reddish	Some pyrite
542½	2½	2% "	" grey	Very little pyrite
545	2½	-1% "	" dark reddish grey	Some pyrite
547½	2½	NO "	" " "	" " "
550	2½	NO "	" grey	Very little pyrite
552½	2½	NO "	" red	" " " "
555	2½	NO "	" "	" " " "
557½	2½	NO "	" "	" " " "
560	2½	50% "	"lt grey	Some pyrite. Some Mn.
562½	2½	90% "	" " "	Looks good. Some pyrite. Some black min.
565	2½	90% "	" " "	Some pyrite. Some mn.
567½	2½	90% "	" " "	" " . Some black min.
570	2½	20% "	" drk.red	Very little pyrite
572½	2½	NO "	" " "	" " " "
575	2½	2% "	" " "	" " " "
577½	2½	2% "	" " "	" " " "
580	2½	NO "	" " brn	" " " "
582½	2½	NO "	" " red	" " " "
585	2½	5% "	" " grey	" " " "
587½	2½	1% "	" " "	" " " "
590	2½	-1% "	" " "	" " " "
592½	2½	1% "	" " "	" " " "
595	2½	10% "	" " brn	Some pyrite
597½	2½	1% "	" " "	" "
600	2½	-1% "	" " "	Very little pyrite
602½	2½	-1% "	" " red	" " " "
605	2½	NO "	" reddish	" " " "
607½	2½	NO "	" "	" " " "
610	2½	NO "	" "	" " " "
612½	2½	-1% "	" "	Some pyrite.

167

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 7

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
615	2½	-1% Calc. shale	Varig. mainly brn	Some pyrite
617½	2½	-1% "	" reddish	Very little pyrite
620	2½	-1% "	" "	" " " "
622½	2½	-1% "	" "	" " " "
625	2½	-1% "	" "	" " " "
627½	2½	-1% "	" brn	" " " "
630	2½	-1% "	" reddish	" " " "
632½	2½	60% "	" grey	Some mn.
635	2½	50% "	" greysih	Some pyrite.
637½	2½	80% "	" "	Little Pyrite.
640	2½	20% "	" "	Very little pyrite.
642½	2½	-1% "	" dark reddish grey	" " " "
645	2½	-1% "	" " "	" " " "
647½	2½	-1% "	" " "	" " " "
650	2½	-1% "	" mainly grey	" " " "
652½	2½	-1% "	" " "	" " " "
655	2½	5% "	" " "	" " " " . Some mn.
657½	2½	-1% "	" " "	" " " "
660	2½	-1% "	" " "	" " " "
662½	2½	-1% "	" " "	" " " "
665	2½	-1% "	" " "	" " " "
667½	2½	-1% "	" " "	" " " "
670	2½	-1% "	" " "	" " " " . Very coarse chips.
672½	2½	-1% "	" " "	" " " " " " "
675	2½	-1% "	" " "	" " " " " " "
677½	2½	2% "	" " "	" " " " " " "
680	2½	2% "	" red-gr	" " " "
682½	2½	-1% "	" red	" " " "
685	2½	20% "	" brown	Some pyrite.

168

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 8

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
687½	2½	75% Calc. shale	Varig. Mainly red-grey	Some pyrite
690	2½	50% "	" grey	Some pyrite. Some mn.
692½	2½	50% "	" red-grey	Some pyrite. Very coarse chips.
695	2½	5% "	" red-grey	" " " " "
697½	2½	NO "	" " "	Very little pyrite.
700	2½	50% "	" grey	" " "
702½	2½	50% "	" red-grey	" " "
705	2½	5% "	" " "	" " " . Coarse chips.
707½	2½	-1% "	" " "	" " " " "
710	2½	-1% "	" grey	" " " " "
712½	2½	-1% "	" "	" " "
715	2½	-1% "	" "	" " "
717½	2½	-1% "	" red-grey	" " "
720	2½	-1% "	" grey	" " "
722½	2½	-1% "	" "	" " " . Clay, drilled soft.
725	2½	-1% "	" "	" " "
727½	2½	5% "	" "	" " "
730	2½	5% "	" red-grey	" " "
732½	2½	10% "	" grey	" " "
735	2½	2% "	" red	" " "
737½	2½	-1% "	" grey	" " "
740	2½	20% "	" "	" " "
742½	2½	1% "	" "	" " "
745	2½	1% "	" "	" " "
747½	2½	20% "	" grey & red	" " "
750	2½	25% "	" " "	" " "
752½	2½	80% "	" " "	Very little black min.
755	2½	80% "	" " "	" " pyrite

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 9

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
757½	2½	70% Calc. shale	Varig. mainly grey-red	Very little pyrite.
760	2½	75% "	" grey	" " "
762½	2½	10% "	" "	" " " . Coarse chips.
765	2½	40% "	" "	" " " " "
767½	2½	40% "	" "	" " " " "
770	2½	10% "	" grey-red	" " "
772½	2½	10% "	" " "	" " "
775	2½	5% "	" " "	" " "
777½	2½	5% "	" Lt red	" " " . Looks like gouge.
780	2½	-1% "	" grey	" " "
782½	2½	-1% "	" "	" " "
785	2½	5% "	" "	" " "
787½	2½	60% "	" grey-red	" " "
790	2½	-1% "	-------	" " "
792½	2½	-1% "	-------	" " "
795	2½	-1% "	-------	" " "
797½	2½	60% "	varig.	" " "
800	2½	80% "	"	" " "
802½	2½	80% "	" lt grey	" " "
805	2½	50% "	" " "	" " "
807½	2½	30% "	" " "	" " "
810	2½	5% "	" " "	" " "
812½	2½	3% "	" " "	" " "
815	2½	-1% "	" " "	" " "
817½	2½	5% "	" " brn	" " "
820	2½	-1% "	" "" "	Some pyrite.
822½	2½	-1% "	" -----	" "
825	2½	-1% "	" grey	Very little pyrite. Coarse chips.
827½	2½	-1% "	" reddish grey	" " "
830	2½	NO "	" lt grey	" " "
832½	2½	-1% "	" " brnsh	" " "

170

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 10

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~		Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
835	2½	50%	Calc. shale	Varig. mainly grey	Some pyrite.
837½	2½	50%	"	" "	Very little pyrite.
840	2½	80%	"	" brown	Some pyrite. Fine chips.
842½	2½	-1%	"	" "	Very little pyrite.
845	2½	75%	"	" "	" " " . Fine chips.
847½	2½	90%	"	" "	" " " " "
850	2½	90%	"	" "	Some pyrite.
852½	2½	90%	"	" "	Very little pyrite.
855	2½	90%	"	" red	" " "
857½	2½	80%	"	" "	Some pyrite.
860	2½	90%	"	" "	Looks good - (Ore?) (Few pcs. oxide.)
862½	2½	80%	"	" red & grey	Some pcs. oxide.
865	2½	90%	"	" " "	Little Fe O.
867½	2½	80%	"	" grey	" " ". Coarse chips.
870	2½	75%	"	" "	Few pcs. oxide. Note: All pyrite referred to is more or less oxidized.
872½	2½	80%	"	" grey & red	Very little pyrite.
875	2½	70%	"	" " "	Some pyrite.
877½	2½	60%	"	" ------	" " . Few pcs. oxide.
880	2½	2%	"	" grey	Very little pyrite.
882½	2½	10%	"	" "	Some pyrite. Some mn.
885	2½	40%	"	" "	Little pyrite. Little mn.
887½	2½	20%	"	" " Brn	" " " "
890	2½	80%	"	" "white	" " .
892½	2½	50%	"	" dark & white	Considerable black min. - assay.
895	2½	50%	"	" " "	Little min.
897½	2½	60%	"	" " "	Very little pyrite.
900	2½	80%	"	" black &white	Little mn.
902½	2½	20%	"	" dark	Very little pyrite.
905	2½	60%	"	" brnsh	Little mn.
907½	2½	90%	"	" lt brn	Some pyrite & mn.
910	2½	60%	"	" " "	Little pyrite

171

Newmont Exploration, Limited

Tombstone, Arizona

DATE STARTED _____ LOG HOLE NO. D-6 PAGE 11

DATE FINISHED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
912½	2½	60% Calc. shale	Varig mainly lt brn	Very little pyrite.
915	2½	50% "	" " "	" " " . Some Mn.
917½	2½	60% "	" " " &white	" " " . " ". Fine chips.
920	2½	40% "	" lt grey &white	" " " . Naco?
922½	2½	40% "	" " "	" " "
925	2½	80% "	" " "	" " "
927½	2½	90% "	" " "	" " "
930	2½	70% "	" " grey	" " "
932½	2½	40% "	" blue-grey	" " "
935	2½	90% "	" " white	" " "
937½	2½	60% "	" " "	" " " . Little mn.
940	2½	5% "	" brn-gry white	" " " ----------
942½	2½	1% "	" greenish grey	" " "
945	2½	-1% "	" " "	" " "
947½	2½	10% "	" grey	" " "
950	2½	10% "	" drk grey	" " "
952½	2½	10% "	" " "	" " "
955	2½	40% "	" brn	" " "
957½	2½	10% "	" dark	" " "
960	2½	-1% "	" "	" " "
962½	2½	-1% "	" "	" " " . Lots of bran in sample.
965	2½	-1% "	" "	" " " " " "
967½	2½	30% "	" "	" " "
970	2½	-1% "	" "	Some Mn. Very little pyrite.
972½	2½	-1% "	" "	Very little pyrite. Some Mn.
975	2½	10% "	" "	" " " " ". Calc. gouge.
977½	2½	-1% "	" "	" " " . Very little Mn.
980	2½	-1% "	" "	Very little sample - mainly white calc talc.
982½	2½	-1% "	" "	" " " " " " "
985	2½	5% "	" "	" " " " " " "

172

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 12

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
987½	2½	3% Calc.	Varig.	
		shale	mainly dark	Very little pyrite. Some Mn.
990	2½	50% "	" "	" " " " "
992½	2½	80% "	" lt grey	" " "
995	2½	80% "	" grey	" " "
997½	2½	90% "	" lt grey	" " "
1000	2½	80% "	" " "	" " "
1002½	2½	50% "	" " "	" " "
1005	2½	50% "	" " "	No pyrite -----"--.
1007½	2½	5% "	" " "	Very little pyrite. Efferversing due to calc. on qtz chips.
1010	2½	3% "	" " "	" " " " " " " " " " "
1012½	2½	2% "	" " "	" " " " " " " " " " "
1015	2½	5% "	" " "	" " " " " " " " " " "
1017½	2½	1% "	" " "	" " " .
1020	2½	2% "	" " "	" " " . Small samples. Effervesing calc. coating on chips.
1022½	2½	50% "	" " "	" " " " " " " " " " "
1025	2½	5% "	" " "	" " " " " " " " " " "
1027½	2½	1% "	" " "	" " " " " (Alt. bands???) " " "
1030	2½	1% "	" " "	" " " " " " " " " " "
1032½	2½	1% "	" " "	" " " " " " " " " " "
1035	2½	1% "	" " "	" " " " " " " " " " "
1037½	2½	-1% "	" " "	" " " .
1040	2½	-1% "	" " "	Some pyrite.---"--.
1045	2½	10% "	" " "	Very little pyrite.
1047½	2½	-1% "	" " "	" " "
1050	2½	1% "	" " "	" " " . coating effervesing alt. bands?
1052½	2½	1% "	" " "	" " " " " " " " "
1055	2½	1% "	" " "	" " " " " " " " "
1057½	2½	-1% "	" " "	" " " -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*.
1060	2½	60%		A very definite change pink & white. Some pyrite.
1062½	2½	60% "	Pink & wh	Some pyrite
1065	2½	80% "	" "	" "
1067½	2½	80% "	" "	Very little pyrite. Small sample.
1070	2½	80% "	" "	" " " " "
1072½	2½	80% "	" "	" " " " "
1075	2½	90% "	" "	Considerable pyrite. " "

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 13

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~FORMATION~~		Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
1077½	2½	80%	Calc.	Varig. Mainly grey-brn	Very little pyrite. Small sample.
1080	2½	80%	"	Pink & white, grey & brn	" " " " "
1082½	2½	50%	"	Mainly grey some pink	" " " " " . Coarse chips.
1085	2½	60%	"	Mainly pink & lt grey	" " " " " "
1087½	2½	70%	"	Mainly pink	Some pyrite. " "
1090	2½	80%	"	" "	Cons. disem. pyrite. " "
1092½	2½	80%	"	" pink & white	Some pyrite. " "
1095	2½	80%	"	" " "	" "
1097½	2½	80%	"	" pink	" "
1100	2½	60%	"	" " & drk grey	" " Small sample.
1102½	2½	50%	"	" pink & drk grey	" " " "
1105	2½	40%	"	" drk grey some pink	" " in pink. " "
1107½	2½	60%	"	" pink & some grey	" " " .
1110	2½	80%	"	" pink & some grey	" " " " "
1112½	2½	80%	"	" pink & some grey	Little pyrite. Small sample.
1115	2½	80%	"	" " "	Very " " " "
1117½	2½	60%		" pink & grey	(Pink different rock from above. Little pyrite.
1120	2½	40%	"	" grey	Very little pyrite. Small sample.
1122½	2½	40%	"	" " & pk	" " " " "
1125	2½	80%	"	" " "	" " " Very small sample.
1127½	2½	60%	"	" " & SOME pink	Little pyrite. " " "
1130	2½	80%	"	" grey little pink	Very little pyrite. " " "

174

Newmont Exploration, Limited

Tombstone, Arizona

LOG HOLE NO. D-6 PAGE 14

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character ~~XFORMATIONX~~	Color ~~XMINERALIZATIONX~~	DESCRIPTION OF CORE
1132½	2½	70% Calc.	Mainly grey	Very little pyrite. Very small sample.
1135	2½	80% "	" "	White talc. Some pyrite. Practically no sample.
1137½	2½	10% " of chips.		Evidently in soft white calc. material. Very little pyrite. very small sample.
1140	2½	60% " "	"	" " " " " " " "
1142½	2½	80% " "	"	" " " " " " " "
1145	2½	80% " "	"	" " " " " " " "
1147½	2½	80% " "	"	" " " " " " " " Some Mn.
1150	2½	60% " "	"	" " " " " " " ".
1152½	2½	80% Chips varig. mainly pink & grey. Very little pyrite. Very small sample. Soft. Material lost in drilling mud as from 1020 on.		
1155	2½	60% Calc.	As above except color mainly grey.	
1157½	2½	60% "	" " " " " " " "	
1160	2½	80% "	" " " " " " " "	
1162½	2½	50% "	" " " " " " " "	
1165	2½	60% "	" " " " " " " "	
1167½	2½	40% "	" " " " " " " ". Some Mn.	
1170	2½	NO "	Dark grey-reddish. Very little pyrite. Fair sized sample. Definite change, caved material?	
1172½	2½	80% "	Mainly pink-white-grey. Little pyrite. Small sample.	
1175	2½	40% "	" " " " " " " "	
1177½	2½	80% "	" " " " . Some pyrite. " "	
1180	2½	80% "	" " " " . Very little pyrite. Small sample.	
1182½	2½	50% Mainly dark grey. Very little pyrite. Small sample.		
1185	2½	50% "	" " " " " " " "	
1184-1187				Cavern, drill dropped.

175

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

SURFACE HOLE D-6, 4-3/4" HOLE

135.0'- 157.5'- 22.5' —— Calcareous material.
20'

177.5'- 187.5'- 10'
60'

247.5'- 252.5'- 5'
15'

267.5'- 277.5'- 10'
175'

452.5'- 457.5'- 5'
35'

492.5' - 497.5'- 5'
62.5

560.0' - 567.5'- 7.5'
65'

632.5' - 640.0'- 7.5'
47'

687.5' - 692.5' - 5'
57.5'

750.0' - 767.5' - 17.5' - 6'??
30'

797.5' - 807.5' - 10' - 10'??
27.5'

835.0' - 877.5' - 42.5'
7.5'

885.0' - 937.5' - 52.5'
52.5'

Could be one bed???
or repeated by faulting?

990.0' -1005.0' - 15.0'
Novaculite? 55.0'

Naco? 1060.0' -1184.0' - 124.0'

1184.0' -1187.0' cavern.

Location DDH #6 - Trang (W.S.) 600' level

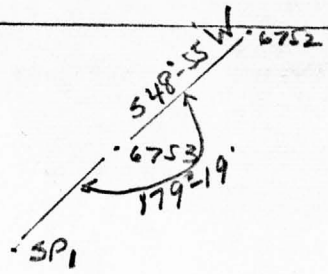
176

48-53
41
-14

S48°-55'W
N48°-55'E
179°-19'

227°-74'
180-00
47-74 W
=548°-14'W.

228-14
90
138-14
46
41-



DDH. collar = 61.88'

61.88' @ 548°-14'W.

1.791550	1.791550
9.823539	9.872659
11.615089	11.664209
41.22	46.15

0.5' @ N41°-46'W

Collar DDH #6

⊙6753	-874.03S -444.85W
	-41.22 -46.15
	-915.25 -491.00
	+0.3 -0.3
	-915.00 -491.30

Elevt. R+0.5' = 4118.3'

elev. ⊙6753 = 4125.74
-7.97
R@⊙6753 = 4117.77
+0.50
4118.27

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

November 13, 1954

PRELIMINARY PULSE REPORT ON TOMBSTONE SURFACE DRILL HOLES

REPORT NO. 2 - DRILL HOLES D-2-A AND D-6-A

PRELIMINARY

Please refer to Report No. 1, dated October 1st, for background of this work. Refer also to Dr. Brant's letter to Mr. Fred Searls dated November 8th, 1954.

Hole D-6-A was logged early in October and hole D-2-A logged the latter part of October. These holes are the last to be drilled from surface, the remainder being planned for underground sites.

S.D.H. D-6-A

LOGGING DATA

Two array pulse and resistivity curves were obtained with spacings of 10', 35', and 85', from the water level at 400' to the effective bottom at 1135'.

Potential azimuth curves were also obtained, although pulse azimuth readings were not possible due to 60 cycle power line interference.

CONCLUSIONS

1. Novaculite was intersected from 1005' to 1060' below which the Naco was entered.

2. Several anomalies were noted, the most important of which indicate intersections of anomalous pulse material from 845' to 855', 885' to 8908, and 910' to 915'. Mineralization required to account for these anomalies is of the order of 3%-4%. There is probably some increase in grade and/or volume down-dip away from the hole. The dip is considered probably steep.

RECOMMENDATIONS

Azimuth results were not obtained due to power line interference. Equipment is being built at Jerome with which it is hoped to counteract the effect of this interference. During the next trip to Tombstone it is hoped that azimuth results will be obtained relative to these anomalies, at which time a recommendation will be made. The foregoing applies also to the anomalies noted within drill hole D-2-A.

DISCUSSION

Normal pulse and resistivity values occur to about 800' with the exception of local short spacing highs considered not significant. At 800' the resistivity level increases to a maximum at 1000'. Within this high resistivity zone a group of pulse anomalies is noted from 810' to 970'. The chief of these are centered at 850', 887', and 912' approximately, and are considered due to beds of high pulse material crossing the hole at these positions. The effect of these beds on the longer spacings has been calculated, and residual anomalies remain on the 35' and 85' spacings. Pulse Azimuth curves, if obtainable, will likely give the direction of dip away from the hole. Nothing can be inferred from the potential azimuth curves plotted.

The zone of high resistivity above and including the Novaculite should be diagnostic in future holes for marking horizons. It has since been noted in an underground drill hole that much of the Naco itself is characterized by just such resistivity sections. This adds further confirmation to Dr. Brant's formational interpretation noted in the above mentioned letter.

S.D.H. D-2-A

LOGGING DATA

Two array pulse and resistivity curves were obtained with spacings of 10', 35' and 85', from the water level at about 300' to the effective bottom at 1120'. It should be noted that this hole was entered 4 days after its completion, so it would appear in some cases at least that this type of hole remain accessible long after drilling.

CONCLUSIONS

1. It is unlikely that the Naco formation was entered by this drill hole. Dr. Brant would place the Naco at this site at about 1400'.

2. Anomalies indicate that this hole intersected anomalous pulse material from 530' to 540' and from about 600' to 630'. The

The drill hole geologic log does not indicate mineralization at these points. From the anomalies it is inferred that this anomalous material extends away from the hole for probably at least 100' on either side. No dip can be inferred from results.

RECOMMENDATIONS

As with D-6-A, recommendations will be made only after attempting to obtain pulse azimuth results over the section of interest.

DISCUSSION

No abnormal resistivity results are noted throughout the drill hole, although the area of the pulse anomalies shows general resistivity lows.

The pulse anomaly on the 10' spacing centered at 535' can be accounted for by a bed of anomalous material crossing the hole from 530' to 540'. That centered at 615' is accounted for by a bed of anomalous material from roughly 600' to 630'. Values would indicate a sulphide or anomalous mineralization content of about 3%. The 35' and 85' curves are accounted for by these beds, assuming they continue outward from the drill hole some 75'-100' on either side.

GENERAL

Dr. Brant's hole to hole correlation noted in his letter of November 8th to Mr. Fred Searls, Jr., is considered by this author to be probably correct in general, especially since subsequently added data shows the Naco sections to have high resistivity characteristics similar to those noted in D-6-A. It is realized however that the structure in this area is likely such that simple formational correlation may not be possible. Further work in drill holes which intersect both the Cretaceous and Naco horizons should shed more light on this question.

A further note will be issued after azimuth work in these drill holes has been attempted.

Don M Wagg

DMW:lu

Don M. Wagg

cc: F. Searls, Jr. ✓
D. Hargrove
H. Norman
A. Brant

NEWMONT EXPLORATION, LIMITED — Joy Mine #2.
TOMBSTONE DEVELOPMENT COMPANY — T-506
Tombstone, Arizona

LOG HOLE NO. 1 PAGE 1

DATE STARTED October 19, 1954 LEVEL TR 6th COORDINATE POS. 785S N 1500E E

DATE FINISHED EL. COLLAR 4118 COURSE ---------- INCLINATION -80° down

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE SIZE OF HOLE 3-7/8" Tricone bit

DEPTH INTERVAL	FEET	Character FORMATION	Color	DESCRIPTION OF CORE
12½	12½	25% Calc.	Varig. Shale Mainly Grey & Red	(damp) Some Pyrite and Mn. Very large chips.
15	2½	1% "	" " " "	" " " " " Large chips.
17½	2½	-1% "	" " " "	" " " " " " "
20	2½	-1% "	" " " "	" " " " " " "
22½	2½	-1% "	" " " "	" Considerable pyrite and Mn. Large chips.
25	2½	-1% "	" " " "	" Little " " " "
27½	2½	2% "	" " " "	" " " " " "
30	2½	-1% "	" " " "	" " " " " "
32½	2½	-1% "	" " " "	" Some " " " "
35	2½	-1% "	" " " "	" " " " Medium "
37½	2½	-1% "	" " " "	" " " " " "
40	2½	-1% "	" " " "	" " " " Large "
42½	2½	-1% "	" " " "	" Little " " Medium large chips.
45	2½	-1% "	" " " "	" " " " " " "
47½	2½	-1% "	" " " " & brown	" " " " " " "
50	2½	-1% "	" " " " & pink	" Considerable " " " chips.
52½	2½	-1% "	" " " "	" Some " " " large chips.
55	2½	-1% "	" " " "	" Little " " " chips.
57½	2½	-1% "	" " " "	" Very little pyrite. " "
60	2½	-1% "	" " " " & pink	" Some " " " "
62½	2½	-1% "	" " " "	" Little " " " large chips.
65	2½	-1% "	" " Dark grey	" Very little pyrite. " " chips.
67½	2½	-1% "	" " " "	" " " " " " large chips.
70	2½	-1% "	" " " "	" " " " " " " "
72½	2½	2% "	" " " "	" " " " " " chips.
75	2½	-1% "	" " " "	" " " " " " "
80	2½	-1% "	" " " "	" (dry) " " " " large chips.
82½	2½	-1% "	" " " "	" (damp) " " " " " "
85	2½	-1% "	" " " "	" " " " " " chips.
87½	2½	-1% "	" " " "	" Little pyrite and Mn. " "
90	2½	-1% "	" " " "	" Very little pyrite and Mn. " "
92½	2½	-1% "	" " " "	" " " " " " " " "
95	2½	-1% "	" " " "	" " " " " " " " "
97½	2½	-1% "	" " " "	" " " " " " " " "
100	2½	-1% "	" " " "	" " " " " " " " "

182

Newmont Exploration, Limited Joy Machine #2

Sta. T-50

LOG HOLE NO. 1 PAGE 2

DATE STARTED

LEVEL COORDINATE POS. N E

DATE FINISHED

EL. COLLAR COURSE INCLINATION

LOGGED BY REMARKS LENGTH OF HOLE SIZE OF HOLE

DEPTH INTERVAL	FEET	Character FORMATION	Color	DESCRIPTION OF CORE
			Varig. Shale Mainly	
102½	2½	-1% Calc.	" " Dark grey (damp)	Very little pyrite & Mn. Medium chips.
105	2½	-1% "	" " " " "	" " " " " "
107½	2½	-1% "	" " " " "	" " " " " " large chips.
110	2½	2% "	" " Light " (dry)	" " " " " " chips.
112½	2½	-1% "	" " Grey " "	" " " " " " "
115	2½	-1% "	" " " (damp)	" " " " " " "
117½	2½	-1% "	" " Dark grey "	" " " " " " small chips.
120	2½	-1% "	" " " " "	" " " " " " " "
122½	2½	-1% "	" " Light " (dry)	" " " " " Very " "
125	2½	-1% "	" " " " (damp)	" " " " " Small chips.
127½	2½	-1% "	" " " " "	" " " " " " "
130	2½	-1% "	" " Dark " "	" " " " " Medium large chips.
132½	2½	2% "	" " " " "	" " " " " " " "
135	2½	2% "	" " Light " "	Some " " Large chips.
137½	2½	2% "	" " Dark " "	" " " Medium chips.
140	2½	-1% "	" " " " "	Very little " " " "
142½	2½	-1% "	" " " " "	" " " " " " "
145	2½	-1% "	" " Light " (dry)	" " " " " " "
147½	2½	-1% "	" " " " "	" " " " " " "
150	2½	-1% "	" " " " "	" " " " " " "
152½	2½	-1% "	" " Dark " (damp)	" " " " " " "
155	2½	-1% "	" " Light " (dry)	" " " " " " fine chips.
157½	2½	-1% "	" " Dark " (damp)	" " " " " Fine chips.
160	2½	-1% "	" " " " "	Some " " Medium chips.
162½	2½	-1% "	" " " Grey&brn. "	Very " " " " " "
165	2½	3% Definite change.	Brown sandy (damp)	Little pyrite. Fine chips.
167½	2½	20% Calc.	Varig. Shale " "	" " " " " "
170	2½	5% "	" " " " "	" Very little pyrite. " "
172½	2½	-1% "	" " " " "	" " " " " " " "
175	2½	-1% "	" " " " "	" " " " " Some Mn. Fine chips.
177½	2½	-1% "	" Mainly	
			Light brown	" " " " Very little Mn. Fine chips
180	2½	-1% "	" " " " "	" " " " " " " " " "
182½	2½	-1% "	" " " " "	" " " " " Little Mn. " "
185	2½	-1% "	" " " " "	" " " " " " " " " "

183

Newmont Exploration, Limited

Joy Machine #2.
T-506

LOG HOLE NO. 1 PAGE 3

DATE STARTED _____ LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY _____ REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	Character FORMATION	Color ~~MINERALIZATION~~	DESCRIPTION OF CORE
			Varig. Shale	
			Mainly	
187½	2½	-1% Calc.	Light	brown (damp) Very little pyrite. Little Mn. Fine chips.
190	2½	-1% "	" " "	" " " " " and " " "
192½	2½	-1% "	" " "	" " " " " " " " "
195	2½	-1% "	" " "	" " Little " " " " "
197½	2½	-1% "	" " "	" " Very " " " " " "
200	2½	-1% "	" " Dark	" " " " " " " " "
202½	2½	-1% "	" " "	" " " " " " " " "
205	2½	-1% "	" " "	" " " " " " " " "
207½	2½	-1% "	" " "	" " " " " " " " "
210	2½	-1% "	" " "	" " " " " " " " "
212½	2½	-1% "	" " "	" " " " " " " " "
215	2½	-1% "	" " "	" " " " " " " " "
217½	2½	-1% "	" " "	" " " " " " " " "
220	2½	-1% "	" " "	" " " " " " " " "
222½	2½	-1% "	" " "	" " " " " " " " "
225	2½	-1% "	" " "	" " " " " " " " "
227½	2½	-1% "	" " "	" " " " " " " " "
230	2½	-1% "	" " "	" " " " " " " " "
232½	2½	-1% "	" " "	" " " " " " " " "
235	2½	-1% "	" " "	" " " " " " " " "
237½	2½	2% "	" " Light	" " " " " " " Very fine chips
240	2½	3% "	" " "	" " " " " " " " " "
242½	2½	-1% "	" " "	" (dry) " " " " " " " "
245	2½	20% "	" " "	" (damp) " " " " " " " "
247½	2½	50% "	" " "	" (dry) " " " " " " " "
250	2½	30% "	" " "	" (damp) " " " " " " " "
252½	2½	20% "	" " "	" " " " " " " " " "
255	2½	2% "	" " "	" " " " " " " " " "
257½	2½	2% "	" " "	" " " " " " " " " "
260	2½	5% "	" " "	" " " " " " " " " "
262½	2½	5% "	" " "	" " " " " " " " " "
265	2½	3% "	" " "	" " " " " " " " " "
267½	2½	10% "	" " "	" " " " " " " " " "
270	2½	10% "	" " "	" " " " " " " " Medium chips.
272½	2½	3% "	" " "	" " " " " " " " Very fine chips
275	2½	3% "	" " "	grey (dry) " " " " " Fine chips.

184

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TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine No. 2

T-506 LOG HOLE NO. _____ PAGE 4

DATE STARTED October 19, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

Typed 11-17-54

DEPTH INTERVAL	FEET	Character FORMATION	Color MINERALIZATION	DESCRIPTION OF CORE
			Varig. Shale Mainly	
277½	2½	60% Calc.	Light grey. (Dry).	Very little pyrite & Min. Coarse Chips.
280	2½	15% "	" " "	" " " " " " Very fine chips.
282½	2½	50% "	" " "	" " " " " " " " "
285	2½	70% "	" " Light brn.	" " " " " Fine sand.
287½	2½			No sample.
290	2½			Practically no sample - little gouge? Reddish.
292½	2½	Fines 90% "	" "	" " " . Few chips of shale. Red.
295	2½	"90% "	" "	" " " . " " " " "
297½	2½	"90% "	" "	" " " . 1 lge pc qtz rough. Some iron. Little $CuCO_3$.
300	2½	"90% "	" "	" " " . No chips. Very fine.
302½	2½	"90% "	" "	" " " . " " " " Lt red.
305	2½	"90% "	" "	Very small sample. Few chips rounded. Light red. Fault.
307½	2½	"90% "	" "	" " " " " " light reddish.
310	2½	"90% "	" "	" " " " " " " "
312½	2½	"90% "	" "	" " " " " " " "
315	2½	"90% "	" "	Practically no sample. Lt reddish chips rounded. 1 pc min.
317½	2½	"90% "	" "	Very small sample. " " . Few rounded pcs. Fine cuttings.
320	2½	"90% "	" "	" " " " " " " " " " "
322½	2½	"90% "	" "	" " " " " " " " " " "
325	2½	"90% "	" "	Small sample. " " Rounded pcs. " "
327½	2½	"90% "	" "	" " " " " " " " "
330	2½	"90% "	" "	" " Light brown. " " " "
332½	2½	"90% "	" "	Fair " " reddish. " " " "
335	2½	"90% "	" "	" " " " " " " "
337½	2½	"90% "	" "	" " " brown. " " " "
340	2½	"90% "	" "	" " " grey " " " "
342½	2½	"90% "	" "	" " " red sand. Very fine cuttings.
345	2½	"90% "	" "	" " " " " " " "
347½	2½	"90% "	" "	" " " " " " " "
350	2½	"90% "	" "	" " " red. Fine cuttings.
352½	2½	Rock 30% "	" "	" " " grey. Little pyrite. Coarse chips.

185

Newmont Exploration, Limited
TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine No. 2.

LOG HOLE NO. _____ PAGE 5

DATE STARTED October 19, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

Typed 11-17-54

DEPTH INTERVAL	FEET	Character	Color	DESCRIPTION OF CORE
355	2½	Fines 90% Calc.	Varig.Shale Mainly	Small sample. Light Grey. Little pyrite. Fine chips.
357½	2½	Rock 75% "	" "	" " " " . Some red pyrite. " "
360	2½	Fines 90% "	" "	Fair " " red. No pyrite visible. Fine sand.
362½	2½	Rock 75% "	" "	" " " grey. " " " . Med. chips.
363				END OF TRICONE ROCK BIT. CORING STARTED WITH NX DIAMOND BIT.
		Depth interval	Feet Cored	
363	to	372	8.0	NX core. Novaculite highly fract. Amphibole & pyroxene min introduced. Little pyrite. Very few spots of Ag, Pb or Cu. Not calcareous.
372	"	379	7.0	BX core. Hard Sil Meta @ 373. Considerable Ag, Pb, Cu. Looks good. Rock composed of about 50% amphibole & pyroxene min. (Wollastonite, etc.)
379	"	391	15.0	" " White Ls. Few spots of amphibole & pyroxene min. Very few spots Cu min. Little pyrite.
391	"	400	9.0	" " White ls. Some Amphibole & pyroxene min. Few scattered spots of bornite chalcopyrite, little sphalerite. Rock calcareous.
400	"	406	6.0	" " Wh ls. Some Am & pyroxene min. Few scattered spots of chalcopyrite. Rock calcareous.
406	"	410	4.5	" " " " " " " "
410	"	420	10.0	" " Wh ls. Some amphibole & pyroxene min. Little pyrite. Little Cu min. Rock calc.
420	"	430	10.0	" " Wh ls. Some amphibole & pyroxene min. Little pyrite. Little Cu min. Rock calc.
430	"	449	15.0	" " Wh ls. Some amphibole & pyroxene min. Little pyrite. Scattered Zn & Cu min. Mottled. Some fossils(?).
449	"	464	12.0	" " Wh ls. Some amphibole & pyroxene min. introduced in fracts. Little Pb, Zn, Cu min in fracts. Some diss. Assay Sample No. 18030. Calc.
464	"	479	15.0	" " Wh ls. Little amphibole & pyroxene min. Little Pb, Zn, Cu & Ag(?) min. Calc. Assay 470-471, sample No. 18031 and 473.5 to 474, sample No. 18032.

186

Newmont Exploration, Limited
TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine No. 2

T-506

LOG HOLE NO. ____ PAGE 6

DATE STARTED October 19, 1954 LEVEL ____ COORDINATE POS. ____ N ____ E

DATE FINISHED ____ EL. COLLAR ____ COURSE ____ INCLINATION ____

LOGGED BY Don Hargrove REMARKS ____ LENGTH OF HOLE ____ SIZE OF HOLE ____

Typed 11-17-54

DEPTH INTERVAL	To	Depth Interval	Ft. Cored	DESCRIPTION OF CORE
479	to	490	10.0	BX core. 50% Calc. F.G. hard altered ls. Some tactite min. consid pyrite in places. Three narrow (2-3") zones of oxide minerals (incl MuO) non commercial. Looks interesting.
490	"	495	5.0	" " Greenish alt ls. hard. f.g. Consid pyrite, little marcasite. Little Cu min. 50% calc. Assay 493.5 to 495. Sample No. 18033.
495	"	509	15.0	" " Alt ls. Rock has a porphyritic appearance but is nearly all calcareous. Consid pyrite in fracts and diss. Light grey color.
509	"	524	15.0	" " Wh ls. Alt in places. Little pyrite. Little Pb, Ag(?) min @ 516'. Calcareous.
524	"	537	15.0	" " Wh ls. coarse grained. Fair Pb min. Little pyrite. Assay 524.5 to 525.8, sample No. 18034.

187

Newmont Exploration, Limited

TOMBST[illegible] DEVELOPMENT COMPANY [illegible]-506

[illegible]bstone, Arizona

Joy Machine No. 2

[illegible]G HOLE NO. [illegible] PAGE 7

DATE STARTED October 19, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

(Typed 12/1/54)

DEPTH INTERVAL	To ~~xxxx~~	Depth Interval ~~xxxxxxxx~~	Ft. cored ~~xxxxxxxxxx~~	DESCRIPTION OF CORE
537.0	To	553.0	15.0	Naco White Ls. Very little Pb-Zn min. Very little pyrite. Some fracturing. Calc.
553.0	"	567.0	15.0	" White Ls. Fract. Some banding. Few fossils (?). C.g. to F.g. Calc.
567.0	"	582.0	15.0	" " " " " " . Little Pb and Cu min. Calc.
582.0	"	597.0	15.0	" White Ls. Fract. Very little pyrite. Little Pb. Zn. Cu. min in 3 small fract. 12' calc. Little rhodochrosite.
597.0	"-	612.0	15.0	" White Ls. As above but no min of any importance. 12' calc. Little tactite min.
612.0	"	627.0	15.0	" White Ls. 50% replaced by very hard white min. No min of importance. 50% calc.
627.0	"	642.0	15.0	" 5' not calc. Wh. Ls. Tactitic in places. Little dendrites on cleavage. Fract. Little Limonite and Hematite and pyrite and galena and rhodochrosite.
642.0	"	656.0	15.0	" White Ls. Fract in places. Slightly tactitic little Limonite and pyrite and galena. Nearly all calcareous
656.0	"	670.0	15.0	" White Ls. Argillaceous @ 668. Little tactitic with little galena, sphalerite and pyrite. Fract in places. Nearly all calc.
670.0	"	685.0	15.0	" White Ls. Very little tactite min. Little pyrite. Mainly C.g. Fossiliferous(?). Calc.
685.0	"	700.0	15.0	" White meta. Ls. Some tactite, some very heavy, hard (plus 6.0) white min. Some diss pyrite. Little Pb. Rock f.g. nearly all calc
700.0	"	715.0	15.0	" White Ls. Fract. Some heavy white min. Some lg. spots of pyrite, some diss. Very little galena. Little tactite min. Calc.
715.0	"	729.0	14.0	" White Ls. Fract. Alt. Fair (Best to date) Galena, Sphalerite min from 722 to 728. Min not solid--banded. Little tactite min. Nearly all calc. Assay 724-725'. Sample 18035,
729.0	"	748.0	15.0	" (Cavity 741-745) Wh Ls. Fract. Some tactite min. Little Pb-Zn in spots. Some MnO. 739 to 741 Amphibole and pyrozene min. Fract. Some heavy white min. Little pyrite. Nearly all calc.
748.0	"	762.0	15.0	" White to drk grey. Meta. Scat Pb,Zn, Cu, min. Little Limonite and pyrite. Some core very heavy. Nearly all calc. Looks fair.
762.0	"	777.0	15.0	" White Ls. Some bleached. Some tactite. Some fair Pb, Zn, Cu min. Considerable pyrite. Some core very heavy. Nearly all calc.

188

Newmont Exploration, Limited

LOG HOLE NO. 7 PAGE 8

DATE STARTED October 19, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

(Typed 12/1/54)

DEPTH INTERVAL	To ~~FROM~~	Depth Interval ~~FORMATION~~	Ft. Cored ~~MINERALIZATION~~	DESCRIPTION OF CORE
777.0	To	792.0	15.0	Naco. White Ls. Meta. Some amphibole and pyroxene min. Galena, chalco, banded, mottled. Fossils(?). Some argillaceous. About 50% calc.
792.0	"	807.0	15.0	" White Ls. Little argillaceous. Little amphibole and pyroxene min. Narrow stringer of Pb, Zn min. Very little pyrite. Ls. c.g. Nearly all calc.
807.0	"	822.0	15.0	" White Ls. About 1/3 argillaceous. Some tactite. Some Pb min in stringers, Little chalcopyrite spots. 2/3 calc.
822.0	"	850.0	30.0	" White Ls. (822 to 823 is argillaceous) rest is coarse grained, recrystallized. Some sugary. Little pyrite. Calc. Bleached.
850.0	"	863.0	11.0	" White recrystallized Ls. Calc. Some so sugary it will not core.
863.0	"	868.5	5.5	" Best min to date. Amphibole and pyroxene min. Sphalerite, galena, chalcopyrite and Ag(?). 3 bands one to 3" wide of good min. Very encouraging. Assay. Sample No. _____. (Sample number will be furnished when assay is returned.
868.5	"	879.5	10.5	" White Ls. Very little min. Recrys calc. Little fract with introduced amphibole or pyroxene.
879.0	"	889.0	10.0	" White Ls. Fract filled with amphibole and pyroxene min. Very little chalcopyrite.
889.0	"	894.0	6.0	" White Ls. Recrystallized. Calc.
894.0	"	939.0	45.0	" White Ls. Recrystallized. Few irregular clay seams. Little hematite (weak) Pb, Zn, pyrite in spots.
939.0	to	968.0	29.0	" 939 to 948 Ls. with tactite alt sparse galena, sphal and pyrite. 948 to 960 dense sil. 960 to 968 White Ls.
968.0	"	969.0	1.0	" White Ls. Sil from 954 to 959. From 959 to 969 White Ls. Few irregular seams alt clay min. Very little scattered pyrite Pb, Zn and Cu min.

LOG HOLE 7

TOMBSTONE

958-970	Limestone	Grey white, irregular patches and streaks of pale brown to green secondary silicates. Local very sparse Gl.
970-973	Lime Silicate (Argillite)	Brown patches in grey white. All very hard. Contacts 40° ∠ to core
973-974½	Limestone	Some lime silicates
974½-978	Lime Silicate (Argillite)	White grey dense hard with brown patches. Contact at 10° from 978-979
978-1005	Limestone	978-980 Grey white with some Tremolite 980-999 locally stained pink and with hematite on fractures, also irregular brownish streaks hard with pyrite 999-1005 irregular chert inclusions 1-3" at 1 to 2 foot intervals. Tremolite alteration along borders and in chert
1005-1006½	Lime Silicates (and Sulfides)	White Tremolite, some coarse calcite. 1% coarse Gl and pyrite in streaks. Contact at 50° at 1005.
1006½-1008	Limestone	
1008-1008'4"	Lime Silicate and Sulphides	50% galena, sphalerite, chalcopyrite and some pyrite with Tremolite and epidote?
1008'4"-1018	Limestone and Lime Silicate	$CaCO_3$ with pale green platey silicates, minor coarse pyrite 1008' 4"-1010 and 1013-1017-3/4 At 1018'3" Tremolitic alteration with streaks Gl and Sp.
1018-1027	Limestone	Bedded 40° to core at 1022. Grey medium grained faint local dark mottling. Pyrite streak at 30° 1026. Slight Gl with Tremolite at 1027.
1027-1074	Lime Silicates	Grey hard very fine grained. Minor $CaCO_3$. Impure limestone 6" at 1032. Very sparse pyrites and a dark mineral too small to identify. Contact 45° at 1074.
1058-1062 4' core		
1062-1072 10' core		
1072-1081 8.7' core		
1081-1087 4.9' core		
1087 6"-1090 Cave no core		
1090-1097 7.2 core		
1097-1098 0.6 core		
1098-1100 6" open no core		
1074-1081	Limestone	Tremolite at 1074 contact with sparse sulfides Medium-coarse grained white to grey
1081	Gouge	Brown earth material - clay. Fault.
1081-1083' 11½" Vein Zone?		4" Hematite stained carbonate 3" Carbonate with 30% ∠ Gl. Sp. Pyr. Tetr. 9" Three vuggy comg qutz veinlets 90° to core 7" Carbonate with 30% Gl-Sp Py Tetr. 12" Carbonate with Tremolite veining
	9" Three vuggy co	

Hole 7 Continued

1083' 11½"-1100	Limestone	Vuggy zone with quartz lined cavities or veins 1090.6 1091.6-1092 1096.6 1097 1098 1098-1100! 6"
1100-1137	Limestone	Medium coarse uniform stained red locally on fractures
1100.6-1107 7' core		
1107-1108 0.6		
1108-1122 14.3		
1122-1127'6" 5.6		
1100-1137.5	Limestone	Medium coarse uniform
1137.5-1149.5	"	Medium coarse pink iron stained calcite Vugs and sugary 1147½-1148½
1149.5-1173	Limestone	Grey white medium coarse grained
1173-1178	Limestone	Medium grey medium grained
1178-(1179-1181)	"	Brownish grey. Contact starts at 1179 extends across core to 1181 with Argillite angle parallel to 30° to core
1181-1229	Lime Silicated Limestone Spec 1226	White to grey effervesces Bedding 10° at 1127 parallel 1193 fine grained appearance, banded white and grey locally. "Tremolite" noticeable locally. Sparse pyrite and less Gl and Spl.
1229-1234	Limestone	Grey white medium coarse. 1233 1" irregular "Kaolin" seam
1234-1259 Spec 1242	Lime Silicates (Argillite?) Spec 1250	Pale grey shows banding 20°/ at 1242 1250. Very hard. Sparse By Gl Sp 1255-1259 will not effervesce
1259-127715 Spec 1264	Limestone Lime Silicates	Hard fine grained effervesces
1277.5-1282.5	Mineralized zone	Vuggy 5% coarse oxidized pyrite and galena 1278.8" 1279 6" 20% coarse Pb ore grade
1282.5-1287	Limestone Lime Silicate	Effervesces grey 1-3% Py Tr Pb
1287-1296 6"	Argillite	Pale olive green 1-5% Py Tr Pb
1296 6"-1297	Basalt	Dark brown very fine grained

Hole No 7

Newmont Exploration, Limited

TO ESTOR[illegible] DEVELOPMENT COMPANY

TOMBSTONE, ARIZONA

506

Joy Machine #2

LOG HOLE NO. 7 PAGE 10

DATE STARTED October 13, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

(Typed 12/17/54)

DEPTH INTERVAL	To	Depth Interval	Ft. cored		DESCRIPTION OF CORE
1296.5	To	1300.0	3.5	Naco	Basalt dike. Dike fractured. Small calcite veinlets on about 60° angle.
1300.0	"	1302.0	2.0	Naco "	Fractured. Meta. $CaSiO_3$. Some Pb-Zn min. Little py.
1302.0	"	1326.0	25.0	"	Calcium silicates. Fair pyrite min. Few spots Pb.
1326.0	"	1327.0	1.0	"	Recrystallized Ls. Large spots pyrite.
1327.0	"	1340.0	13.0	"	$CaSiO_3$. Diss py. min.
1340.0	"	1353.0	13.0	"	1349 to 1353 Diss pyrite (5% plus) rest $CaSiO_3$. Calcite filled veinlets. Little scat. pyrite. Bedding (?) @ 45% to core. Assay 1351 to 1352. Sample No. _____ Au .0, Ag 0.3, Pb 0.1 Cu 0.03, no Zn.
1353.0	"	1357.0	4.0	"	Scat. py. Little Pb and Zn. $CaSiO_3$.
1357.0	"	1358.5	1.5	"	White. recrys. Ls. meta. to Amphibole or pyroxene min.
1358.5	"	1359.5	1.0	"	Vein. Vuggy, lined with qtz. crystals and Pb Chalco. & py. crystals. 1 to 30% min. Assay 1358.5 to 1359. Sample No. [illegible] Au .005, Ag 1.0, Pb 3.9, Cu 0.33, Zn 0.
1359.5	"	1362.0	2.0	"	Scat. py. Pb. min. Tremolite etc. Zone bottoms on 15% angle to core. Some Ls.
1362.0	"	1382.0	20.0	"	White recrystallized Ls. Few erratic drk. streaks of argill. mat.
1382.0	"	1392.0	10.0	"	$CaSiO_3$. Some argill. streaks but very erratic (not indic. of bedding?) Little scat. Py.
1392.0	"	1394.0	2.0	"	White recry. Ls.
Au .02, Ag 5.2, Pb 11.4, Cu 1.81, Zn 0.06 — 1394.0	"	1396.0	2.0	"	Pb. Chalco. Zn. 5 to 50% ore. Best to date. Cavity from 1396 to 1397. Assay 1394 to 1396. Sample No. [illegible].
1397.0	"	1398.0	1.0	"	Tremolite etc. White.
1398.0	"	1399.0	1.0	"	Pb. Zn. Py. 5 to 25% Sulphides. $CaSiO_3$. Assay 1398 to 1399. Sample No. [illegible].
Au .01, Ag 3.8, Pb 7.9, Cu 0.06, Zn (?) — 1398.0					
1399.0	"	1410.0	11.5	"	Recry. Ls. bedding (?) 45% to core. Few min veinlets.
1410.0	"	1411.5	1.2	"	Scat. Py. Pb. Tactite min.
1411.5	"	1415.0	3.5	"	White recryl Ls. Little SiO_3.
1415.0 (1421-22)	"	1429.0	14.0	"	$CaSiO_3$ with scat. pyrite, galena & chalco. specks. Beds(?) 50% to core. Assay 1421 to 1422. Sample No. [illegible].
Au 0, Ag tr, Pb 0.1, Cu 0.15, Zn 0.20 — 1421-22					
1429.0	"	1454.0	25.0	"	Lime silicates. Lt. green locally. Mottled. Scattered Pb. Zn. Cu. Fe and Ag(?) sulphides. Fair mineralization. Assay-typical 1431 to 1432. Au & Ag only. Sample No. _____.
					I can't determine bedding. Local post min. fract. healed wit

192

Newmont Exploration, Limited Joy Machine #2

TOMBSTONE DEVELOPMENT COMPANY T-[illegible]

TOMBSTONE, ARIZONA

HOLE NO. [illegible] PAGE 11

DATE STARTED October 19, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	To ~~xxxxx~~	Depth Interval ~~xxxxxx~~	Ft. cored ~~xxxxxxxxx~~	DESCRIPTION OF CORE (Typed 12/17/54)
				soft colorless gel not calc. Assay 1442 to 1443.5. Sample No. _____ Au & Ag. Shows little Pb. Zn. Cu. Some fractures 60-70° to core (beds?) Assay 1447.5 to 1448.5. Sample No. _____. best of typical min. Shows mainly pyrite. Au & Ag only.
1454.0	To	1459.0	5.0	Naco. Assay 1454 to 1456.5. Sample No. _____. Fair min. ore? (Au-Ag?) Pb-Zn-Cu. sulphides. Assay 1456.5 to 1459. Sample No. _____. Good min. Not much py. Pb. Zn. Cu. Nice ore.

193

Newmont Exploration, Limited
TRUST DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine #2
506

HOLE NO. 7 PAGE 12

DATE STARTED October 19, 1954

LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____

EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	To	Depth Interval	Ft. cored	DESCRIPTION OF CORE (Typed 12/17/54)
1459.0	To	1469.0	10.0	Naco. Diss. Pb. Zn. lettle Cu. & Py. 1 to 20% sulphides. Mineral inter. with $CaSiO_3$ in bands in places. Beds (?) Normal to core. Assay 1459 to 1461.5 Sample No. _____ All. 1461.5 to 1464 Sample No. _____ All. 1464 to 1466.5 Sample No. _____ All. 1466.5 to 1469 Sample No. _____ All.
1469.0	"	1474.5	5.5	" White recrystallized Ls.
1474.5	"	1476.5	2.0	" Pb. Zn. Cu. Py - 2 to 60% ore. Not meta. ore in recry. Ls. Assay 1474.5 to 1476.5 Sample No. _____. All
1476.5	"	1484.5	8.0	" White recry. Ls. Assay none
1484.5	"	1485.0	0.50	" Pb. Zn Cu. py. 10-15% comb. inter. with $CaSiO_3$. Assay 1484.5 to 1485. Sample No. _____. All
1485.0	"	1511.0	26.0	" White recry. Ls. Few argil. spots. Assay 1501 to 1502. Sample No. _____. Au & Ag. Typical of Argil. areas diss pyrite No Pb or Zn or Cu visible.
1511.0	"	1512.0	1.0	" Pb. Zn. Cu. Solid. Assay 1511 to 1512. Sample No. _____. All
1512.0	"	1517.0	5.0	" Wh. Ls. recrys. Bedding(?) 10° to core.

194

Newmont Exploration, Limited — Joy Machine #2
TOMBSTONE DEVELOPMENT COMPANY
Tombstone, Arizona — 506

LOG HOLE NO. ____ PAGE 13

DATE STARTED October 19, 1954 — LEVEL ____ COORDINATE POS. ____ N ____ E

DATE FINISHED December 22, 1954 — EL. COLLAR ____ COURSE ____ INCLINATION ____

LOGGED BY Don Hargrove — REMARKS ____ LENGTH OF HOLE 1650 Ft. SIZE OF HOLE BX core.

DEPTH INTERVAL	To	Depth Interval	Ft. Cored	DESCRIPTION OF CORE
1517.0	"	1519.0	2.0	Naco. Wh Ls recrys. Bedding (?) 10° to core.
1519.0	"	1525.0	6.0	" $CaSiO_3$ and Ls. Some erratic Argil areas, with diss pyrite. Assay 1523 to 1524 Sample No. 4642.
1525.0	"	1533.0	6.5	" $CaSiO_3$ some Ls. Mottled. Consid. pyrite. Little Pb and Zn on fract. Assay 1525.0 to 1526.5 Sample No. 4643 Argil.spots. Assay 1528.0 to 1529.3 Sample No. 4644.
1533.0	"	1547.0	14.0	" Recry. Wh Ls. 2" Min. (Pb-Zn Py) @ 1544.5 Ft.
1547.0	"	1547.8	0.8	" Very good sulphide - Zn - Pb. Assay 1547.0 to 1547.8 Sample No. 4645. ~~(.8' is typical of ore at 1553.0')~~
1547.8	"	1555.5	7.7	" ** $CaSiO_3$ consid. py. Little Pb-Zn (Cu?) diss. Assay 1552.0 to 1553.0, Sample No. 4646.
1555.5	"	1557.5	2.0	" Well mineralized - 6" solid Zn - Pb. Assay 1555.5 to 1557.5, Sample No. 4647.
1557.5	"	1579.0	21.0	Naco. Recry. Wh. Ls. Local spots of $CaSiO_3$. Little diss. Pb. Zn-Py 1565.0 to 1568.0. Bedding (?) 45° to core.
1579.0	"	1592.0	13.0	Naco Recry. Wh. Ls. Few erratic argil. areas. Some $CaSiO_3$. Rock very brittle locally.
1592.0	"	1621.0	29.0	" Bluish to whit e recry coarse Ls. Tiny veinlets of Pb. Cu @ 1608.0. Black finely diss. min. 1601.0 to 1602.0. Bedding (?) 20° to 45° to core. Some erratic veinlets with Pb Zn Cu (?)@ 1600. Assay 1601.0 to 1602.0, Sample No. 4648. Iron Oxidized on fractures. Little py.
1621.0	"	1632.0	11.0	Naco Wh. Ls. Local argil. Fault (small) at 1629 @ 75° to core. 1631 drk grey argil and $CaSiO_3$. Core broken pcs @ 1631.0.
1632.0	"	1635.0	2.0	Naco .Grey $CaSiO_3$ diss. min. Py. Chalco. Ag(?) Looks fair. Some Fe oxide. Assay 1632.0 to 1635.0, Sample No. 4649.
1635.0	"	1637.0	2.0	" Grey. Mainly $CaSiO_3$. Silicates parallel, or nearly so to core. Boney. Diss. py. 3 to 5%. Little Pb.Zn.Cu. Py. slightly oxidized. Assay 1635 to 1637.0 Sample No. 4650

** Sample No. 4646 is typical of the rock from 1547.8 to 1555.5 feet.

Newmont Exploration, Limited Joy Machine No. 2
TOMBSTONE DEVELOPMENT COMPANY T-506
Tombstone, Arizona

LOG HOLE NO. ____ PAGE 14

DATE STARTED October 19, 1954 LEVEL ____ COORDINATE POS. ____ N ____ E

DATE FINISHED December 22, 1954 EL. COLLAR ____ COURSE ____ INCLINATION ____

LOGGED BY Don Hargrove REMARKS ____ LENGTH OF HOLE 1650' SIZE OF HOLE BX core.

DEPTH INTERVAL	To ~~XXX~~	Depth Interval ~~XXXXXX~~	Ft. Cored ~~XXXXXXX~~	DESCRIPTION OF CORE (Sheet 13 & 14 typed 12/23/54 by RG)
1637.0	"	1641.5	4.5	Naco. As 1635.0 to 1637.0 except almost no min. **
1641.5	"	1650.0	8.5	" Wh. to blue recry. Ls. Few hair cracks 45° to core with FeO filling. Thin red and grey sandy beds @ 1645.0. 45° to core. 1645.0 to 1650.0 mainly blue Ls. Few argil. spots. Little hem. and py on fractures. Bottom of core shows very little white Kaolin.*****END OF HOLE.

** Assay 1635.0 to 1637.0, Sample No. 4650.

196

TOMBSTONE
Hole 7

363-372+	Novaculite and chert	Massive
372-381 Spec	Limestone and Lime Silicates	Local miner pyrite (and galena and sphalerite?) at 373. In part completely altered to lime silicates. At 380+ streak with galena and sphalerite.
381-390	Limestone	Grey white medium grained, lime silicate alteration for 1 foot at 383
380-407½	Limestone (Fossiliferous)	Locally hard, fine grained, probably contains secondary lime silicates. A few sparse mineral grains present. Markings in part of organic remains. Contact? at 407½ at 15° to core.
407½-419½	Limestone	Grey white, medium grained at 412 streaks of pyrite, some galena and sphalerite at 30°
419½-421	Lime Silicates	Part highly silicified or chert, dense white grey
421-436	Limestone	Grey white fine to medium, in part hard as if replaced by silicate, local sparse sulphide chert at 436
436-445	Limestone (Fossiliferous)	Grey white medium grained fossils Crinoid stems and shells 444-445
445-449	Limestone	Irregular areas and patches of lime silicates very sparse sulphide at 447-448
449-480 Spec	Limestone (altered)	Grey white, very hard, fine grained, much altered to silicates, in small irregular spots at 470. Sparse sulphide present.
480-495± Spec	Argillite?	Dense, locally calcareous. May be silicified
495-509	Limestone	Faintly mottled, pale brown or grey. Probably 50% replaced by secondary lime silicates Similar to 509-514
509-514 Spec 514	Limestone	Grey white faintly mottled. Mottles 10-50% green grey Acid Neg in medium grained Acid Pos white limestone. Sparse pyrite minor galena and sphalerite
514-520	Limestone	Similar to 509-514. Core intersected by 1/8-¼" seams, at 45-40°+. Most are probably fracture fillings and intersect, some may be bedding. Seams filled with white lime silicates and contain sparse pyrite, galena, sphalerite. Along borders is a greenish lime silicate mineral.
520-527	Limestone	"Banded" or seamed 30-20° to core, color dark grey in streaks, white lime silicate seams 1" wide with marginal sparse pyrite, galena, sphalerite
527-530+ Spec 529	Secondary Silicates& Quartz	Some soft fibrous lime silicate minerals

Hole 7 - continued - 2

530-535	Limestone	Medium dark grey with white lime silicate seams 5%
535-537	Limestone	Mineralized by streaks of galena, some sphalerite and pyrite. Best part 535½-536½, 5-10% sulphide. Limestone coarse recrystallized, contains some lime silicate alteration? General white color.
537-556∠	Banded Lime Silicate-Quartz Zone	Minor grey limestone in narrow bands. Banded silicates after argillite? Quartz in irregularly banded pods and bands. Banding 75°∠ to parallel core. Some black calcite veinlets.
556-571	Limestone	Uniform, medium grey, grey white, very sparse white seams (lime silicates?). These are harder than the limestone. They offset the black calcite veinlets.
571-588 Spec	Lime Silicates	Massive, chalk white, locally fibrous at 571-572 Contact with limestone sparse galena and sphalerite at 571 ¼" veinlet galena, sphalerite pyrite. Sparse mineralized fractures.
588-592½	Limestone	Grey, coarse medium grained at 589∠ ¼" veinlet at 60°. Galena, sphalerite, tetrahedrite, chalcopyrite scattered in veinlet. Minor silicified areas in limestone
592½-627½ Spec 595	Lime Silicates	(Silicified?). Inclusion of limestone chalk white to grey mottled (598 and 606). Local green bands 35°∠ to core. Fine calcite seams margined by pyrite; also grey crisscrossed by chalky white alteration along fractures. At 622 carbonate seam with coarse pyrite. Locally gives slight Acid positive reaction
627½-630	Lime Silicate Zone	Much fractured, some iron and manganese staining, carbonate seams
630-632	Lime Silicate Zone	Green carbonate with fine pyrite 50%
632-634	" "	Mottled grey white
634-635	" "	Calcite seamed with marginal green coloration with red iron stains
635-644	" "	Minor pyrite and sphalerite 642
644-652 Spec 648	Limestone	Partly to almost completely changed to silicates 647 Banded (bedded) white and green at 30° to core At 648 2" dark brown argillite band at 30° to core 648∠ seam with sparse galena, zinc, pyrite
652-654		Zone of irregular areas of white silicates and green carbonate with pyrite
654-668	Limestone	White grey medium grained 662-663 minor sphalerite and pyrite and silicates Contact at 668 at 30°∠ to core

Hole 7 - continued - 3

668-669½	Argillite(?)	Silicified contacts 30° to core dense brown color
669½-670½ Spec 670	Silicate	Alteration with associated green alteration, minor limestone
670½-686½ Spec 685	Limestone	Medium grained, locally streaked with black calcite in part with pyrite 682-83 mostly silicate alteration
686½-689	Argillite	Dense white grey (does not show fibers). Sparse pyrite
689-690	Limestone	
690-691	Limestone	In part coarsely recrystallized with coarse pyrite, some galena
691-693	Silicate	Alteration
694-695	Limestone	
695-696	Silicified	Dense
696-700	Limestone	Some lime silicates. Sparse pyrite with sparse coarse pyrite and calcite, blotchy white and green. Some lime silicates
700-702	Zone	
702-703	Lime Silicates	
703-721	Limestone	Grey white, medium grained 706½-707½ largely lime silicate 711-712½ lime silicates, quartz (epidote and Tremolite) Some galena and sphalerite 715½-716 Lime silicate and a little galena and sphalerite
721-723	Lime Silicates	1" wide zone 50% galena and sphalerite at contact 721 80° to core
723-728½	Lime Silicates & Mineral Zone	Part greenish, part white, some coarse calcite nil to 10% coarse galena, sphalerite, some pyrite in irregular streaks
728½-739	Lime silicate zone	Part fibrous tremolite, part epidote, some calcite at 731, 732, 736 galena and sphalerite streaks. Some scattered coarse pyrite 734 1" brown argillite? at 45° to core 737½ slightly sheared
739-741	Argillite	Altered, cut by calcite, dark brown
741-745		Lost core
745-747	Limestone	
747-754 Spec 750	Lime silicate	Pale green epidote? Minor white tremolite. At 747 and 754 narrow streaks galena and sphalerite. Bedding 45° to core in altered Argillite? near 754
754-755	Limestone	
755-758	Lime Silicate Zone	Scattered sparse sphalerite and galena. Core broken as if shattered
758-759½	Limestone	Grey white
759½-760	Lime Silicate Zone	Sparse galena and sphalerite
760-763	Limestone	Partly altered to lime silicate

Hole 7 - continued - 4

763-769½	Lime Silicate Zone	Banding 40° to core, mostly white tremolite, sparse sphalerite, some galena, 6" limestone at 768
769½-772½	" "	Mostly green, some calcite; epidote and pyrite sparse. Banded 30° to core at 770
772½-773½	Limestone and Tremolite	With ¼-½" seam galena and sphalerite
773½-777	Limestone	Grey white medium grained with 6" tremolite and streak of sphalerite and galena at 777
777-788 Spec 782	Silicified and Lime Silicate Zone	Banding 20-40° to core, color grey to green, quite fine siliceous appearance, hard 785-786 some coarse pyrite 786-787½ calcite green speckled
788-789	Limestone	Speckled with green, probably not epidote
789-790	Silicified	Hard grey green dark brown in streaks
790-792½	Lime Silicate Zone	Tremolite and epidote in irregular bands. Galena and sphalerite around limestone inclusion 791½ and at 792½ contact with limestone
792½-808	Limestone	Grey, medium grained, scattered dark seams with fine pyrite 795-796 tremolite and galena and sphalerite sparse 801½ ½" indurated shale 40° to core
808-810	Limestone-Lime Silicate	Probably impure limestone. Mostly tremolite type alteration. Banding 50° to core
810-812½	" "	Probably impure limestone. Mostly greenish alteration. Minerals slight mineralization pyrite and galena at 810
812½-814	Lime Silicates	White tremolite with galena and zinc ¼" wide along irregular contact with limestone
814-817	Limestone	Uniform white grey, medium grained
817-820	Limestone Lime Silicates	Contact 50° to core with limestone Impure limestone with pale brown lime silicate spots and green alteration. Sparse galena and zinc at 817
820-823	Lime Silicates	White dense (contact at 820 gradational) Siliceous appearance 823 = silicified argillite Contact 823 45-50° to core
823-863.2 Spec 840	Limestone	Coarsely recrystallized, white to grey Contact tremolite 6" at 823
863.2-868.3 Spec. 868	Lime Silicates-Sulphides	Contact 863 at 65° 1" at contact 50% galena and sphalerite and green granular epidote or diopside with some coarse calcite. Rock is white various proportions of tremolite and $CaCO_3$ - galena, sphalerite, pyrite some chalcopyrite 5-10% of rock contact at 863.2 at 65°∠ at 867 limestone inclusion.
868.3-874.3	Limestone	Medium coarse grey white
874.3-875.8	Limestone Lime Silicates	Contacts 75°∠

Hole 7 - continued - 5

875.8-878	Limestone	Grey, medium grained, contact at 878 45°
878-887	Limestone	Finer grained limestone with irregular developed
Spec	Lime Silicates	white to light brown silicates also banded 10 to 20° to core, locally very hard
887-935	Limestone	Grey medium grained, but in part coarse 898 4" dense cherty quartz at 30° core at 896 iron stained fractures and sparse elsewhere Sparse irregular 1/8" brown grey seams with minor pyrite
887-935	Limestone	At 934 1" cherty quartz with slight associated dense white alteration
935-940½	Limestone and Minor Tremolite	Medium grained grey white 936-938 irregular streaks coarse pyrite with a little hematite (some sphalerite?)
940½-943½	Lime Silicates	Dense white. Some $CaCO_3$, galena, sphalerite fine sparse At 940½ - 20° across core Contact at 943½ 10-20° to core
943½-946½	Lime Silicates	Impure limestone with green lime silicates
Spec 944	and Limestone	scattered throughout. Minor pyrite and galena present and tetrahedrite? on fracture.
946½-958	Lime Silicates	Dense white, fine grained, very hard Locally shows banding 30-40° to core. Crisscross fractures with white color along fracture in contrast to grey away from fractures
Spec 951		955-957 Brownish grey blotches, showing bedding? 40° to core Probably altered argillite
958-970	Limestone	Grey white, irregular patches and streaks of pale brown to green lime silicates. Local very sparse galena
970-973	Lime Silicate (Argillite)	Brown patches in grey white all very hard Contacts 40°+_ to core
973-94½	Limestone	Some lime silicates
974½-978	Lime Silicates (Argillite)	White grey dense hard with brown patches Contact at 10° from 978-979
978-1005	Limestone	978-980 grey white with some tremolite 980-999 locally stained pink and with hematite on fractures, also irregular brownish streaks (hard) with pyrite 999-1005 irregular chert inclusions 1-3" at 1 to 2 feot intervals. Tremolite alteration along borders and in chert.
1005-1006½	Lime Silicates (& Sulphides)	White tremolite, some coarse calcite. 1% coarse galena and pyrite in streaks. Contact at 50° at 1005
1006½-1008	Limestone	
1008-1008 4"	Lime Silicates & Sulphides	50% galena, sphalerite, chalcopyrite and some pyrite with tremolite and epidote.

Hole 7 - continued - 6

1008 4"-1018	Limestone and Lime Silicate	$CaCO_3$ with pale green platey silicates Minor coarse pyrite (1008 4"-1010 (1013-1017-3/4 At 1018 3" tremolitic alteration with streaks galena and sphalerite
1018-1027	Limestone	Bedded 40° to core at 1022 Grey, medium grained, faint local dark mottling Pyrite streak at 30° 1026 Slight galena with tremolite at 1027
1027-1074	Lime Silicates	Grey, hard, very fine grained. Minor $CaCO_3$; Impure limestone 6" at 1032. Very sparse pyrite and a dark mineral too small to identify Contact 45° at 1074
1074-1081	Limestone	Tremolite at 1074 contact with sparse sulphides Medium-coarse grained white to grey
1081	Gouge	Brown earth material - clay. Fault
1081-1083 11½"	Vein Zone	4" hematite stained carbonate 3" carbonate with 30% galena, sphalerite, pyrite, tetrahedrite 9" three vuggy comb. quartz veinlets 90° to core 7" carbonate with 30% galena, sphalerite, pyrite, tetrahedrite 12" carbonate with tremolite veining
1083 11½"-1100	Limestone	Vuggy zone with quartz lined cavities or veins at 1090.6 1091.6-1092 1096.6 1097 1098-1100 6" open cavity
1100-1137 Spec	Limestone	Medium coarse uniform stained red locally on fractures
1100-1137.5	Limestone	Medium coarse uniform
1137.6-1149.5	Limestone	Medium coarse pink iron stained calcite vugs and sugary 1147½-1148½
1149.5-1173	Limestone	Grey white medium coarse grained
1173-1178	Limestone	Medium grey, medium grained
1178-(1179-1181)	Limestone	Brownish grey contact starts at 1179 extends across core to 1181 with argillite angle parallel to 30° to core
1181-1229 Spec 1226	Lime Silicated Limestone	White to grey effervesces Bedding 10° at 1127 parallel 1193 fine grained appearance, banded white and grey locally. "Tremolite" noticeable locally. Sparse pyrite and less galena and sphalerite
1229-1234	Limestone	Grey white medium coarse 1233 1" irregular lime silicate seam.
1234-1259 Spec. 1242	Lime Silicates (Argillite?)	Pale grey shows banding 20° at 1242-1250 very hard. Sparse pyrite, galena, sphalerite 1255-1259 will not effervesce

Hole 7 - continued - 7

1259-1277.5	Limestone	Hard fine grained, effervesces
Spec 1264	Lime Silicates	
1277.5-1282.5	Mineralized Zone	Vuggy 5% coarse oxidized pyrite and galena 1278 8" - 1279 6" 20% coarse Pb - ore grade
1282.5-1287	Limestone Lime Silicate	Effervesces, grey 1-3% pyrite, trace Pb
1287-1296 6"	Argillite	Pale olive green 1-5% pyrite, trace Pb
1296 6"-1297	Basalt	Dark brown, very fine grained

1280-81 { Au .01, Ag 2.8, Pb 6.5, Cu 1.47, Zn 4.8

ASSAYERS
CHEMISTS

EL PASO, TEXAS
Box 4

HAWLEY & HAWLEY

W. E. HAWLEY, MANAGER
DOUGLAS, ARIZONA
537 TWELFTH STREET
Box 1060

SHIPPERS REPRESENTATIVES
BULLION BUYERS
ORE BUYERS

NOV 24 REC'D

WE HEREBY CERTIFY THAT THE FOLLOWING RESULTS WERE OBTAINED FROM SAMPLES OF Newmont Exploration Limited

OFFICE NO.	MARKED	GOLD OZS.	SILVER OZS.	LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	IRON PER CENT			
275303	18030	trace	0.2	0.15	0.03	trace	DDH #	7, 458-459'.		
275304	18031	trace	0.2	0.4	0.03	0.3	DDH #	7, 470-471'.		
275305	18032	.005	0.4	0.5	0.04	0.8	DDH #	7, 473.5-474.0'		
275306	18033	trace	0.3	0.2	0.03	0.25	DDH #	7, 493.5-495.0'		
275307	18034	.005	1.4	3.2	0.04	1.6	DDH #	7, 524.5-525.8'		

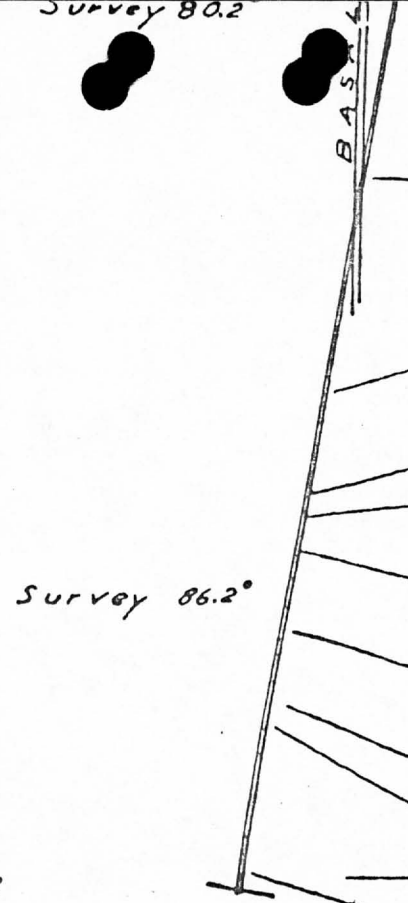
METAL QUOTATIONS:

GOLD $35.00 PER OZ. COPPER _____ C PER LB. CHARGES: $ 25.00

SILVER _____ PER OZ. _____ PER LB. DATE 11/23/54

HAWLEY & HAWLEY

PER [illegible] ASSAYER.



	Au	Ag	Cu	Pb	Zn
1280-1281	0.01	2.80	1.47	6.50	4.80
1351-1352	Nil	0.30	0.03	0.10	Nil
1358.5-1359	0.005	1.80	0.33	3.90	Nil
1394-1396	0.02	5.20	1.81	12.40	0.60
1398-1399	0.01	3.80	0.06	7.90	14.70
1421-1422	Nil	Tr	0.15	0.10	0.20
1431-1432	Tr	0.20	—	—	—
1442-1443.5	Nil	0.60	—	—	—
1447.5-1448.5	Tr	0.30	—	—	—
1454-1456.5	Tr	0.70	0.01	2.30	0.70
1456.5-1459	0.005	3.20	0.03	8.80	1.20
1459-1461.5	Tr	1.00	0.01	3.20	4.10
1461.5-1464	Tr	1.20	0.01	3.50	4.00
1464-1466.5	Tr	1.80	0.03	4.30	6.40
1466.5-1469	Tr	1.10	0.01	3.20	5.20
1474.5-1476.5	Tr	3.70	0.04	10.70	10.80
1484.5-1485	Nil	2.00	0.02	6.30	9.60
1501-1502	Nil	Tr	—	—	—
1511-1512	Tr	7.90	0.11	18.70	24.50
1523-1524	Nil	Nil	—	—	—
1525-1526.5	Tr	Tr	—	—	—
1528-1529.3	Nil	Nil	—	—	—
1547-1547.8	Tr	4.40	0.02	10.10	11.70
1552-1553	Tr	Nil	—	—	—
1555.5-1557.5	Tr	3.70	0.04	10.80	9.00
1601-1602	Nil	Nil	—	—	—
1632-1635	Nil	Tr	—	—	—
1635-1637	Tr	1.10	—	—	—

TOMBSTONE DEVELOPEMENT CO.
TOMBSTONE ARIZONA
ASSAY MAP OF D.D. HOLE NO. 7.
COLLAR LOCATION - D.D. STATION T-506
788 S, 1515 E.
BEARING N80°W DIP -80°

DEC. 31 1954

D.H.

204

214

Hawley & Hawley
537 12th Street
Douglas, Arizona

December 23, 1954

Sample No.	Footage	Gold Ozs.	Silver Ozs.	Lead %	Copper %	Zinc %
18036	#7 1351-1352	Nil	0.3	0.1	0.03	None
18037	" 1358.5 - 1359.0	0.005	1.8	3.9	0.33	None
18038	" 1394.0 - 1396.0	0.02	5.2	12.4	1,81	0.6
18039	" 1398.0 - 1399.0	0.01	3.8	7.9	0.06	14.7
18040	" 1421.0 - 1422.0	No	Tr.	0.1	0.15	0.2
18041	" 1280.0 - 1281.0	0.01	2.8	6.5	1.47	4.8

Telephoned to Don Hargrove by Mr. Hawley

RECEIVED
DEC 27 1954

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

January 21, 1955

GEOPHYSICAL REPORT ON TOMBSTONE DRILL HOLE NO. 7

Preliminary

Hole No. 7 was drilled from the 400' level in the Silver Thread area to a depth of 1650'. The dip was -80°, with a bearing N80°W. A rotary bit was used to a depth of 373', and Bx diamond bit for the remainder of the hole. Numerous sections of sulphides were cut throughout the hole, from sparse disseminated, to massive pyrite and galena, with lesser sphalerite and occasional chalcopyrite. Mineralization increased in occurrence and grade toward the bottom, particularly from about 1300' to 1600'.

The hole was geophysically logged during the last week in December 1954. Difficulties arising from several cavities in the hole were overcome through use of plastic casing, which was put down to 800' depth. The hole was not logged from surface to 400' due to the presence of Nx casing over this distance. By means of the plastic casing the hole is to be protected for any future logging necessity.

Arrays Used

Two array pulse and resistivity curves were obtained on spacings of 12.5', 25', 50', 100' and 200'. A single point resistivity curve was also run on an experimental basis. A single point azimuth curve was obtained for potential only, as the 60 cycle interference again prevented pulse readings.

Conclusions

The intersections analyzed appear to be relatively flat lying, i.e. at right angles to the drill hole.

A possible increase in grade and / or size away from the hole is indicated opposite 1000' to 1100'. No indication of size or extent is obtainable.

Azimuth results are regular and of low magnitude, indicating a possible bias to the North-East. This type of azimuth result might be expected from flat lying relatively extensive bodies with a narrow vertical extent.

Geophysical Report on Tombstone Drill Hole No. 7, continued

Results are better explained on the basis of bedded rather than vein deposits.

Detailed Results

The anomalies analyzed are noted below.

The anomalies noted at 710' and 780' centers indicate a slight decrease away from the hole, on the basis of flat lying bodies.

The zone between 1006' and 1084' flanked by high grade material appears to be continuously anomalous both in pulse and resistivity. It would appear that a short distance from the hole mineralization is probably effectively continuous, although probably much lower grade than that indicated by the margins at the hole. On this basis there is a probability of increase away from the hole. The azimuth curves show minor anomalies which might suggest a North and East trend to this increase.

The anomaly due to the mineralization 1277.5' - 1282.5' indicates a very localized body with little extent away from the hole.

The body indicated at 1348.5' - 1360' is also relatively local.

Anomalies due to mineralization from 1400' to the hole bottom are adequately explained on the basis of a relatively flat lying body with limited extent away from the hole.

Don M Wagg

DMW:lu

Don M. Wagg

cc: F. Searls, Jr. ✓
H. Norman
D. Hargrove
D. Wagg
A. Brant

Newmont Exploration, Limited

TOMBSTONE DEVELOPMENT COMPANY WS-602

Tombstone, Arizona

Joy Machine #1

LOG HOLE NO. 8 PAGE 1

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

(Typed 12/29/54)

DEPTH INTERVAL	to	Depth Interval	Core ft.	DESCRIPTION OF CORE
0.0	to	5.0	5.0	Naco NX core. Red, Pink, White Ls. Fractured (almost paralle to core) Healed with calcite & refract. Mn dendrites.
5.0	"	10.0	4.0	NX core. Fault. Brecciated. Some gouge. White, cream, pink, Lt. Blue Ls. Fract. healed with calcite & clear cal. gel. Some MnO. Assay. Sample no. 4651 typical 9.0 to 9.5.
10.0	"	15.0	5.0	NX core. Pink, shading to lt. grey. Vuggy Ls. Some MnO little fluorite & limonite at 15'. End of NX core
15.0	"	33.0	15.0	BX core. Cream, pink, red grey Ls. Fract. Locally bxted. Considerable MnO_2. Fract. healed with calcite. Little hematite. From 24 to 33 very fine gr. argillite or hornstone. (?) Not calc. very hard.
33.0	"	42.5	9.0	Varigated. Bxted. Some MnO_2. Little hem. Very dense, hard hornstone, Fractures healed with calc. Bedding parallels core in general. Local argil.
42.5	"	50.0	6.5	Vuggy. Fract. Ls. 42.5 to 45. Little Bxted. Drk red. Coarse gr. Some MnO_2. From 45 to 47 blue-grey re crys. Ls. Little MnO_2. Bedding 45° to core. From 47 to 49 Bleached. Bxted. Varig. Little apple green calc. gouge.
50.0	"	53.0	3.0	Ls. bleached. Altered. Soft. Lt. yellow, cream, tan, white. Fract. veinlets up to 1/8" of hematite generally parallel to core. Little MnO. Assay. Sample no. 4652 .52 to 53. Typical of min. from 50 to 58'. Some fract. calc. healed & some open.
53.0	"	58.0	5.0	Ls. Varig. Bxted. Veinlets (⊥ para. to core) of FeO. Some red argil. areas (look like jasper but are calc. Good min. if it carries Ag or Au.

215

Newmont Exploration, Limited Diamond Machine #1

TOMBSTONE DEVELOPMENT COMPANY WS 602

~~TOMBSTONE, ARIZONA~~

LOG HOLE NO. 8 PAGE 2

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~XXX~~	Depth Interval ~~XXXXXX~~	Ft. cored ~~XXXXXXXX~~		DESCRIPTION OF CORE (Typed 1/4/55)
58.0	to	68.0	10.0	Naco. -	Ls. Varig. Locally bxtd. All fract. Some veinlets MnO + or FeO filled - some calcite filled or open Parallel to core in general. Good bleaching. Rock fairly porous. Assay 61 to 63'. Sample no. 4653
68.0	"	71.0	3.0	"	Recry. Ls. few fracts. 60° to core. Little MnO in fract. Little hem. No bleaching.
71.0	"	73.0	1.0	"	Completely altered. Bleached soft Bxtd. Some lt. apple green. Varig. Some hem. and MnO. (Ag?) Assay 71 to 73'. Sample no. 4654.
73.0	"	80.5	3.0	"	Igneous dike(?) Rock could be highly altered andesite. Lacks pheno. but looks igneous. Fractured. Non acid react. Color drk. brn. consid. diss. hematite but probably as orig. constit. of rock as fract. are calcite filled and not min. Core recovery not good. Small pcs. of rock & kaolin. Rock hard (sil) but has typical $AlSiO_3$ greasy feel on fract. planes.
80.5	"	82.0	1.1	"	Andesite (?) dike (?) Highly altered. Fractured. Healed with calcite. Drk. brown. Fract. 50° to core at 82'.
82.0	"	83.0	1.0	"	Brn. Sandy. Fract. Some MnO & FeO on Fracts.
83.0	"	85.0	2.0	"	$CaSiO_3$. Greenish color. Consid. Py. Sample 83.5 to 84.5 typical of 83 to 85. Sample No. 4657
85.0	"	88.0	3.0	"	Varigated. Fract & Refract. Healed with calcite and MnO. Some argil. bands. Beds (?) 50-60° to core. Sample 87 to 88 typical of 85 to 88. Sample No. 4658
88.0	"	123.0	41.0	"	(Mistake in marking boxes - do not know exactly where we are.) Highly metamorphosed. Epidote, tremolite pyrite locally. MnO in few fractures. Very few specks of PbS and CuS. Rock fine grained, bedding from 75° to parallel to core. Very little of core acid positive (calc) Color - grey, lt. green, white, local argil. spots drk. grey. Some post meta. fract. Mottled locally. Some very heavy- but no scheelite visible.
123.0	"	137.0	14.0	"	Ls. Some $CaSiO_3$. Bedding 10-15° to core. Narrow

Newmont Exploration, Limited

TOMBSTONE, DEVELOPMENT COMPANY WS 602 Diamond Machine #1

TOMBSTONE, ARIZONA

LOG HOLE NO. 8 PAGE 3

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to	Depth Interval	Ft. cored		DESCRIPTION OF CORE (Typed 1/4/55)
					black banding on bedding. Argil (?)
137.0	to	149.0	12.0	Naco	$CaSiO_3$. Little Ls. but all altered. Bedding (?) from about 60° to parallel to core. Black argil. banding on bedding. Py. in black more than lt. colored rocks.
149.0	"	151.0	2.0	"	Grey. Ls. few bands lt. $CaSiO_3$.
151.0	"	165.0	14.0	"	At 154-155 Fractured. $CuCo_3$ (?) hematite. Tactite. From 151 to 154 Argil. beds 60° to 80° to core. Py. mainly in drk. bands. Post meta. faulting. 155 to 165 F. G. Lt. grey. mainly $CaSiO_3$ little dark banding. Very little py. Brittle.
165.0	"	175.0	10.0	"	165 to 171 lt. grey. Spotted. Presume spots to be silicates. Lt. brown color. Very little py. 171 to 173 lt. grey recry. Ls. Bedding 10-15° to core. 173 to 175 Tremolite and other silicates. Little py
175.0	"	187.0	12.0	"	Very dense, fine grained, brittle, lt. grey. Tiny veinlets generally about 45° to core filled with py. and black finely diss. min. Assay 182 to 183. Sample no. 4659. Typical (best) of 175 to 187.

217

Newmont Exploration, Limited

TOMBSTONE DEVELOPMENT COMPANY WS 602

~~TOMBSTONE, ARIZONA~~

Joy Machine #1

LOG HOLE NO. 8 PAGE 4

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

RECEIVED JAN 21 1955

DEPTH INTERVAL	to ~~xxx~~	Depth Interval ~~xxxxxxx~~	Ft. cored ~~xxxxxxxx~~	DESCRIPTION OF CORE
187.0	to	196.5	9.5	Naco. Mainly $CaSiO_3$. Little Ls. Black argil. beds at about 45° to core. Black beds have some very fine diss. py. Rock F. G. and brittle.
196.5	"	203.0	6.5	Greenish F. G. brittle. $CaSiO_3$. Little py. & hem. on fracts.
203.0	"	208.0	5.0	Varig. Some black argil. areas carry py. Rest $CaSiO_3$. F. G. Brittle. Hard.
208.0	"	221.0	13.0	$CaSiO_3$. Brn. Lt. green. Black irreg. inclusions. Cream. Little dendrite. Very little Ls. not meta. Can't determine bedding.
221.0	"	233.0	12.0	Recrys. Lt. grey Ls. Bedding 10-15° to core.
233.0	"	282.0	49.0	Assay 238 to 239. Sample No._____. Typical of py min. 237 to 242. Rock F. G. Dense. Brittle. Lt. green. Grey. Lt. Brown. Meta. practically all $CaSiO_3$. Very little min. Some spotted rock - Fossils (?) meta. Can't determine bedding.
282.0	"	294.5	12.5	Lt. grey to black. Dense. Boney. Meta. some little calc. Little py. & hem. & MnO. Some fossils(?) meta. Rock appears spotted locally. Hard. Brittle
294.5	"	306.5	12.0	Assay 296 to 297. Sample No._____. Fossiliferous. Metamorphosed. Dense. Hard. Brittle. Black areas contain Pyrite. Rock mainly $CaSiO_3$. Color from Lt. grey to green to black. Some fract. parallel & at 45° to core. Some Hem. Believe bedding to be about 30° to core.
306.5	"	309.0	2.5	Recry. Ls. Very little meta. Lt. grey.
309.0	"	318.0	9.0	Meta. Ls. Lt. grey. Locally fossif. Lt. grey. Little green. Very little min.
318.0	"	339.0	22.0	Recry. Lt. grey Ls. Very few veinlets of Hem. Coarse grained. Beds undetermined.
339.0	"	368.0	29.0	Meta. Ls. Lt. grey. Little green to black. Black carries consid. Py. Few fracts. 75-80° to core. Beds undetermined. (Bedding (?) 15° to core at 368. Few spots of MnO dendrites. Few veinlets cross core at 15° to 45° to core.
368.0	"	385.0	17.0	Meta. Ls. Lt. grey, red at 372' also fract at 372' Little MnO. F.G. Dense. Brittle. Assay 384 to 38 Sample No. _____. Drk. grey. Hard Brittle carri

218

Newmont Exploration, Limited Roy Machi #2

TOMBSTONE DEVELOPMENT COMPANY WS 602

TOMBSTONE, ARIZONA

LOG HOLE NO. 8 PAGE 5

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to	Depth Interval	Ft. cored		DESCRIPTION OF CORE
385.0	to	394.0	9.0	Naco.	Recry. Lt. grey Ls. Locally mottled with lt. blue or grey or red veinlets C. G.
394.0	"	410.0	16.0		Meta. Ls. Banded. Bands 60° to core. Lt. grey to drk grey. Fract. 397 to 398 broken pcs core (small fault-little calc. gouge). Speckled with hem. at 401 to 404. Water course at 401. Assay 403 to 403.5. Sample No._____ is typical of 401 to 404. Heavily fract. Marig. 405. Some epidote in fracts
410.0	"	453.0	42.0		Recry. White Ls. Few Fracts. 45° to 80° to core. Beds undetermined.
453.0	"	512.0	44.0		Recry. Pink & white Ls. Few fracts. 45° to parallel to core. Very C.G. Little rust in fracts. Cavity 473 to 478. Cavity 482 to 491.5. From 478 to 481.5 coarse crystalline Ls. breccia, vuggy. 491.5 to 492 Little slickenside on fract. paralle to core. Little iron & MnO. 492 to 512 coarse recry. Wh. Ls. few fract. parallel to core. Littl iron in fracts. Little diss. iron oxide in Ls. gives pink cast to Ls. locally.
512.0	"	519.0	6.0		Recry. Ls. white, pink. Very coarse crystals. Beds undetermined.
519.0	"	544.0	25.0		$CaSiO_3$. Some MnO. Little hem. & partly oxidized pyrit Assay 522 to 523. Sample No._____. Rock speckle Contains cubes & other shapes of undetermined silicates. Colored Lt. brown. Few fracts. 45° plu or minus to core. Little hem. on fracts. Some epidote & tremolite crystals. Becomes fossilifer (?) at 540±.
544.0	"	568.0	24.0		Recry. Ls. Spots of hematite color Ls. Locally. Some blue-grey--some white. Very little pyrite. Badly fract. 548 to 550. Fine to coarsely crystalline. Bedding (??) normal to core.
568.0	"	569.0	1.0		$CaSiO_3$. Brown, grey, pink. very fine iron oxide specks.
569.0	"	592.0	21.0		Fine to medium recry. Ls. White-Lt. grey. Bedding at 592' is 60° plus or minus to core.

219

Newmont Exploration, Limited
TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

WS 602

Joy Machine #1

LOG HOLE NO. 8 PAGE 6

DATE STARTED December 21, 1954 LEVEL COORDINATE POS. N E

DATE FINISHED EL. COLLAR COURSE INCLINATION

LOGGED BY Don Hargrove REMARKS LENGTH OF HOLE SIZE OF HOLE

DEPTH INTERVAL	to	Depth Interval	Ft. cored		DESCRIPTION OF CORE
592.0	to	595.0	3.0	Naco.	More or less meta. Lt. grey to drk. grey. Fractured 45° to 60° to core.
595.0	"	613.0	18.0		Wh. recry. Ls. med. grained. Slightly meta. locally - some diss. pyrite. At 604 there is 2" of argil. material, fract. some pyrite, band about normal to core. Band similar to 604 at 609 about 65° to core. 609 to 611 consid. $CaSiO_3$. Little pyrite locally.
613.0	"	649.0	36.0		613 to 628 white, grey, lt. blue and pink, recry. Ls. Little hematite. Fracts. 45° to parallel to core. Beds at 45°(?). 628 to 649 becomes fine grained at 641. Little pyrite in calcite filled fracts. Argil. locally. Beds (?) 60° plus or minus to core.
649.0	"	688	39.0		Completely meta. lt. grey to black. Sparse pyrite on fracts. Rock very fine grained, hard, brittle. Spotted appearance locally. 680 to 688 beds (???) parallel core.
688.0	"	730.0	42.0		Recrys. Wt. Ls. coarse grained. Few drk. veinlets, no min. From 690 to 693 $CaSiO_3$. Wh. Ls. to 710. From 710 to 715 more or less meta. spotted. Lt. grey. Beds undetermined. From 715 to 718 Wh. recry. Ls. Then from 718 to 726 more or less meta. $CaSiO_3$ Green, grey, mottled. Tremolite locally. From 726 to 730 lt. grey recrys. Ls. Beds not determined.

220

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Joy Machine #1 287

LOG HOLE NO. 8 PAGE 7

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to	Depth Interval	Ft. cored		DESCRIPTION OF CORE (Typed 2/1/55)
730.0	to	745.0	15.0	Naco.	Recry. Ls. mottled & speckled locally. Fossiliferous (?). Some $CaSiO_3$ but most reacts to acid. Somewhat broken at 739 small fault (?).
745.0	"	761.0	15.0	"	Recry. Ls. white & pink. Few areas of $CaSiO_3$ locally. Watercourse at 760. Beds undeter.
761.0	"	776.0	14.0	"	761 to 765 Recry. Ls. pink & lt. grey. 765 to 776 fine grained dark grey to white. Local areas of recry. Ls. but mostly meta. silicates. Boney. Few veinlets with pyrite or epidote at 774 structure about 70° to core. Very hard.
776.0	"	791.0	15.0	"	Meta. Lt. grey, white to dark grey. Banded. Banding from 45° to 70° to core. Little pyrite in dark rock. Fossiliferous locally. 790 to 791 white recry. Ls.
791.0	"	807.0	16.0	"	791 to 799.5 - Recry. white & lt. grey Ls. 799 to 806 Meta. Mostly brown, some grey. Very little partially oxidized pyrite. Rock mottled & spotted Fossilif. (?) Bedding undeter.
807.0	"	809.5	2.5	"	Dark grey. f. g. dense. Some mottled. Sparse pyrite & epidote in Fracts.
809.5	"	816.0	6.5	"	White recry. Ls. Bedding (?) 20° to 45° to core.
816.0	"	821.5	5.5	"	Meta. hard, dense, f. g. some epidote & pyrite. Assay 819 to 820. Sample No. 4665 is best of 816 to 821. Slate grey to brown in color.
821.5	"	823.0	1.5	"	Mottled lt. grey. Meta. some partially oxidized pyrite. Assay 822 to 823. Sample No. _____.
823.0	"	826.0	3.0	"	Mostly dark grey, f. g. dense, meta. sparse pyrite.
826.0	"	836.0	10.0	"	Lt. grey to white recry. Ls. Meta at 830. Bedding undetermined.
836.0	"	851.0	20.0	"	Recry. blue grey to white Ls. medium to coarse grained. Beds undetermined.
851.0	"	872.0	20.0	"	Recry. white, grey, pink Ls. m. g. to c. g. few frac 20 to 70° to core. Beds undetermined.
872.0	"	885.0	11.5	"	Metamorphosed. Lt. green, pink, blue grey. Diss. MnO locally. Fract. Vuggy at 875'. Bedding 45 to 50° to core at 884.

221

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TOMBSTONE DEVELOPMENT COMPANY WS-602
TOMBSTONE, ARIZONA

Joy Ma[illegible]ne #1

LOG HOLE NO. 8 PAGE 8

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	To	Depth Interval	Ft. cored		DESCRIPTION OF CORE (Typed 2/1/55)
885.0	to	896.0	11.0	Naco.	Recry. Ls. white. Few erratic fracts. Some hem. in fracts.
896.0	"	911.0	15.0	"	Recry. Ls. white, pink, blue-grey. Pink color due to oxidization of Iron. c.g. Few erratic fracts.
911.0	"	927.0	15.0	"	Recry. Ls. lt. grey to drk. grey. 920.5 to 923 is meta. & fractured. Fract. filled with non-calc. gel. Rock is f.g. to c.g.
927.0	"	932.0	5.0	"	Partially Meta. Some fract. Vuggy at 930. Pink & grey. c.g. to m.g. Fracts about 45° to core.
932.0	"	960.0	28.0	"	White Ls. Recry. c.g. Fract. locally. Erratic red veinlets. Locally blue-grey, pink. Bedding (?) 50° to core at 944.5. Few meta. bands.
960.0	"	972.5	12.0	"	Meta. spotted. Fossiliferous (?) f.g. lt. grey becomes drk. argil. at 965. 965 to 968 consid. pyrite, this area mottled, hard dense. Assay 966 to 967. Sample No. 4661 Typical of 965 to 968. 968 to 969.5 fossilif. (?) meta. spots of diss. hem.
972.5	"	1004.0	30.0	"	Recry. Ls. Brown, blue-grey, pink. M.g. to c.g. Bedding at 975.5 70 to 80° to core. 990 to 992 badly fractured. Core consists of angular frags. of Ls. Little MnO on fracts. Sparse hem. min. 1000 to 1004 partially meta.
1004.0	"	1022.0	14.0	"	Red to greenish black argil. Ls. Highly fract. locally. Fracts. calcite filled. Sparse MnO. Sparse hem. From 1009 to 1022 greenish black. Heavy magnetite (?) min. Assay 1009 to 1010. Sample No. 4668 typical of 1009 to 1022. Sparse epidote & garnet. Consid. pyrite locally. Hem. on fracts. Assay 1014 to 1015. Sample No. 4669 Rock very fine grained, tight, hard, brittle.
1022.0	"	1024.0	2.0	"	Fract. partially meta. Ls. reddish to white. Sparse MnO. Vuggy. Fracts. & vugs partially calcite filled.
1024.0	"	1042.0	18.0	"	White & pink recry. Ls. M.g. to c.g. Fracts. 50 to

222

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WS-602

Joy Machine #1

LOG HOLE NO. 8 PAGE 9

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~FEET~~	Depth Interval ~~FORMATION~~	Ft. cored ~~MINERALIZATION~~	DESCRIPTION OF CORE (Typed 2/1/55)
				NACO. 60° to core, some crossing each other (opposite strike.) Some meta. at 1038 to 1042. Odd fract. zone at 1034, cemented with SiO_3 (?)
1042.0	to	1043.0	1.0	" Drk. grey argil. f.g. bedding (?) about 60° to core.
1043.0	"	1056.5	13.5	" Lt. grey. f.g. fossiliferous in places. Sparse diss. partially oxidized pyrite. Partially meta. but still quite calc.
1056.5	"	1058.0	1.5	" Drk. grey to lt. grey. Dark rock is argil.f.g. fracts. filled with weakly calc. material. Partially meta. Very little $CuCO_3$ on one fract. Some epidote
1058.0	"	1085.0	27.0	" White to pink. f.g. to m.g. recry. Ls. few erratic fracts. Bedding (?) about 60° to core. Becomes c.g. about 1070'.

223

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TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

Joy Machine #1

WS-60

LOG HOLE NO. 8 PAGE 10

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

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DEPTH INTERVAL	to ~~XXX~~	Depth Interval ~~XXXXXX~~	Ft. cored ~~XXXXXXXX~~		DESCRIPTION OF CORE (Typed 2/16/55)
1085.0	to	1104.0	18.5	Naco	White, Lt. gray, Lt. brown to greenish brown. Nearly all meta. sparse py. in dark bed. Quite fossiliferous locally. Rock hard, dense, brittle, heavy Beds (?) 45° to 50° to core at 1050.
1104.0	"	1145.0	39.5	"	Fine to coarse grained Ls. Recrys. Few fract. areas which are fine grained. Lt. grey. Bedding (?) about 50° to core. Occasional fossils. Color becomes white at 1122.5. Small fract. with hem. at 1134. Core fractured, brkn. pcs. at 1145.
1145.0	"	1158.0	13.0	"	White c.g. recry. Ls. with areas of f.g. silicates(?) Beds (?) about 45° to core at 1156.
1158.0	"	1163.0	5.0	"	About 50% f.g. dense, fract. $CaSiO_3$. Rest c.g. white Ls.
1163.0	"	1187.0	24.0	"	White recry. c.g. Ls. at 1165 3" band of drk. grey argil. some Lt. green, soft. Bedding 30° + or minu at 1184.
1187.0	"	1224.0	37.0	"	White recry. Ls. c.g. about 12" of f.g. spotted silicates at 1188 and 1194.5. Beds undeter. 1203 to 1208 core is small pcs. 1221 to 1223 core in small pcs.
1224.0	"	1228.0	4.0	"	Meta. spotted, fossilif.(?) Few erratic veinlets. Lt. grey to bluish grey.
1228.0	"	1243.0	15.0	"	Recry. Ls. meta. locally. Fractured erratically. Whit to blue-grey.
1243.0	"	1269.0	25.0	"	White, recry. Ls. c.g. Fract. 50° to core at 1244 carries $CaSiO_3$. Bedding 50° to core.
1269.0	"	1277.0	8.0	"	Meta. banded. Drk. area carries little pyrite. Little epidote in fracts. Most of rock is Lt. grey to blue-grey.
1277.0	"	1312.0	35.0	"	White, recry. Ls. m.g. to c.g. Color Lt. grey at 1297 Little $CaSiO_3$ at 1287-88. 12" fract. area, some secondary calcite at 1305.
1312.0	"	1315.0	3.0	"	Meta. Ls. spotted. Fossiliferous. Little epidote in fracts. Little diss. pyrite at 1315.
1315.0	"	1324.0	9.0	"	Drk. grey argil. f.g. fract. some epidote. Assay 131 to 1320. Sample No. 4670. Best of 1315 to 13 Bedding (?) 45° to 50° to core. Rock hard, brit 4670

224

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TOMBSTONE DEVELOPMENT COMPANY
~~TOMBSTONE, ARIZONA~~

WS-602

Joy Ma[illegible]ine #1

LOG HOLE NO. 8 PAGE 11

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~XEK~~	Depth Interval ~~XXXXXX~~	Ft. cored ~~XXXXXXXX~~		DESCRIPTION OF CORE (Typed 2/16/55)
1324.0	to	1329.0	5.0	Naco.	White recrys. Ls. m.g. to c.g.
1329.0	"	1338.0	9.0	"	Meta. Lt. grey, Lt. brown. Brown min. is $CaSiO_3$ (?) very hard. Beds undeter. Spotted appearance locally.
1338.0	"	1351.0	12.0	"	White, Lt. grey, bluish. Medium grained recry. Ls. Beds normal to core.
1351.0	"	1353.0	2.0	"	Lt. grey meta. Ls. Mainly $CaSiO_3$. Little pyrite - some partially oxidized.
1353.0	"	1361.0	8.0	"	Drk. red, greenish, very fine grained, Highly silicious rock. Could be meta. qtzite. Diss. partially oxidized pyrite. Some secondary silica visib Assay 1353 to 1354 is typical of 1353 to 1361. Sample No. 4671. Locally, fracts. have MnO and Hem. filling.
1361.0	"	1375.0	14.0	"	Lt. grey, pink, red, Lt. blue-grey, very hard. Novaculite appearance. Drk. brown vuggy calc. bed 1372 to 1373. Oxidized py. Assay 1372 to 1373. Sample No. 4672. Rock in general is fract., most fracts. carry pyrite or hem., some MnO. Bedding about 50° to core at 1373.
1373.0	"	1390.0	14.0	"	Lt. grey, lt. brn. Some reddish stain due to FeO. Very f.g. hard. Novaculite appearance. Locally fracts. carry pyrite or hem. Changes to $CaSiO_3$ at 1383. Still hard, brittle.
1390.0	"	1404.0	14.0	"	Lt. grey Meta. Ls. $CaSiO_3$. Diss. py. locally. Assay 1398 to 1399. Sample No. 4673. Little copper carbonate and few specks bornite (?).
1404.0	"	1411.0	8.0	"	Lt. grey to white very hard f.g. brittle meta. Ls. Few specks of galena and pyrite at 1409.
1411.0	"	1416.0	5.0	"	Brownish-white, speckled, hard. Very little reaction to acid. Meta. Ls. Beds (?) about 60° to core. (Brown spots are fossils?).
1416.0	"	1425.0	9.0	"	Lt. grey. f.g. dense. Sparse fossils locally. Very little pyrite. Meta. Ls.
1425.0	"	1431.0	6.0	"	Recry. White Ls.

225

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TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

WS-60

Joy Machine #1

LOG HOLE NO. 8 PAGE 12

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~XXX~~	Depth Interval ~~XXXXXX~~	Ft. cored ~~XXXXXXXX~~		DESCRIPTION OF CORE (Typed 2/16/55)
1431.0	to	1481.0	50.0	Naco.	Meta. Ls. Very hard, brittle, f.g. Lt. grey-white. Very few spots galena & pyrite & $CuCO_3$. Assay 6" at 1461. Sample No. 4679. From 1469 to 1483 more or less diss. pyrite and locally light concentrations of galena, sphalerite, bornite, considerable epidote. Assay 1471 to 1472. Sample No. 4680. Fair min. from 1478 to 1481. Assay 1480 to 1481. Sample No. 4681 best of core to here. Blue gouge at 1481.
1481.0	"	1523.0	42.0	"	Meta. Ls. rare segments are acid sol. Lt. grey. f.g. brittle. Fossif. locally. (Nearly all fossilif. from 1491 to 1510.) Rare spots of Pb, Zn, Cu, & Py at 1504. Suggestion of rhodochrosite at 1403-1504. Rock very heavy.
1523.0	"	1540.0	17.0	"	Definite change. Rock more calcaerous, blue-grey, pink, some epidote, some fossils. Becomes less meta. at 1525, (recry. Ls.) with few areas of hard f.g. dense, sil. rock to 1538. From 1538 to 1540 Meta. Ls. White. Abundant tremolite.

226

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Joy Mine #1

Tombstone, Arizona

LOG HOLE NO. 8 PAGE 13

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Margrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~FEET~~	Depth Interval ~~FORMATION~~	ft. cored ~~MINERALIZATION~~		DESCRIPTION OF CORE (Typed 3/2/55)
1544.0	to	1584.5	42.5	Nuco	Meta. Ls., white, very few specks of galena at 1551. Rock is coney, brittle. Fine grained. Hard. Assay 1570 to 1577. Sample No._____. Typical of 1575 to 1577. Rock more calcareous from 1575 to 1577; this area has sparse diss. galena, sphalerite, chalcopyrite (?) and pyrite mineralization.
1584.5	"	1643.0	58.5	"	Partially meta. Ls. slightly affected by acid in places. Sparse Pb & Zn at 1584.5. Rock white to Lt. grey. Very hard. f.g. brittle. Sparse diss. Pb from 1619 to 1620. Sparse diss. pyrite and epidote at 1624. At 1632.5 1/4" stringer of Pb and Zn. Sparse Pb at 1643. Beds undetermined. Not enough mineral to assay.
1643.0	"	1685.0	42.0	"	Meta. Ls. Lt. grey. Very hard, brittle. F.G. From 1645 to 1685 occasional small stringers of Pb, Zn and $CuCO_3$ (?). Little pyrite and epidote. Assay 1650 to 1650.5. Sample No._____. 5" zone at 1658 has Pb, Zn, Py & Cu (?) 45° to core. Assay 1667 to 1668. Sample No._____ best to date. Becomes slightly calc. at 1667. Some fossils at 1669. Pb in fracts. from 1682 to 1684.5.
1685.0	"	1714.0	29.0	"	Meta. Ls. Grey. Hard, brittle. F.G. Fractures (hair cracks) sometimes carry Pb, Zn, Py & Cu(?).
1714.0	"	1750.0	35.0	"	Meta. Ls. Hard, brittle, f.g. Lt. grey to white. Fractured locally parallel to core. Fracs. filled with calc. material. Sphalerite at 1724. From 1733 to 1743 fractures parallel to core carry Pb (mainly). Assay 1734 to 1735. Sample No._____. Best of min from 1733 to 1743. Sparse diss. min. at 1745 to 1746 and at 1749 to 1750. Beds (?) 50° to core.
1750.0	"	1756.0	6.0	"	Recry. white Ls. Few fracts. at 45° to 50° to core.
1756.0	"	1772.0	16.0	"	Meta. Ls. Lt. grey, white. Few areas of dark blue & brown. Sphalerite & rhodochrosite at 1758. From

227

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Pebble Development Company MS-602

Kamloops, B.C.

LOG HOLE NO. 8 PAGE 14

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~DEPTH~~	Depth ~~FORMATION~~	Ft. cored ~~MINERALIZATION~~		DESCRIPTION OF CORE (Typed 3/2/55)
				Naco	1759 to 1765 some fract. carry sparse Pb, Zn, Py & Cu(?). Beds (?) 45° to core. From 1767 to 1772 finer grained and has diss. pyrite.
1772.0	"	1804.0	32.0	"	Wh. Ls. fine grained. Bluish locally. 1" calcite filled fract. at 1778, 75° to core. Sparse pyrite & hematite. 1787 to 1804 recry. fract. few fossils locally.
1804.0	"	1805.0	1.0	"	Bleached Ls. some pyrite, Pb, Zn and Cu (?).
1805.0	"	1806.5	1.5	"	Dark grey silicious igneous sill. Crosses core at about 45°. Carries considerable pyrite. Ls. both above and below is altered and mineralized for 6" to 12". Assay 1805 to 1806. Sample No._____.
1806.5	"	1824.5	18.0	"	Hard Lt. grey to white meta. Ls. with closely spaced areas of calcium silicates which carry weak Pb, Zn & Py min. Beds (?) 45° to core.
1824.5	"	1831.9	7.4	"	Meta. Ls. Lt. grey, greenish, bluish, continuous veinlets and spots of Pb-Zn sulphides. Some Cu carbonate. Iron oxide on some fractures. Assay 1829.5 to 1830.5. Sample No._____. Best of rock from 1824.5 to 1831.9.
1831.9	"	1842.0	10.0	"	Recry. Ls. Brown to red. Iron oxide stained. Fract. Fracts calcite filled. Some Aho in fracts at 1838. Narrow 2" breccia zone at 1839, about 75° to core. Rock vuggy. Resembles rock found above water level, near mineralized zone.
1842.0	"	1843.0	1.0	"	Indurated Ls. Fract. varig. Lower 2" is vuggy qtz. Brown. Has both opalite and honeycomb structure.
1843.0	"	1853.0	7.0	"	Brown to Red dike. Color due to iron oxide. Effervesces most places due to fractures filled with calcite. Assay 1845 to 1846. Sample No._____ Typical 1843 to 1853.
1853.0	"	1853.5	0.5	"	Vuggy brown qtz. Little Pb and Fe.
1853.5	"	1863.0	5.5	"	Lt. grey recry Ls. Fract. parallel to 45° to core. Fracts carry MnO and $CuCO_3$. Core vuggy locally. Recovery poor. Assay 1854 to 1855. Sample No._____. Best of 1853 to 1863.

228

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Joy Mine #1

[illegible]

LOG HOLE NO. 8 PAGE 15

DATE STARTED December 21, 1954 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Harrow REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	~~to~~ FEET	~~FORMATION~~ Depth	~~MINERALIZATION~~ Ft. cored	DESCRIPTION OF CORE (Typed 3/2/55)
[illegible]	[illegible]	[illegible]	[illegible]	Naco Lt. grey recry. Ls. few fracts carry MnO. 1674.5 to 1677.5 mottled. Red, pink, f.g. cream colored. Calc.
1667.0	"	1668.5	1.3	" Pb, Zn, Cu, Fe replacement in Ls. Assay 1667 to 1668.5. Sample No. _____.

229

Newmont Exploration, Limited

Joy Machine 1

[illegible] Tombstone, Arizona

LOG HOLE NO. 8 PAGE 10

DATE STARTED December 21, 1954

LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____

EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY [illegible] REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	FEET	to	Depth Interval	Sec. covered	FORMATION	MINERALIZATION	DESCRIPTION OF CORE (Typed 3/16/55)
1888.5		to	1913.5	23.5		Dike	Diorite (?) Dike. Fractured. Greenish-bluish cast, some red. Considerable diss. pyrite. Assay 1891 to 1892. Sample No. 1691. Typical of 1888.5 to 1913. Start AX core at 1901.
1913.5			1926.0	4.0			Broken pce. silicious dike. Some heavy pyrite. Some hem. Fracts. locally filled with calcite.
1926.0		"	1940.0	8.5			Brecciated locally. Very calcareous from introduced calcite. Reddish-pink to grey blue. (Calcite crystals surround silicified dike fragments.)
1940.0		"	1962.0	16.5			Dike. Dark grey-greenish. Fractured. Most fracts. calcite filled. Pyrite and marcasite on some fracts. Fine grained.
1962.0		"	1965.0	1.5			Silicified dike (?) Lt. grey. f.g. Consid. diss. pyrite.
1965.0		"	1972.0	7.0		Ore	Galena, sphalerite, chalcopyrite [illegible] in recry. Ls. Also some pyrite. Galena most abundant, zinc next. From 1966.6' to 1971 most of the core is massive sulphides. Little CuCO3 in fracts. 1.0 ft. is vuggy. Some fluorite. Very little calcium silicate. Assay 1965 to 1967. Sample No. 1693. Assay 1967 to 1971. Sample No. [illegible]. Assay 1971 to 1972. Sample No. 1695.
1972.0		"	1979.0	6.5		Mato	Meta. Ls. Fractures carry Pb, Zn, Cu(?) & Py. Some dissem. also. Assay 1978 to 1979. Sample No. [illegible] is typical of 1972 to 1979.
1979.0		"	1985.0	6.0		?	Silicious dike or altered Ls. Consid. diss. pyrite Greenish, blue color. Little galena & copper. F.g. Fract. Fracts carry some CuCO3 & calcite. Assay 1980.5 to 1981.5. Sample No. 1697. Assay 1982 to 1985. Sample No. 1698.
1985.0		"	1990.0	5.0		?	Slightly altered. Ls.(?) or dike(?) Red. Fractured. Consid. oxidized pyrite, some manganese. Brecciated locally.
1990.0		"	1995.0	7.0		Ls.o	Calcium silicates (tremolite or wollastonite [illegible]. Sparse galena.

[illegible]

230

ASSAYERS
CHEMISTS

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HAWLEY & HAWLEY

W. E. HAWLEY, MANAGER
DOUGLAS, ARIZONA
537 TWELFTH STREET
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BULLION BUYERS
ORE BUYERS

WE HEREBY CERTIFY THAT THE FOLLOWING RESULTS WERE OBTAINED FROM SAMPLES OF DEVMONT EXPLORATION LIMITED

OFFICE NO.	MARKED	GOLD OZS.	SILVER OZS.	LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	IRON PER CENT	DH No. 8	
278776	4685	none	trace	0.1	0.01	0.45	17[illegible]4.0	- 17[illegible]5.0	
278777	4686	none	trace	0.2	0.02	0.65	1[illegible]5.0	- 1[illegible]5.0	
278778	4687	none	0.9	3.2	0.02	3.7	1[illegible]9.5	- 1[illegible]5.5	
278779	4688	none	none	trace	0.01	0.1	1[illegible]5.0	- 1[illegible]0.0	
278780	4689	none	none	0.15	0.01	trace	1[illegible]4.0	- 1[illegible]9.0	
278781	4690	.005	0.4	0.7	0.01	0.5	1[illegible]7.0	- 1[illegible].5	
278782	4691 Hole 8 (189'-92') diorite dyke with disseminated pyrite	trace	0.4	0.1	none	trace	1[illegible]1.0	- 1[illegible]2.0	

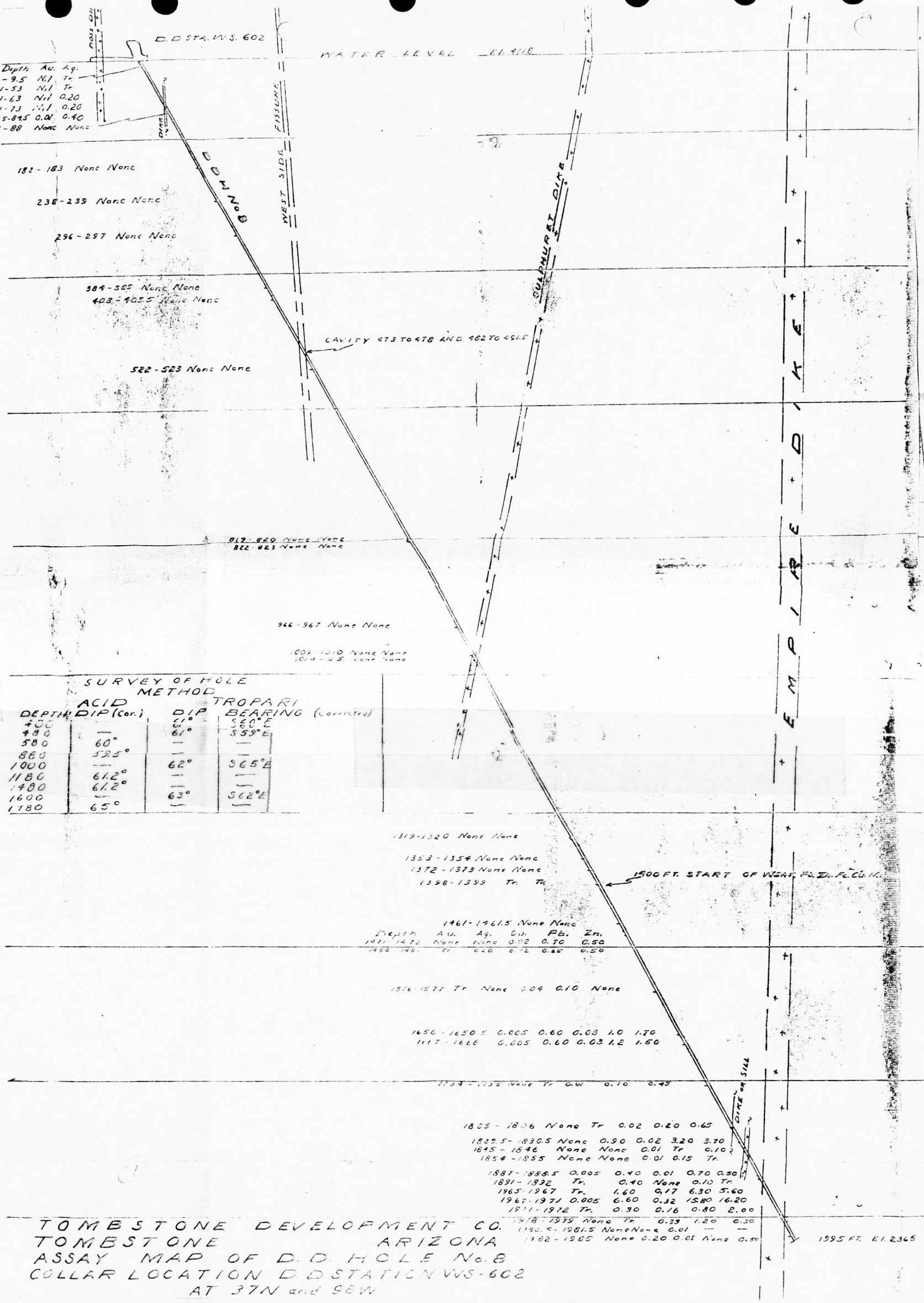
METAL QUOTATIONS:

GOLD $35.00 PER OZ. COPPER ____ C PER LB. CHARGES: $ 42.00

SILVER _____ PER OZ. _____ PER LB. DATE 3/12/55

HAWLEY & HAWLEY

PER [illegible] ASSAYER



TOMBSTONE DEVELOPMENT CO.
TOMBSTONE ARIZONA
ASSAY MAP OF D.D. HOLE No. 8
COLLAR LOCATION D.D STATION WS-602
AT 37N and 58W

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

RECEIVED
FEB 12 1955

231

February 9, 1955

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The number nine drill hole was drilled with 5-7/8 inch tricone rock bit to 390 feet. As near as we can tell from the cuttings, the formation is as follows:

Footage	Rock
0' to 15'	Shale
15' to 20'	Limestone
20' to 95'	Shale
95' to 105'	Limestone
105' to 125'	Shale
125' to 135'	Limestone
135' to 235'	Shale
235' to 270'	Limestone
270' to 305'	Shale
305' to 390'	Limestone

Casing was installed to 390 feet. We started cutting BX core at that point. The core is limestone, brecciated and vuggy in places. A cavity was encountered between 411 and 418 feet.

It is probable that the area between 305 and 390 feet contains one or more shale beds but the cuttings are so diluted that we can't be certain.

I will prepare a map of the hole when it is completed.

Sincerely yours,

Don Hargrove

Dh-ga

TOMBSTONE DEVELOPMENT CORP. T-50

TOMBSTONE, ARIZONA

LOG HOLE NO. 1 PAGE 1

DATE STARTED January 18, 1955 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	To	Depth Interval	Ft. cored	DESCRIPTION OF CORE (Typed 2/14/55)
Start core 390.0	to	393.5	2.5	Blue Ls. in Bisbee group. Pink, red, fract. Hem. & MnO 391.5 to 393.5 core consists of broken pcs. of fine grained silicious rock, (qtzite?) containing hemati & MnO denarites. Color grey, blue, red.
393.5	"	396.0	1.75	Assay 393.5 to 395. Sample No._____. 393.5 to 396 rusty, red sil. Ls. & f.g. calc. qtzite (?) Core consists of brkn. pcs. Core recovery about 50%.
396.0	"	398.0	2.0	Varigated Ls. breccia.
398.0	"	401.0	0.7	Varig. few brkn. pcs. Rusty Ls.
401.0	"	409.6	8.5	Varig. Ls. breccia.
409.6	"	411.0	1.2	Brkn. pcs. varig. qtz. (secondary)
411.0	"	418.0	None	Cavity.
418.0	"	426.0	7.0	Varig. Ls. Bxted locally. Rest fractured. Fract. carry hematite. Ls. is recrystallized. Naco(?)
426.0	"	431.0	3.4	Recry. varig. bxted locally. Fract. m.g. vuggy. Vugs lined with calcite. Some hem. on fracts.
431.0	"	434.0	3.0	Lt. grey, pink, bluish. Recry. Ls. Little breccia. Frac some MnO on fracts.
434.0	"	436.0	1.5	Bxted and fract. Ls. MnO on fracts. Assay 435 to 436. Sample No._____
436.0	"	439.0	2.9	Recry. bxted. varig. Ls. Consid. hematite on some fract Assay 437 to 438. Sample No._____.
439.0	"	442.0	2.4	Pink, bxted. sandy, fract., not calc. or weak acid re-act. generally soft. Vuggy.
442.0	"	444.0	1.9	Recry. fract. bluish grey Ls. Hem. on fract. planes.
444.0	"	447.0	2.1	Brkn. pcs. Very fine grained silicious qtzite(?) Cream & pink iron stained, some py.
447.0	"	451.0	0.8	Recry. Ls. blue grey to white. Bedding uncertain.
451.0	"	453.5	2.3	Black to blue grey recry. f.g. Ls. bxted at 453. Calci filled fracts.
453.5	"	464.5	1.0	Broken pcs. Lt. grey. f.g. qtzite (?). Diss. partially oxidized py.
464.5	"	469.0	3.9	Recry. fract. vuggy. Blue grey to pink Ls.
469.0	"	489.0	19.0	Varig. fract. Fossiliferous locally. Bxted locally. Little diss. partly oxidized pyrite. Assay 482 to 483. Sample No._____. Mottled. Calcareous fault

232

Newmo[illegible] Exploration, Limited [illegible]oy Mac[illegible] #2

TOMBSTONE DEVELOPMENT COMPANY T-506

TOMBSTONE, ARIZONA

LOG HOLE NO. 9 PAGE 2

DATE STARTED January 18, 1955 LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____ EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	To ~~xxx~~	Depth Interval ~~xxxxxx~~	Ft. cored ~~xxxxxxxx~~	DESCRIPTION OF CORE (Typed 2/14/55)
489.0	to	506.0	15.5	Varig. recry. fract. Ls. Mottled locally. Vugs calcite filled. Very little min.
506.0	"	527.0	15.0	Blue grey to pink recry. Ls. fract. calc. filled with little MnO.
527.0	"	533.0	3.2	Bxted. varig. Ls.
533.0	"	539.0	1.5	Few broken pcs. of red Ls. Soft. Assay 538 to 539. Sample No. _____.

233

Newmo[illegible] Exploration, Limited
TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

T-506

Joy Mac[illegible] #2

LOG HOLE NO. 9 PAGE 3

DATE STARTED January 18, 1955

LEVEL _____ COORDINATE POS. _____ N _____ E

DATE FINISHED _____

EL. COLLAR _____ COURSE _____ INCLINATION _____

LOGGED BY Don Hargrove

REMARKS _____ LENGTH OF HOLE _____ SIZE OF HOLE _____

DEPTH INTERVAL	to ~~xxxx~~	Depth Interval ~~xxxxxx~~	ft. cored ~~xxxxxxxx~~	DESCRIPTION OF CORE (TYPED 3/2/55)
539.0	to	549.0	4.5	Broken pcs. wh. recry. Ls. Fractured. Blue & brown veinlets
549.0	"	559.0	9.0	Drk. grey. Brown, Blue, Red, Pink Ls. Fractured. Core in short pcs. Vuggy in places. Fossilif. locally.
559.0	"	568.0	5.0	White & pink recry. Ls.
568.0	"	576.0	6.0	Drk. grey, Lt. grey. Bluish. Novaculite (?) and Ls. Badly fractured. Little pyrite. Some fracts. healed with calcite.
576.0	"	581.0	0.2	Badly fract. pcs. f.g. hard, silicious rock. Some Drk grey Ls.
581.0	"	583.5	2.5	Grey, brown, pink recry Ls. Fractured. Few hem. spots. Some vugs.
583.5	"	588.0	3.7	Highly fractured. Generally amorphous silicious rock. Looks like Novaculite. Calcareous locally with vugs lined with calcite crystals. Varigated.
588.0	"	593.0	4.0	Fractured. Varigated. Some breccia. Silicious but with calc areas and fracts calcite filled.
593.0	"	598.5	3.0	Fault gouge. Red. Calcareous. (Cored 3.0' of gouge.)(595 start of AX core) Believe Naco below 598.5.
598.5	"	607.0	6.0	Varig. Ls. Fractured. Fract. at 602 filled with opalite. 603 rock disintegrates when exposed to air. 604.5 fault gouge. 605 to 607 few pcs. brkn. blue, pink Ls.
607.0	"	610.0	3.0	Grey, pink, brown Ls. Beds (?) 45° to core. Fract. calcite filled.
610.0	"	638.0	28.0	Recry. Lt. grey to white Ls. Few fracts. calcite filled. Becomes brown colored and sandy textured at 624. Fossif. locally below 624. From 635 to 638 core is broken. Color drk, brown and grey.
638.0	"	654.0	5.0	Mottled. Fract. Ls. 1/4" streak of Pb-Zn & Ag(?) at 653. Fossilif. in places. Sparse diss. pyrite & hematite. Tremolite crystals locally.
654.0	"	667.0	13.0	Recry. Ls. White, bluish. Few fracts. carry sparse pyrite and or hem. Beds (?) 10° - 20° to core.

End of Hole.

234

Lonehorse C
L-3
235

TOMBSTONE DEVELOPMENT COMPANY
TOMBSTONE, ARIZONA

MARCH 7, 1955

DIAMOND DRILL HOLE NO. 9 D.D. Sta WS 602

0 - 396 Non cored

Decided change visible in size of cuttings below 295 feet most cuttings below this depth effervesce well. Cuttings above 295 effervesce locally. Possibly 295 is top of White limestone.

Footage	Formation	Description
	NACC	
391 - 396		Dense, grey Siliceous, (Calcareous) impure limestone or Argillite. Faintly resembles some phases of Noraculite, but very similar to hard argillite interbeds in the white limestone.
396 - 409		Breccia, limestone fragments pink clacareous matrix, resembles conglomerate horizon on top of white limestone; ½ to 2" grey limestone fragments tend to be rounded and some seem to show solution effects. Could be deposited in open cavities in a Karst Topog. Slight possibility that 409 marks top of white limestone.
409 - 434		Limestone, white to grey, medium grained recrystallized calcite lined Vuggy fractures, and iron stained, along fractures.
434 - 351		Mixed limestone, and dense hard Silicified and Argillitic limestone. Minor chert. White to grey considerably fractured and iron stained.
451 - 490		Limestone, minor Argillite 481 - 482 bedding 15° - 20° to core, irregular blotched and streaked with MnO stain, some iron stain. Landing (Bedding?) at 20° to core at 484.
490 - 527		Limestone grey, medium grained recrystallized, minor MnO and Ferric stained, at 491½ and 506 hard argillaceous bands parallel core.
527 - 533		Brecciated limestone due to movement.
533 - 539	Limestone	Core missing.

Footage	Formation	Description
539 - 568	Limestone	Fine to medium grained recrystallized white to pinkish blocky fractured. Minor Argillite bands. Bedding 30° to core at 550 Contact 30° to core at 568
568 - 570	"Chert"	Dense grey highly Siliceous. Silicified?
570 - 593	Mixed	Alternating narrow grey limestone, with pale grey chert and dark grey argillite blocky fractured.
593 - 595	Breccia	Dark grey Argillite calcareous cement
595 - 598½	Sand and Clay	
598½ - 607½	"Limestone"	Fine medium grained pink iron stained MnO stained with some calcite stringers, (probably impure argillaceous limestone in part.)
607½ - 610	"Limestone"	Pink to red iron stained, calcite stringers 1" silicified at 609 with clay alteration for 2 inches. Minor oxidized pyrite and a little copper stain at 610 Contact with grey limestone at 610 is 45° to core.
610 - 624	Limestone	Grey white medium grained, massive unfractured. Hard partly silicified 616-617.
624 - 650	Secondary Silicates	Almost completely recrystallized, fine felt or rosettes of pale brown tremolite rock is brownish grey, and irregularly streaked and blotched with brown. Consisting of coarse dark calcite in part.
650	Tremolite with minor Sphalerite and Galena.	
650 - 667	Limestone	Medium grained white crystalline.

- End -

Hombetown
J. 3R

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

RECEIVED
FEB 25 1955

February 21, 1955

Mr. Robert B. Fulton
Room 1501
14 Wall Street
New York 5, New York

Dear Bob:

Thank you for your letter concerning DD Hole No. 9. I am sending Mr. Bechaud the following samples for analysis of the $CaCO_3$ and $MgCO_3$ content as you requested.

No.	Description
1	Broken pieces of more or less silicified limestone from 390 to 393.5 feet.
2	Limestone breccia from 408 to 409 feet.
3	Limestone breccia from 418 to 419 feet.

The fractured condition of the area we are in with attendant core loss, plus the metamorphosis of the rock, combine to make it quite difficult to positively identify the rock.

Regards.

Sincerely yours,

Don Hargrove

DH-ga

Newmont Exploration, Limited — C.S.I. Rotary Machine

Tombstone Development Co.

LOG HOLE NO D 10 A PAGE 1

DATE STARTED August 17,1954 — LEVEL surface — COORDINATE POS. -1140.5S N 1189.5E E

DATE FINISHED lost stem,Sept.2,1954 hole abandoned,Sept.11,1954 — EL. COLLAR 4575.3 — COURSE vert. — INCLINATION -90°

LOGGED BY H.S.Wilson — REMARKS examination of cuttings — LENGTH OF HOLE 637.5' — SIZE OF HOLE 6¼"

DEPTH INTERVAL	FEET	FORMATION	MINERALIZATION	DESCRIPTION OF CORE
				Note: from 0 to 65',grab samples at irregular intervals. from 65' to 490' grab sample at 5' intervals. from 490' to 595' representative sample at 5' intervals. from 595' to 637½' " " 2½' "
				SUMMARY
0 - 65	65	Bisbee	nil	brownish gray,hard,dense,silicified,indurated shale.
65 - 460	395	"	little fine py @ 100' & @ 325'.	various shades of brownish gray,hard dense,silicified, indurATED shale,as above.
460 - 500	40	"	nil	mostly dark brown shale,as above,with some gray beds.
500 - 525	25	"	"	pale grayish brown,indurated shale,as above,more or less calcareous from 500(to 515'.
525 - 622½	97½	"	"	mostly dark brown shale,as above,with some gray beds,all hard,dense,silicious.
622½ - 637½	25	"	"	brownish gray,hard,dense,silicious,shale,as above.
637½				END OF HOLE

237

Location - RDH - D10A

25 Aug 54 239

Elev. D 10 =

Elev. 4582.134

97.1' @ -3°-52'

1.987219	1.987219
9.999010	8.828884
11.986229	10.816103
96.88	6.548

	-6.55
Elev. top stake	4575.79
	-0.50
Elev. ground @ D10A =	4575.29

97.1' @ N 40°-15' W

1.987219	1.987219
9.882657	9.810316
11.869876	11.797535
74.11	62.74

	S.	E
D 10 -	-1214.65	+1252.27
	+74.11	-62.74
Collar RDH #D10A	-1140.54	1189.53

RDH # D10A - Cont'd.

475	med to dark brown shale
480	" " " "
[illegible]5	" " " "
490	med to pale brown ± pale grayish
495	med brown, ± dark grayish, ~~slight~~ few pcs effervesce, few pcs contain fine pyr.
500	pale grayish brown, num pcs effervesce, sl limey
[illegible]5	" " " " — sl darker than @ 505' " " limey
510	" " " — num pcs. effervesce limey
515	" " " — slight effervescence — on large pc. dark gray ankerite
520	" " " — " " ?
[illegible]	med to dark brown sh — " " ?
530	" " " — " " ?
535	" " " — " " ?
540	" " " — " " ?
545	" " " — —
550	" " " — " " ?
555	" " " — " " ?
560	" " " — " " — due pink to pcs white carb ?
565	dark brown shale — " " — ?
[illegible]0	" " " — ?
575	" " " — ?
580	" " " — ? ± ?
585	" " " — ?
590	" " " — ?
595	" " " — ?
597½	" " " — — —
600	" " " — — —
602½	" " to gray sh. — — —
605	" " " — — —
607½	" " " — — —
610	" " " — — —
612½	" " " — — —
615	" " " — — —
617½	" " " — — —
620	" " " — — —
622½	brownish-gray sh — — —
625	" " " — some pcs white carb.
[illegible]½	" " " — — —
630	" " " — — —
632½	" " " — some pcs white carb
635	" " " — —
637½	" " " — ± effervescence due to pcs white carb ?

Lost stem - Sept 2 - HOLE ABANDONED - Sept 11. 1954 - Lost stem etc in hole

1140.5 N
1159.5 E
El. 4575.3 (ground)

R.D.H. # D10A

examination of cuttings

vert.

start - Aug 17 drawn
end - Sept 11
Lost stem Sept. 2

Depth			
65	lt to dark gray shale, some brownish pcs.	much baked, med gray	240
70	"		
75	"		
80	"	dark gray	
85	"	"	
90	"	"	
95	"	med gray, sev. pcs white vein qtz	
100	"	~~some~~ one pcs pale gray contain fine pyr	
105	"		
110	"	mostly dark gray. some brown	
115	"	med	
120	"		
125	"	mostly dark gray	
130	"		
135	"		
140	"	med gray	
145	"		
150	"	dark gray	
155	"	num brownish pcs	
160	"		
165	"	med gray	
170	"	brownish gray	
175	"	num brownish pcs "	
180	"	" "	
185	"	med gray	
190	"		
195	"	sev pcs. white vein qtz,	mod X
200	"	num white pcs. - med to pale gray	mod +
205	"	" - " " - - -	mod.
210	"		
215	"	num brownish pcs brownish gray	
220	"	" "	
225	"	" ± pale brown	
230	"	" "	
235	"	" "	
240	"	" "	sev pcs dark gray tt
245	"	" "	
250	"	" "	
255	"	" "	
260	"	" "	

RDH # D10A - Cont'd.

Depth	Description
265	lt to dark gray shale, some brownish pcs. ± pale brown
270	" " " " " " " " " " " "
275	" " " " " " " " med " " " " " "
280	mostly dark brown, few gray " " ± darker brown
285	" " " " "
290	" " " " "
295	" " " " "
300	med. brownish-gray.
305	" " "
310	" " " (much the same as above)
315	dark (toned) gray, v little brown
320	med to pale gray " " "
325	" " " " " " , some v pale (nearly white) pcs with some fine pyrite
330	med to ± dark gray ----.
335	med to pale "
340	" " dark "
345	dark gray
350	" "
355	pale gray, some dark pcs.
360	" " " " "
365	med gray.
370	" "
375	" to dark gray.
380	" " "
385	" to light gray
390	" gray " " — some MnO in whl pcs
395	med gray, some brown pcs.
400	med to pale gray
405	pale brownish gray
410 / 415	" " "
420	" " "
425	" " —
430	" " gray — a few pcs effervesce.
435	" " "
440	" " "
445	" " "
450	" " —
455	" " —
460	med to dark brown shale
465	" " " " " — a few pcs effervesce?
470	" " " " — some MnO in white pcs

ANALYSIS OF WATER FROM THE 1000' LEVEL

CONTENTION MINE, TOMBSTONE, ARIZONA

				Percentage composition of dissolved substances
SO_4	30.3	parts/million		7.68
HCO_3	217.4	"	"	55.11
Cl	12.3	"	"	3.12
K	3.7	"	"	0.94
Na	18.9	"	"	4.79
Ca	58.8	"	"	14.89
Mg	8.2	"	"	2.07
SiO_2	45.0	"	"	11.40
	394.6			100.00
Free Co_2	15.2			

We have had the water freshly pumped from the Westside shaft examined for bacteria. I do not have the results at hand, but the water was potable though it should perhaps be chlorinated for the first month or two.

F. Searls, Jr.

NEWMONT EXPLORATION LIMITED
P. O. BOX 99
MONTROSE, COLORADO

December 3, 1956

RECEIVED
DEC 5 1956

Mr. Fred Searls, Jr.
Newmont Exploration Limited
Nineteenth Floor
300 Park Avenue
New York 22, New York

Dear Mr. Searls:

Re: Diamond Drill Hole, Comet Vein
Tombstone, Arizona

The diamond drill was moved to the selected drill site August 6th and completed 1500 feet of hole on November 14th. Drilling was done by two shifts until September 13th and then by one shift only until completion November 14th. The attempt to keep a water return and collect sludges was not made because of the greatly increased expense involved in doing so.

Core return for the first 1000 feet was fair, at about 75 percent recovery. This interval contained a minor amount of chert and probably belongs to the basal Naco formation. From 1000 feet to 1500 feet, except for the dike interval, the limestone cored well and gave nearly 100% recovery. The limestone below 1000 feet probably all belongs to the Escabrosa formation. Due to a cave at 1365 - 1375 feet,core recovery in the dike averaged only 25 percent. It was planned to cement the caving section of dike if ore was encountered on the foot wall side of the dike. The limestone on the foot wall side of the dike, when reached, showed minor manganese oxide but no ore, and consequently the hole was stopped and cementing was unnecessary.

The accompanying plan and section of the drill hole illustrate graphically the location and relative position of the hole to the old workings. In Plate 11, Bulletin 143, Arizona Bureau of Mines, a longitudenal section shows that the Comet Vein was stoped for nearly the full length of the Big Comet Claim. It was possible to go underground during the spring of 1956 by a series of old raises from the surface to the bottom level of the Comet shaft, 400 feet below the surface. This check showed that the vein had indeed been extensively stoped along the foot wall side of a dike 50 feet thick. A sample taken from a bedded zone at the bottom level of the mine gave gold .01 oz; silver 20.7 oz; lead 0.6%; copper 0.42%; zinc 1.0%; manganese 10.2%. The purpose of the hole was to test the grade and character of the vein at a deeper level where it was hoped it would contain unoxidized sulphide minerals. Due to the extensive stoping on the upper levels, the chances of intersecting the vein at depth seemed better than attempting to intersect the downward extension of ore of the small manganese pipes of the Lucky Cuss, Oregon or Prompter Mines. Unfortunately the Comet vein was completely oxidized where intersected about 800 feet below the old workings or 1200 feet below the surface, and the test was unsuccessful. There was no indication in the core that other tests, either deeper on the vein or to the north or south, would be more successful, and further drilling is, therefore, not recommended.

The following is a generalized log of the hole:

0-276	Limestone,	fine grained, pale grey, grey brown in color, with minor red brown, argillaceous to silty layers.
276 - 785	Limestone,	fine to medium grained, grey, minor argillaceous and silty layers, chert common.
785 - 1090	Limestone,	fine to medium grained, grey, mostly minor chert but a few bands up to 6" thick. Minor manganese and iron oxides along fractures, locally vuggy calcite lined fractures.
1090 - 1365	Limestone,	Mostly medium grained, grey, calcite filled fractures common, many stained red or black, with iron or manganese oxides. 1355-1365 Vuggy with some well formed wulfenite (lead molybdate) crystals.
1365 - 1375	Dike rock,	Much altered, white kaolinitic speckled and smeared with yellow, red and brown iron oxides. No quartz present.
1375 - 1380	Limestone,	unaltered, grey, medium grained.
1380 - 1395	Dike,	grey green diorite porphyry 1 - 2 mm, red stained altered feldspar phenocrysts in a dense base with 30% chlorite after biotite, minor limonite after pyrite.
1395 - 1445	Dike,	quartz bearing diorite? Porphyry, considerably fractured and manganese stained matrix white kaolinitic, with quartz phenocrysts and 1 to 2 percent impregnated with pyrite converted to limonite.
1445 - 1455	Dike,	much altered quartz free dike 1% limonite after pyrite.
1455 - 1500	Limestone,	35 percent core recovered for entire 45 feet, but 75% recovered 1465-1475. In interval 1455-1460 there is 6 inches of manganiferous limestone, but all other core recovered to 1500 is grey unmineralized and unfractured limestone.

Samples of the highly altered dike rocks were sent in for assay and also the manganiferous limestone obtained from the foot wall side of the dike at 1455 feet with the following results:

Footage	Rock	Gold (oz)	Silver (oz)	Lead %	Copper %	Zinc %	Manganese %
1365-1375	Dike	0.02	0.14	0.23	0.08	nil	No assay
1410-1420	Dike	0.01	0.30	0.2	0.05	no assay	"
1420-1430	Dike	trace	0.20	0.2	0.03	"	"
1430-1440	Dike	trace	0.20	0.3	0.04	"	"
1440-1450	Dike	0.005	0.20	0.2	trace	"	"
1450-1455	Dike	0.005	0.30	0.2	trace	"	"
1455	Limestone	trace	0.30	no assay	0.04	"	4.35

In the mine workings strong slickensides and clay gouge indicate faulting along the foot wall side of the dike. Stoping of manganese silver ore in the Comet mine was along this fault. A coral horizon outcrops on both sides of the fault at the surface near the Comet shaft and limits the movement on the fault to about 50 feet. The fault has probably controlled the location of the dike and the subsequent mineralization. The dike is well mineralized with pyrite, now altered to limonite, and considering the size of the dike and amount of contained pyrite, a considerable volume of pyrite has been introduced. The values in gold, silver and base metals are however low and do not encourage further drilling near the Comet shaft.

Sincerely yours,

Hal Norman

G. W. H. Norman

GWHN/aw
2 Encls.

April 2, 1955

Mr. Fred Searls, Jr.
Rm. 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report of activity at Tombstone for the month of March 1955.

DD Hole No. 6 at DD Station WS602

This hole was deepened from 1890 to 1995 feet. Drilling was completed on March 12th.

An assay map of DDH No. 6 and a geological section of DDH No.'s 7, 8 and 9 and rotary drill hole D-6 was sent to you on March 24th.

The survey notes on No. 6 hole are noted on the assay section.

Pumping

Pumping hours March- - - - - - - - - - - - - -	132
Pumping rate - - - - - - - - - - - - - - - - -	520 GPM
Gallons pumped March - - - - - - - - - - - - -	4,742,400 Gal
Gallons pumped to date (Inc. Dec. 1953)- - -	161,982,380 Gal

The water level is now 5.0 feet below the top of the grizzly on the West Side sixth level station.

General

24 tons of muck was hoisted.

Mine

All equipment has been hoisted out of the mine, but the track is in place from the sixth level station to the Silver Thread east crosscut (except for a break at DD station 1-506), and to DD stations WS602 and WS601.

4 inch air line and 1 inch water line is in place from the shaft to the turn about 100 feet east of the Tranquility fault. The air line was disconnected in numerous places so that condensate could drain. The water line was blown out thoroughly with compressed air.

The shaft at the sixth level is bulkheaded with 6x8 timber and lagging and covered with old turn sheets and heavy rail to prevent debris from getting into the sump.

The 3 inch air and 6 inch water lines, the 2300 volt power cable and the 110 volt signal system is intact in the shaft. The 2300 volt power cable continues to the charger station. Two inch air and one inch water lines are in place in to DD station WS6U1.

Trees

The city water supply has been connected to the pump discharge line where it enters the US first level. This line has been plugged at the tree farm and a two inch line with suitable valves arranged for watering the trees.

Water Line

The rest of the 6 inch line, except two joints under and west of the Charleston road which were left in place, has been stored at the West Side.

Storage

We find that we have considerable room in the Lona warehouse, even after all core and drill cuttings has been stored.

Joy Manufacturing Company has several thousand feet of drill rods and casing, the mud pump, and several small items stored at the West Side. We have some bentonite, bran, cotton seed hulls and lumnite separately stored, which Joy has agreed to purchase from us. I can sell the lumber we have left, but have not done so as yet until the New Verde project has been definitely decided upon.

Otherwise the program is being carried out as per your letter of March 7th in answer to my letter of March 1st detailing the procedure.

Pete Loncar arrived yesterday for his second

load to Montrose. There are still a lot of details to finish which are being done as rapidly as possible.

Crew

6 - men on clean-up
1 - Typist (part time)

7 - Total

Sincerely yours,

DH:ga

Don Hargrove

Correspondence
L-3

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

RECEIVED
MAR 7 1955

March 2, 1955

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on Tombstone activity for the month of February, 1955.

DD Hole No. 8 at DD Station WS602

This hole was deepened from 1206 feet to 1890 feet. Average advance was 28.5 feet per day or 14.25 feet per shift.

Enclosed please find the core log from 1540 feet to 1888.5 feet.

The hole in general has traversed alternate areas of recrystallized limestone and metamorphosed limestone. From 1400 feet on down we have gotten small amounts of lead, zinc, pyrite and copper. A thin igneous sill, or narrow dike was cut from 1805 to 1806. From 1824.5 to 1831 feet we were in low grade lead-zinc ore.

At 1843 feet we entered a dike which extended to 1853 feet. From 1887 to 1889 feet we were in considerable pyrite which also carried some lead, copper carbonate and zinc. At 1889 we again entered a dike. We are continuing to drill in the dike which is well mineralized. (Mainly pyrite.)

DD Hole No. 9 at DD Station T-506

This hole was deepened from 151 feet to 667 feet. Average advance was 35.58 feet per day or 17.79 feet per shift. The hole was cased with plastic casing, surveyed and capped. A geophysical survey will be run on it when No. 8 is surveyed.

All of the rods, casing, pumps and the drill have been hoisted to the surface.

Enclosed please find the core log from 539 feet to 667 feet.

Pumping

None.

Water level is now 4.9 feet below the West Side sixth level station.

Crew

1 - Clerk-Typist (part time)
1 - Hoistman-Mechanic
1 - Hoistman-Electrician

3 - Total

Sincerely yours,

Don Hargrove

Don Hargrove

DH-ga
Encl. 2

February 17, 1955

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on activity at Tombstone for the first half of February, 1955.

DD Hole No. 8 at DD Station WS602

This hole has been advanced from 1206 feet to 1563 feet, a distance of 357 feet. Average advance has been 27.46 feet per day or 13.72 feet per shift.

The core in general has consisted of alternating sections of recrystallised limestone and metamorphosed limestone. The metamorphosed areas are largely calcium silicates. Altered fossils are to be seen, locally. Very little mineralisation has been found, but the best mineralisation has been intersected below 1400 feet. Enclosed please find the core log from 1085 feet to 1540 feet.

The Sulphuret dike has not been intersected. The Empire dike should be intersected in about 150 feet. It seems quite possible that the Sulphuret dike is a split from the Empire dike.

DD Hole No. 9 at DD Station T-506

This hole has been deepened from 151 feet to 588 feet, a distance of 437 feet. Average advance has been 33.61 feet per day or 16.8 feet per shift.

The hole was drilled with a 3-7/8" tricone rock bit and heavy mud to 390 feet. BX core has been cut from 390 feet to 588 feet. Core recovery has not been as high as usual due to the broken ground. The log of this hole from 390 feet to 539 feet was sent to you on February 14, 1955.

We are getting what appears to be badly fractured novaculite which is interspersed with vuggy calcaerous beds from 468 feet to 595 feet.

I cannot be certain of the formation so far, but I think we are still above the Naco.

Pumping

None.

The water level is now 5.3 feet below the West Side sixth level station.

General

The Ford Cabover truck has been overhauled.

No muck was hoisted.

Crew

1 - Clerk-Typist (part time)
1 - Hoistman-Mechanic
1 - Hoistman-Electrician

3 - Total

Sincerely yours,

Di -ga
Encl.

Don Hargrove

January 17, 1955

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report of activity at Tombstone for the first half of January 1955.

DD Hole No. 8 at DD Station WS 602

This hole was down 314 feet on December 31st; it is now at 775 feet, an advance of 461 feet. Average advance per shift was 19.2 feet or 38.4 feet per day. Very little mineral has been intersected. Two cavities were encountered as shown on the drill log. These can be fairly well correlated with the downward projection of the West Side vein structure. Enclosed please find the core log from 187 feet to 739 feet.

Drill Station Preparation

Diamond drill station T-506 was not large enough to accommodate the drill for hole No. 9. Consequently the station was enlarged and timbered. The mud pump has been replaced. Drilling of hole No. 9 is expected to begin tomorrow.

PUMPING

Pumping hours January 1-15, 1955	64.5
Pumping rate	520 GPM
Gallons pumped January 1-15, 1955	2,012,400 Gals.
Gallons pumped to date (incl. Dec. 1953)	157,239,980 Gals.

Water level is 6.5 feet below the West Side 6th level station.

GEOLOGY

244 tons of muck was hoisted from DD Station T-506.

CAMP

1 - accountant (Left for Montrose, January 13)
1 - Clerk-Typist (Part time)
1 - Hoistman-mechanic
1 - Hoistman-Electrician
4 - Miners & timbermen (All but one Diamond Drill helpers)
8

Sincerely yours,

Don Margrove

DM-ga
Encl. 1

January 4, 1955

Mr. Fred Searls, Jr.
Room 1501
1 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on Tombstone activity for the month of December 1954.

DD HOLE No. 6 at DD Station WS 601

This hole was started on August 24th and finished on December 10th. The drill and equipment was moved to DD Station WS 602 to drill No. 8 hole.

Total depth of No. 6 hole is 1500 feet as planned. A great deal of trouble was experienced due to caving areas which had to be cased. During the month the hole was advanced from 1395 feet to 1500 feet. Average advance was 9.58 feet per shift or 19.16 feet per day. The last 115 feet was drilled EX. AX core was obtained above that level. After drilling was completed the hole was surveyed, using acid, and then was surveyed by the geophysical crew.

DD HOLE No. 7 at Station T-506

This hole was started on October 21st and completed, to a depth of 1650 feet on December 22, 1954. It was advanced from 981 to 1650 feet during the month. Average advance was 18.08 feet per shift or 36.16 feet per day. All core from this hole is BX, except the first 9 feet which is NX. The hole was drilled through the Bisbee shale, a distance of 363 feet with a 3-7/8" tricone rock bit.

Geological logs and an assay map of this hole have been forwarded to you.

The hole was surveyed, using acid, and was surveyed by the geophysical crew. We have 9 feet of 4" pipe cemented into the collar of the hole and plastic casing down past the last open fissure. The hole is capped so that further geophysical work can be done.

DD Hole No. [illegible] at DD Station WS 602

This hole was started on December 21st. Fifteen feet of HX core was cut. The hole was started in a fault and so was reamed and cased to 62 ft. HX core was cut from 15 feet down. On December 31st it was advanced to 314 feet. Average advance per drilling was 27.15 feet per shift or 54.30 feet per day. The core log has not been completed as yet, but in general we are traversing alternating areas of calcium silicate and recrystallized limestone. Some pyrite is to be seen but very rarely have I seen specks of lead, copper or zinc. Enclosed please find the log to 187 feet.

DRILL STATION PREPARATION

DD Station WS 602 was completed and modified to allow No. 8 hole to be drilled on a 60° angle instead of an 80° angle as originally planned.

PUMPING

Pumping hours for December- - - - - - - - - -	14.5
Pumping rate- - - - - - - - - - - - - - - - -	520 GPM
Gallons pumped December - - - - - - - - - - -	452,400 Gals.
Gallons pumped to date (incl. Dec. 1953)- -	155,227,580 Gals.

GENERAL

Core boxes and core storage racks are being built as required.

The GMC pick-up was repaired. It required a new ring gear and torque tube.

The Ford Cab over Truck is being repaired, a new bed is being built by the mechanic-hoistmen in his spare time.

70 tons of muck was hoisted from the modification of DD Station WS 602.

Several of the mine dumps were checked for radioactivity as noted in the December 15th report.

CREW

1 - Accountant
1 - Clerk-typist (part time)
1 - Hoistman-electrician
1 - Hoistman-mechanic
4 - Total

Sincerely yours,

DH-ga

Don Hargrove

Correspondence
L. 3 247

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

December 1, 1954

RECEIVED
DEC 6 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on activity at Tombstone for the month of November 1954.

DD HOLE NO. 6 AT WS STATION 601

This hole has been drilled from 990 to 1395 feet, a distance of 405 feet. It has been reamed and cased to 1390 feet with AX casing. Drilling is continuing with EX equipment. Average advance was 8.1 feet per shift or 16.2 feet per day, plus the reaming.

Enclosed please find a log of this hole from 1217 feet to 1372 feet.

DDH HOLE NO. 7 AT DD STATION T-506

This hole was deepened from 275 feet to 981 feet, a distance of 706 feet. The hole was drilled to 363 feet with 4¼" tricone rock bits. From 363 to 372 feet we cut NX core in Novaculite. NX casing was installed to 363 feet.* From 372 feet on down the hole is not cased and has not caved. The hanging wall of the Tranquility fault was entered at about 287 feet and was traversed to 360 feet. This gives us a steeper dip to the fault than was at first anticipated. We have cut some fair galena, sphalerite and chalco-pyrite mineralization between 863 and 868.5 feet, a distance of 5.5 feet. This core has not been assayed as yet, but it is the best mineralization we have seen to date in any hole. Enclosed please find a log of this hole from 537 feet to 969 feet. We are continuing to cut BX core. Average advance was 14.4 feet per shift or 28.8 feet per day.

DRILL STATION PREPARATION

DD Station WS-602 has been cut and a raise driven 33 feet above track level. Timbering is nearly completed. The sump has been prepared. The miners have not worked on this job steadily as they were needed on various other jobs (Geophysical survey, diesel compressor overhaul, etc.).

PUMPING

Pumping hours November - - - - - - - - - - - - - - - - -	28.0
Pumping rate- -	520 GPM
Gallons pumped November - - - - - - - - - - - - - - - - -	873,600 Gals.
Gallons pumped to date (Incl. Dec. 1953)- - - - - - - -	154,775,180 Gals.

* BX casing installed to 372 feet.

The water level is now 7.9 feet below the West Side shaft sixth level. It has risen 1.3 feet during November.

GENERAL

A new pinion gear was installed on the hoist motor.

A new head gasket was installed on the diesel engine used to drive the portable compressor. Fuel consumption averages 4.9 gallons per hour.

A core splitter was built in the shop.

212 tons of muck was hoisted from T-506 and WS-602 DD Stations and sumps.

TREE FARM

A copy of the report submitted by Mr. R. Z. Callaham of the Forest Service was sent to you on November 16th.

CREW

1 - Accountant
1 - Hoistman-Electrician
1 - Hoistman-Mechanic
2 - Miners and General Utility

5 - Total

Joy Manufacturing Company has four drillers and four helpers. (Two men per shift on each of the two drills.)

Sincerely yours,

Don Hargrove

Don Hargrove

DH-rog
2 Encls.

November 1, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on activity at Tombstone for the month of October 1954.

DDH No. 6 at WS Station 601

This hole is now at 990 feet. It was necessary to ream and case with AX casing to 890 feet. The hole is now in good condition, no further caving areas have been encountered. The hole was logged by the geophysicists before it was cased. Results have not been received as yet.

Enclosed please find core log from 931.5 to 989 feet. We are sending, under separate cover, some pieces of the fractured core, which shows the best mineralization I've seen in this hole. We are also sending similar material out for assay. There is about one foot of this broken, mineralized core at 976 feet. From 984 to 986 the core shows a finely disseminated black mineral which I presume to be magnetite. A piece of this core is being sent to you and some will be assayed.

In general the core is showing more mineralization below 958 feet.

G.S.I. SURFACE DRILL

Enclosed please find a print of a section showing all four surface holes. That is, RDH D-2, RDH D-10-A, RDH D-1-A and RDH D-6. Also enclosed is a print of a section of RDH D-2 and a detailed log of the cuttings from this hole. The lime beds in the Bisbee group are evidently faulted and repeated in this hole too.

Enclosed please find a detailed daily report on GSI work for the month of October. D-6 was drilled from 485 to 1187 feet, or 702 feet, and D-2 was drilled 1155 feet. A total of 1857 feet for the month.

D-2 was surveyed, using acid, the survey is shown on the print. It was also surveyed by the geophysical crew. We do not have the report as yet. No mineralization, except pyrite and manganese, was seen in the cuttings.

Average advance on D-2 was 4.34 feet per hour, which includes all repair and down time. This cost $3.39 per foot which is nearly twice our estimate. Our estimate of drill rig rental was $1.71 per foot, based on a 200 foot per day advance. Actual advance averaged only 104.16 feet per 24 hours. The hole was finished on October 25th and the crew left for California.

DDH No. 7 at Station T-506

This hole was collared on October 19th at Station T-506, coordinates 785S and 1500E. Bearing is N80°W (changed after discussion from S69°W), inclination is minus 80°. It is being drilled with 3-7/8" rotary tricone rock bits and mud. It is now down to 275 feet; enclosed please find a detailed log of the cuttings to this depth. One small bed of lime has been cut. Mineralization consists of some pyrite and manganese. 18 shifts were spent drilling the 275 feet, giving an average advance of 15.3 feet per shift.

DRILL STATION PREPARATION

27 feet of the WS644XC was rehabilitated, as reported in the mid-month report. No further work has been done on this station as the miners were occupied moving the Joy drill into Station 506, enlarging Station 506, helping the geophysical survey crew and helping install another air receiver and pipe for the portable compressor.

PUMPING

Pumping hours for October- - - - - - - - - - - - -	14
Pumping rate - - - - - - - - - - - - - - - - - - -	520 GPM
Gallons pumped October - - - - - - - - - - - - - -	436,800
Gallons pumped to date (Incl. December 1953) - -	153,901,580

The water level is now 9.2 feet below the West Side Sixth level, which is 0.9 feet rise in the last two weeks.

GENERAL

A screen, similar to the Denver-Dillon was fabricated in our shop and installed at the underground drill at station T-506.

An air receiver was installed near the collar of the West Side shaft. The portable compressor is hooked up to it.

We found that we did not have quite enough air for both underground drills, even with all three compressors running steadily. This installation has helped considerably.

100 tons of muck was hoisted from the WS644XC and the T-506 DH station.

TREE FARM

An examination of the condition of the trees was made, in person, by Mr. R. Z. Callaham, Entomologist of the U. S. Department of Agriculture, Forest Service, Berkeley, California, on October 25th and 26th. We will forward a copy of his report to your office when it is received.

On October 26th we forwarded a verbal report, given to us by Mr. Callaham, to your office.

CREW

1 - Accountant
1 - Hoistman-Mechanic
1 - Hoistman-Electrician
2 - Miners - General Utility
2 - Samplers on Surface Drill. (Laid off 26th)

7 - Total

Sincerely yours,

Don Hargrove

DH-rog
6 Encls.

20

October 2, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report of activity at Tombstone for the month of September 1954.

JOY UNDERGROUND DIAMOND DRILL

This 22-HD air driven drill is set up at Station WS601 drilling DDH No. 6. Bearing N65°W minus 84°. This hole was down 288 feet on August 31st. It is now at 930 feet. Enclosed please find the core log from 746 feet to 931 feet. Drilling has been difficult the last period due to a fault which was cut at about 880 feet. Cementing was unsuccessful, the caving area was finally by-passed and did not cause trouble for sometime. Reaming and casing may be necessary, Eklund was to order sufficient AX casing to handle this possibility.

The hole was surveyed, using acid, at 300 feet; dip was 83.5° and at 600 feet it showed 84°, both readings have been corrected for capillarity. No important mineralization has been found as yet.

Total footage this drill for September - 642 feet on a two shift basis, or an average of 12.84 feet per shift.

G. S. I. SURFACE DRILL

Drill Station D10A

This drill, set up at surface drill station D10A was down 570 feet on August 31st. The tools were lost at 637.5 feet. The hole was abandoned after fishing was unsuccessful. A log of the cuttings from 0 feet to 637.5 feet was sent to you on September 16th. This hole was drilled with 6-1/4" bits.

Drill Station D-1-A

The drill was then moved to surface station D-1-A. Drilling was started on September 14th and the hole was finished on September 28th at a depth of 1005 feet, using 4-3/4" bits. Results, regarding the exact position of the 6 foot, 10 foot and 50 foot limestone beds, is not entirely clear. We should have gone deeper but had no more drill steel. A print of a section of this hole is enclosed. The log

of the cuttings obtained from this hole from 560 feet to the bottom at 1005 is also enclosed. The hole was surveyed, using acid, and the results are shown on the print.

Drill Station D-6

The drill was moved to station D-6 on September 28th. The actual collar of this hole is 20 feet NW of Station D-6 as D-6 is located in the bottom of a narrow wash. Coordinates of the collar of the hole are 875S. and 1620 E. This hole was down 485 feet on September 30th. Sampling was started at 136 feet below the surface as Tony Giacoma told me that they had found several bodies of good ore in the shale up near the 200 and 300 level. Evidently some of this ore ran up to 3 oz. Au and 150 oz. Ag. From Tony's description the ore was found in yellowish colored sandstone or quartzite beds.

Total footage drilled during September by this drill was 1557.5 feet at a cost of slightly over $4.00 per foot. Bit life averaged about 100 feet per bit. (Using the Hughes 4-3/4" W7R tricone bit).

DRILL STATION PREPARATION

A crew of two miners was started on the West Side sixth level (WS640 Drift) in preparation for cutting drill station WS602 at the east end of WS644XC. (Under the Toughnut Shaft). The car transfer was installed, and the turn from the WS640 drift to the WS644XC was slabbed and tracked. 43 feet of the 644XC was rehabilitated.

PUMPING

Pumping hours- - - - - - - - - - - - - - - -	6
Pumping rate - - - - - - - - - - - - - - - -	520 GPM
Gallons pumped September - - - - - - - - - -	167,200
Gallons to date (Incl. December 1953)- - -	153,464,760

The water level has risen more rapidly during the last part of September. It is now 11.0 feet below the sixth level of the West Side shaft.

GENERAL

Muck hoisted - 50 tons from the car transfer and the turn to the WS644XC.

CREW

1 - Accountant
1 - Hoistman-Mechanic
1 - Hoistman-Electrician
2 - Samplers on G.S.I. surface drill
2 - Miners (started on September 22nd)

7 - Total

Sincerely yours,

Don Hargrove

DH-rog
3 Encls.
1 Print
2 Logs

September 1, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on Tombstone activity for the month of August 1954.

CROSSCUTTING AND DRIFTING

No crosscutting or drfiting was done this month.

DIAMOND DRILL STATIONS

DD Station No. 506 (deep hole station) was timbered. (TDC account).

DD Station West Side No. 601 was slabbed at the station level and timbered. (TDC account).

Additional slabbing and timber was also necessary at station 501 to accomodate the large Joy drill.

A short raise was run and timbered to accomodate the drill in the Empire drift, where we drilled the two horizontal holes "A" and "B" and the upward inclined holes No. 5 and No. 4. This work has been terminated, the drill was moved out August 16th. No ore was found.

DIAMOND DRILLING

Drilling this month consisted of the following:

Empire DDH No. 5; N56° 30'W plus 70°, depth 66 ft. The last 14 ft. in shale.

Empire DDH No. 4; N36° 30' plus 65°, depth 90 ft. The last 14 feet of this hole was also in shale. No commercial mineralization was cut.

Total footage drilled during August by MacPherson was 156 ft.

Enclosed please find a geologic section and plan of DDH No. 1 at Station 501 drilled by MacPherson. Logs of Hole No. 1 and 1a are also included.

JOY UNDERGROUND DRILL

This drill started on a hole at station T-501 parallel to Machersons No. 1 hole. Bearing S45 E minus 80°. Drilling was started on August 17th. Drilling was carried on for five shifts. Depth at the end of this time was 21 feet. This hole was started with NX equipment and mud. Two NX bits were badly worn in this distance.

The Joy drill was moved to Station 601 near the West Side shaft. Drilling started on this Hole (DDH No. 6 at WS Sta. 601) on August 24th. Bearing N65°W minus 84°. This hole is now down 288 ft. Naco limestone was entered at 193 ft. Core recovery has been excellent. Average advance has been nearly 50 feet per day. Advance expected to be much better now that we are in the limestone. Enclosed please find a geologic section of this hole to date.

G.S.I. SURFACE DRILL

This drill set up at drill station D-10A. Drilling started on August 17th. The drillers worked 12 days, 10 hours per day, or 120 hours to put the hole down 570 feet, thus averaging 4.75 ft. of hole per hour. Actually the ground drills faster than this as the drillers lose two or more hours each day mixing mud, making minor repairs, etc.

The collar of this hole (D-10A) is 457 ft. above the T-540 (sixth level) crosscut. We are, therefore, 113 ft. below the sixth level, assuming a vertical hole, which we know it is not.

A Dillon Denver vibrating screen, 10 mesh, has been installed to save the cuttings. It is working quite satisfactorily. We are using a splitter and cutting a sample from each 2.5 ft of hole drilled.

The rental contract starts on September first. Comparative cost figures are being compiled and will be sent to you as soon as possible, showing differences in cost between the surface and underground drills including overhead and indirect costs on each.

PUMPING

Pumping hours- - - - - - - - - - - - - - - - - - - -	9
Pumping rate -	520 GPM
Gallons pumped August- - - - - - - - - - - - - - - -	374,400
Gallons to date (incl. December 1953)- - - - - - -	153,277,580

The water level is 12.9 ft. below the sixth level in the West Side shaft and at the same elevation at the Silver Thread winze.

GENERAL

67 tons of muck was hoisted from slab rounds at diamond drill stations.

Power bill for August was $515.70, practically all of this was consumed by the compressors making air for the diamond drills.

CREW

The last three timbermen finished the drill station timbering, moving drills, etc., and were laid off on August 24th. The crew now consists of the following:

1 - Geologist
1 - Accountant
1 - Hoistman - Mechanic, day shift.
1 - Hoistman - Electrician, PM shift.

4 - Total

A sampler was put on the surface rig on September first as we are getting near the ore zone.

We are sending a list of drill holes showing our designation and drilling contractor performing the work.

Sincerely yours,

DH-rog
6 Encls.

Don Hargrove

August 1, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report on July activity at Tombstone.

TRANQUILITY FIFTH LEVEL NEXC
T540XC

This heading was advanced 281.3 ft. from July 1st to 14th. Connection was made with the Silver Thread fourth level SE crosscut on July 14th. Average advance was 9.07 ft/shift or 27.21 ft/day.

SILVER THREAD FOURTH LEVEL SEXC
ST 410XC

Drift equivalent of 24 ft. was required at the junction of the Silver Thread SEXC and the Tranquility NEXC in order to make the turn. 63 ft. of the Silver Thread 410XC was rehabilitated. Track was installed to the winze and the winze bulkheaded. Track grade at the connection (using old survey data) was off only 0.3 ft.

DRILL STATIONS ALONG THE TRANQUILITY NEXC
T540XC

The following work was done on these stations:

Station No.	Crosscut Feet	Raise Feet	For account of
T-503	-0-	4.0	NEL - Lease Account
T-504	16.0	13.0	" " "
T-505	17.0	8.0	" " "
T-506	39.0	23.0	Tombstone Dev. Co.
T-507	20.0	8.0	NEL - Lease Account
T-508	23.0	7.5	" " "
West Side Deep Hole - WS601	-0-	16.5	Tombstone Dev. Co.

Total footage for July is as follows:

New Drive	Rehabilitation	Raises
420.3 Ft.	63.0 Ft.	80.0 Ft.

Total for the year to date:

New Drive	Rehabilitation	Raises
2399.0 Ft.	1924.3 Ft.	111.5 Ft.

Total - 4434.8 ft. (Estimate of this work last December was 2600 ft. of new drive and 2000 ft. of rehabilitation or a total of 4600 ft.)

Average advance of new work from Station 616A, March 1st to July 14 is as follows:

Average advance per contract shift - - - - - 6.58 Ft.
Average advance per contract day - - - - - - 19.74 Ft.
Rehabilitation averaged about 75 ft/day.
43.5 shifts were lost due to hoist failure

RAISE TIMBERING

T-506 (the deep hole station) is currently being timbered for TDC account. WS601 station will be timbered when this is finished. The short hole stations have been left untimbered as you suggested.

We installed ladders and landings in the 95 ft. raise which connects the Silver Thread 410XC with the Silver Thread third level in order to get the geology of the third level.

DIAMOND DRILLING

Drill hole No. 1 from Station T-501, Bearing S45°E dip -80° was finally abandoned at 200 ft. Core recovery was very poor.

Diamond drill Hole No. 2, drilled from Station T-502 was abandoned at 45 ft. Core recovery was very poor. MacPherson took one of the small drills back to Leadville. The other was set up in the Empire drift as shown on the enclosed print. The two flat holes shown were to give us information so that we could spot the Number 4 and or 5 holes to better advantage. These flat holes were in dike, limestone and shale. Core recovery was good. Total footage drilled to date is 98 ft. in the flat holes.

GENERAL

All the 18" vent pipe has been reclaimed and stored underground. The 12" ventu[illegible] (from the WS North Drift) has been brought

to surface to dry and will be returned underground for storage in a dry atmosphere.

Our third Safety Meeting was held on July 16th.

3318 tons of muck were hoisted.

Geological work consisted of 18.5 days of surveying and drafting, and 7 days of mapping. Enclosed please find prints showing advance and surface drill stations.

PUMPING

Pumping hours - - - - - - - - - - - - - - - - - -	223.5
Pumping rate- - - - - - - - - - - - - - - - - -	520 GPM
Gallons pumped July - - - - - - - - - - - - - -	6,973,200
Gallons to date (Incl. December 1953) - - - - - -	152,903,180

The pumps were shut down on July 27th. Water level is now 16.0' below the 6th level station in the West Side shaft.

TREE FARM

We have not watered the trees for several weeks due to the heavy rain storms we've been having. Garrison has five transplanted gum seedlings growing that are about 4" high.

CREW

During most of the month the crew consisted of the following:

1 - Superintendent
1 - Geologist-Engineer
1 - Geologist Assistant
1 - Accountant
1 - Mechanic
1 - Electrician
3 - Hoistmen
3 - Skiptenders
3 - Motormen
8 - Miners
23 - Total

On July 27th most of the crew was laid off and now consists of the following:

1 - Accountant
1 - Geologist-Engineer
1 - Hoistman-Mechanic
1 - Hoistman-Electrician
3 - Timbermen - (TDC high raises)
7 - Total

The Tombstone Development timbermen will be laid off as soon as the two raises are finished.

Sincerely yours,

Don Hargrove

DH-rog
3 Encls.

30

July 2, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The following is a report on Tombstone activities for the month of June. Enclosed please find colored prints showing advance.

TRANQUILITY FIFTH LEVEL SE CROSSCUT (T530XC)

This crosscut was advanced 194.9' where it was stopped 145 ft. SE of the Tranquility fault. A raise was run up to 15 ft. and timbered for a diamond drill station near the face of this crosscut. (DD Station 501).

Average advance in this heading was 6.5 ft/shift or 19.5 ft/day. Part of this work was in breccia near the foot wall of the fault. The rest in Naco in the footwall of the fault and shale in the hangingwall.

TRANQUILITY FIFTH LEVEL NE CROSSCUT (T540XC)

Advance for the month in this heading was 386.2 ft. We are now 285 ft. from our proposed connection with the Silver Thread crosscut.

Average advance was 8.0 ft/shift or 24.0 ft/day. (Including footage of car transfer stations which will be used for diamond drill stations).

Only one set of timber has been necessary in this crosscut.

WEST SIDE SIXTH LEVEL BOSS DRIFT REHABILITATION (WS630XC)

We cleaned up 150 ft. of this drift and installed new ties where necessary. Air and water line was installed. We were able to use the old rail. A blower was installed, and the discharge bulkheaded off.

WEST SIDE SIXTH LEVEL CROSSCUT
(WS633XC)

This heading was advanced 94.5 ft. Average advance was 3.6 ft/shift or 7.2 ft/day. One car transfer station was cut. Formation was limestone conglomerate until quartzite was cut near the face.

A raise was driven 12 ft., (18 ft. above track level) for DD Station WS601. This raise is in extremely dangerous ground and is being handled cautiously.

DIAMOND DRILL STATION 502

This station is located near the end of T512XC as shown on the enclosed map. 460 ft. of air line and 460 ft. of water line was laid to this station. The drift was not rehabilitated. A raise 7.5 ft. was run to give DD Station 502 15 ft. of clearance above track level. A sump for drill water was also blasted out.

DIAMOND DRILL HOLE No. 1

This hole is down 80 ft. No line can be seen in the core. The shale is extremely friable.

Casing installed - 31 ft. (3 ft. of BX and 28 ft. of AX).

The hole has been cemented every few feet. Sludge recovery has been fair. Enclosed please find Joe McDaniel's log of this hole.

GENERAL UNDERGROUND

(a) Total crosscut footage for month - - - 712.1 Ft.
(Including car transfers)
Total Rehabilitation - - - - - - - - - - 190.0 Ft.

Total Raising- - - - - - - - - - - - - - 31.5 Ft.

Total footage- - - - - - - - - - - - - 933.6 Ft.

(b) The West Side 630 drift south on Boss Dike was completed to the south face. About 2/3rds of this area has been mapped. The Tranquility 500 level from Station 561 to the present face has been surveyed and mapped. The Tranquility 500 SE of the shaft has been mapped.

(c) Muck hoisted - 2456 tons.

PUMPING

Total pumping hours 608 out of a possible 720 hours.
Down time due to Sunday shutdowns, 96 hours.
Down 8 hours to replace bearing.
Down 8 hours due to power failure and low voltage conditions.
Pumping rate 520 GPM
Gallons pumped in June - - - - - - - - 18,969,600
Total gallons to date (Inc. Dec.53)- 145,929,980

The enclosed print shows the water table as follows:

West Side Shaft - - - - - - - El. 4062.5
Sulphuret Hinge - - - - - - - El. 4100.7
Silver Thread - - - - - - - - El. 4100.1

TREE FARM

The two year old trees are thriving nicely. The ants and rabbits have molested about half of the yearling trees. Garrison has about one-half dozen gum sprouts about 18" high.

CREW

1 - Superintendent
1 - Geologist-Engineer
1 - Accountant
1 - Mechanic
1 - Electrician
3 - Hoistmen
3 - Skiptenders
3 - Motormen
10 - Miners (6 in Tranquility XC - 4 in WS601
24 - Total DD Site and T502 DD Site).

FINANCES

Roy Garrison will have the financial statement out in a few days. Our crosscutting cost should be about $30.00 per ft.

Sincerely yours,

DH-rog

Don Hargrove

7 Encls.
6 prints
1 log DD

Monthly average advance New Work - - - - - - - - - 5.85 Ft/shift
Monthly average advance New Work - - - - - - - - -17.55 Ft/Day

Monthly Average Rehabilitation - - - - - - - - - -24.00 Ft/shift
Monthly average rehabilitation - - - - - - - - - -72.00 Ft/Day
(Including mucking, timber, track, pipe and power cable.)

GEOLOGY

The face of the Tranquility 5th Level SE Crosscut is now about 60 ft. from the Tranquility fault. We are in a brecciated zone which has considerable secondary quarts and calcite. Some of the calcite is black showing considerable iron content, but does not have siderite cleavage. Spots of pale yellow iron oxide are visible. No base metal mineralization is visible. We will sample it for gold and silver. The zone looks like an ideal locus for mineralization, but this particular spot evidently missed out. I think further investigation of this zone is desirable.

Joe McDaniel has completed mapping the W. S. 600 level to the connection with the Tranquility 500 level. The survey and mapping of the W. S. 600 Boss dike drift south is underway.

GENERAL UNDERGROUND

1689 tons of muck were hoisted.

The Tranquility connection was very satisfactory.

The blower was moved from the Girard raise to the Tranquility fifth level.

PUMPING

The pumps operated 624 hours during the month. They were down 120 hours on Sundays.

Pumping rate 520 GPM.

Gallons pumped this month - - - - - - - - - 19,468,800
Gallons to date (Including December 1953) 126,960,380

The water level now holds about 37 ft. below the West Side Sixth level.

The Water has receded 1.54 ft. at the Sulphuret and Silver Thread during the month.

Water elevation there is now 4102.2. The enclosed print will show the water table.

SURFACE GENERAL

Our first Safety Meeting was held May 13th.

The old Eimco Loader was partly overhauled but not quite finished in May.

TREE FARM

The trees are doing quite well. The two year olds are not bothered by the ants and rabbits as much as the yearlings. The second planting of gum tree seeds sprouted but did not grow enough to determine any results. Less than 1/10 % of the seeds sprouted.

CREW

1 - Superintendent
1 - Geologist
1 - Accountant
1 - Geologist-Engineering Asst.
1 - Mechanic
1 - Electrician
3 - Hoistmen
3 - Skiptenders
3 - Motormen
7 - Miners (6 in SEXC - 1 Boss Drift)
1 - General Utility
23 - Total

FINANCES

Roy Garrison will have the financial report out in a few days.

Sincerely yours,

Don Hargrove

DH-rog
2 Encls.

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

May 1, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

Following is a report of Tombstone activities for the month of April 1954.

WEST SIDE 6TH LEVEL - EAST CROSSCUT

The enclosed colored print shows the advance for each two week period.

Advance for month - - - - - - - - - - - - - - - -	314.8 ft.
Average advance per shift - - - - - - - - - - - -	6.0 Ft.
Average advance per day - - - - - - - - - - - - -	18.0 Ft.
Contract shifts lost during month - (Lost due to hoist repair)- - - - - - - - - - - -	25.5
Footage lost during month at average rate of advance - - - - - - - - - - - - - - - - - - -	153.0
Contract shifts worked during month - - - - -	52.5

The above footage does not include slab rounds at the Girard turn or car transfer stations cut.

The blower was moved from the south drift to the Girard raise. The normal down cast of air through the Girard has been reversed by this procedure.

WEST SIDE 6TH LEVER - NORTH DRIFT

The enclosed print shows the 22.0 ft. of crosscutting done to the NW from the turn of this drift. This work is in Novaculite.

Total footage for the month equals 336.8 Ft.

GENERAL WEST SIDE 6TH LEVEL

(a) The deep well turbine pump was pulled. A new suction strainer of 8 mesh was installed. Impellers are in good condition.

(b) 1934 tons of muck were hoisted.

(c) 103 samples were cut on the sixth level, along the West Side vein, the [illegible] Dike and on mineralized fractures along the east cro[illegible]. An assay map will be

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P. O. BOX 326
TOMBSTONE, ARIZONA

prepared when returns are received.

PUMPING

The pumps operated a total of 620 hrs. 40 min. out of a possible 720 hours. The down time on the pumps is as follows:

1.	Change suction strainer - - - - - - - - -	31 hrs.	05 min.
2.	Power failure and low voltage - - - - - -	2 "	30 "
3.	Repair pressure gauge pipe- - - - - - - -	0 "	30 "
4.	Sunday shut downs - - - - - - - - - - - -	65 "	15 "
	Total- - - - - - - - - - - - - - - - - -	99 hrs.	20 min.

The water level is now 37.33 Ft. below the West Side-6th level. The enclosed print shows the elevation of the water at the Silver Thread and Sulphuret also.

Pumping rate - - - - - - - - - - - - - - - - - 520 GPM
Gallons pumped during April - - - - - - - - -19,364,800
Gallons to date (Including December 1953)
107,491,580

GEOLOGICAL WORK

(1) West side 6th level sampled.

(2) West Side 6th level geology mapped except the south drift along the Boss Dike.

(3) Tranquility-Empire 300 level geology mapped.

(4) Empire 200 level geology mapped.

The 6 ft. and 10 ft. beds in the lower Cretaceous, above the 50 ft. limestone, are being investigated in the horst block between the Empire dike and the Tranquility fault to determine mineralization possibilities of these beds in the down thrown block east of the Tranquility fault. Joe McDaniel has reached the tentative conclusion that these beds should be well mineralized where cut by fissures and that they will be above water level for at least a short distance in the center of the anticline. This work is being continued as you suggested.

SURFACE GENERAL

(1) The No. 2 compressor has been installed and is in operating condition.

(2) The bay housing this compressor is completed.

(3) A change room has been installed and is being used.

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P. O. BOX 326
TOMBSTONE, ARIZONA

(4) The West Side single drum hoist was repaired. It is now expected to operate satisfactorily.

(5) A 15 hour first aid program was given all employees. Proficiency cards were distributed.

TREE FARM

Two of the yearling trees have died. One of the two year olds died. Rabbits and ants have molested some, but have not killed them.

A sprinkler system was installed to water the trees.

The seeds which you furnished that we planted on April 14, 1954 have not come up as yet. Two small green leaves are coming through in one can, but we cannot determine what it is at this time. The weather has been cool here the past 10 days which probably retarded their growth.

CREW

1 - Mine Superintendent
1 - Geologist-Engineer
1 - Accountant
1 - Geologist Assistant
1 - Mechanic
1 - Electrician
3 - Hoistmen
3 - Skiptenders
3 - Motormen (E X-Cut)
6 - Miners (2 each shift - E X-Cut)
1 - Carpenter - General Utility
22 - Total

FINANCES

The financial statement will be in New York before the 10th of May.

Sincerely yours,

Don Hargrove

DH-rog
2 Encls. - Prints

NEWMONT EXPLORATION LIMITED
P. O. BOX 326
TOMBSTONE, ARIZONA

April 2, 1954

AIR MAIL

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The following is a report on Tombstone activities for the month of March 1954.

WEST SIDE 6TH LEVEL EAST CROSSCUT

The enclosed colored prints will show the advance for each half of the month. The total advance for March was 363 ft. Average advance per contract shift was 5.35 ft. Average daily advance 16.00 ft. Twelve shifts werelost during the month due to failure of the hoist motor pinion gear. We have 120 ft. to go to connect with the bottom of the Girard raise. This connection will be made on April 8th at the present rate of advance.

Two car transfer stations were cut and the transfer moved twice. An I-21 blower was installed near station 618.

WEST SIDE 6TH LEVEL NORTH DRIFT

574.8 ft. of the north drift was mucked out. Track, pipe and ventube installed. 116 ft. of this drift back was timbered under old stopes and raises. An I-21 blower was installed at the juncture of the north drift and the east crosscut. One car transfer station was cut. Eight shifts were also lost in this drift due to the hoist failure.

SOUTH CROSSCUT 6TH LEVEL (TAIL ROOM)

This crosscut was advanced an additional 12.3 ft. to accomodate muck trains. We can now dump a 5 car train at the pocket.

GENERAL, WEST SIDE 6TH LEVEL

(a) The battery charging station was completed. An I beam and hoist was installed to handle batteries.

(b) Two Mancha Little Trammers and four batteries were lowered.

(c) Eight of the new 30 cuft. cars lowered and in use.

(d) An air actuated chute gate was installed in the sixth level pocket.

(e) 2332 tons of muck was hoisted from the sixth level.

PUMPING

The pumps operated a total of 613 hours out of a possible 744 hours. 131 hours were lost due to the 100 HP station pump motor failure.

The water came up from 38 ft. below the 6th level to 12.5 ft. below the level. Rate of rise averaged 0.225 ft. per hour for the first 113 hours. Hoisting was not interrupted.

Gallons pumped during March....19,125,600
Gallons pumped to date including December.....88,126,780
Pumping rate 520 GPM.

The enclosed print shows the present water table. Water elevation at the West Side is now 4080.79, up 0.41 ft. since March 17. Elevation at the Sulphuret winze is 4104.78, down 0.20 ft. since March 17.

WEST SIDE AREA

Concrete poured for new bay on south end of compressor building.

Forms built for foundation for change room.

The Tombstone Development Company office building jacked up ready to move to be used as a change room.

LEASES

The Edaled lease is inactive. Mr. Lindstrom has agreed to let us rent the compressor that he has set up at the Toughnut shaft to do the diamond drilling in that area.

John Giacoma opened up 283 ft. of the West Side 4th level south drift, including 13 ft. of spiling ground.

The face is now approximately 500 ft. south of the shaft. Mr. Giacoma found that the ore had been stoped both below and above the level. The area below the level is gobbed. Work has been suspended although he has not given formal notice of

abandonment of the lease.

GEOLOGY

The geology of the West Side sixth level, both the north drift and east crosscut has been mapped to the face.

The Empire 400 level winze and stopes below the 400 of the winze has been mapped. Also the 400 level NE of the Empire shaft has been completed.

Sections were drawn of the Toughnut and Empire area to assist laying out the diamond drill holes.

Joe McDaniel also spent three days in the Oregon-Prompter area and three days on West Side Surveys.

TREE FARM

We still have 319 live trees. Ants have denuded three and last nite a rabbit cut four of the yearlings off flush with the ground.

POWER

The power bill for March was $907.50.

COSTS

We do not have accurate costs but a close estimate would indicate a cost of about $35.00 per foot on the West Side east crosscut and less than $10.00 per foot on the north drift rehabilitation.

CREW

The crew consists of the following:

1 Superintendent
1 Geologist
1 Mechanic
1 Electrician
1 Geologist & Engineering asst.
1 Accountant
3 Hoistmen (West Side)
3 Skiptenders (West Side)
6 Miners (West Side 6th Level East Crosscut)
3 Trammers " " " " " "
4 Miners (West Side 6th Level N. Drift)
1 General Utility
20 Total

Sincerely yours,

DH-rog
4 Encls. Prints

Don Hargrove

P. O. Box 326
Tombstone, Arizona

March 1, 1954

AIR MAIL

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The following is a report of activities at Tombstone for the month of February 1954.

WEST SIDE SIXTH LEVEL

The enclosed colored print shows the advance made during the month. We have been obliged to timber quite a bit of faulted ground as well as open caved places above the drift back. New work in the east heading requires occasional timber due to a fault and solution-stoped ground.

ADVANCE FEBRUARY 1st-15th Inc'l.

NEW WORK

6th Level NE	65.5 Ft.
6th Level SW	5.0 Ft.

REHABILITATION OF OLD DRIFTS

6TH Level S. XC 25.0 Ft.

Timber installed - 9 sets

ADVANCE FEBRUARY 16th-28th Inc'l.

NEW WORK

6th Level E	27.1 Ft.
6th Level SW	7.0 Ft.

REHABILITATION OF OLD WORKS

6TH Level NE Drift	246.5 Ft.
6th Level E. XC	136.0 Ft.
6th Level S. XC	60.0 Ft.

Timber installed 14 sets

TOTAL ADVANCE FOR FEBRUARY

New Work..... 124.6 Ft.
Rehabilitated..... 467.5 Ft.
Total Timber installed 23 sets

GENERAL SIXTH LEVEL

Miners are on contract at a rate of $8.00 per ft. for new work and $2.00 per ft. on rehabilitation work.

A car transfer was installed in the east crosscut.

The 25 HP blower was installed in the south crosscut.

The battery charger installed in the NE drift.

1074 tons of muck was hoisted from the 6th level.

PUMPING

Total pumping time for the month was 664 hours 10 minutes out of a possible 672 hours. Down time was due to:

(1) Pulley head on station pump	2 hrs.	35 min.
(2) Electrical connections (Hookup)	2 "	25 "
(3) Air vents on discharge line	0 "	25 "
(4) Installion of tree watering line	0 "	55 "
	6 hrs.	20 min.
(5) Power failure - - - - - - - - -	1 "	30 "
Total down time- - - - - -	7 hrs.	50 min.

Water pumped in February..... 21,917,500 Gals.
Total to date..... 57,769,180 Gals.
(Including 3,870,00 in Dec. '53)
GPM pumped 550

Water level in West Side Shaft is now 35' 10" below the 6th level, a gain of 3' 8" for the month. (El. 4061.96)

Water is 2.6 ft. lower at the Sulphuret and Silver Thread (for February) as shown on the enclosed print. (El. 4106.4)

TREE FARM

The 320 pine trees were planted February 10th and 11th. All are thriving.

LESSEES

The Edaled lease is inactive.

The Giacoma lease has done very little. Mr. John Giacoma was ill most of the month. He put two men to work on the fourth level of the W. Side today.

SURFACE

The second compressor has been set on a concrete foundation.

POWER

The power bill has not been received as yet.

CREW

We now have the following men on the payroll:

1 - Mechanic
1 - Electrician
1 - Geologist and engineering Asst.
1 - Accountant
8 - Miners
3 - Skiptenders
3 - Hoistmen
1 - General Utility

19 - Total

Sincerely yours,

Don Hargrove

DH-rog
2 Encls.
Colored prints.

P. O. Box 326
Tombstone, Arizona
Feb. 2, 1954

Mr. Fred Searls, Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The following is a report of activities at Tombstone for January, 1954.

WEST SIDE SIXTH LEVEL

The main haulageway from the station was driven 49.5 ft. to a juncture with the old drift. Sixty feet of caved drift was cleaned out plus another sixty feet of partially caved drift. At a point 9 ft. NE of Sta. 608 and a point 44 ft. east of Sta. 607, we encountered a caved stope which was impractical to try to clean up or timber. We are driving around it to the east as shown on the inclosed map. Advance in this new heading was 19 ft.

New work for month - - - - - -	68.5 ft.
Old drift (including caved area) cleaned and tracked- - -	120 ft.
Tons muck hoisted - - - - - -	1148

A small skip pocket, at the elevation suggested by Jack Mann, was cut and timbered. The grizzly is installed. This pocket is complete except for the installation of an air cylinder which has not arrived.

PUMPING

The two small station pumps did not prove to be practical and were shut down. The combined deep well turbine and station pump (acting as a five stage pump) are now producing 804 GPM as measured on a weir at the surface discharge.

Total pumping time of these units for the month was 727 hours, 40 minutes out of a possible 744 hours, or a loss

of 16 hours and 20 minutes. This lost time was due to changing pumping set-up, 15 hours and 40 minutes; and a 40 minute power failure.

Total gallons pumped during Jan., 1954 was 31,981,680. The apparent discrepancy you may note between G.P. and operating time is due to an increase in pumping rate during the month.

The enclosed graphic print shows the water table as of Jan. 31. The water level is 32 ft. 2 inches below the West Side sixth level and is going down approximately two inches per 24 hours. The water level is being lowered slightly over one inch per 24 hours at the Sulphuret and Silver Thread.

TRANQUILITY SHAFT

Spiling through the bottom of this shaft on the Empire-Tranquility fourth level was completed. The survey has been completed. Geologic mapping of the available areas on the Empire-Tranquility fourth level has been completed. Sampling has been done wherever any mineralization showed.

SURVEY

Joe McDaniel's survey indicates that we can drive level from the end of the old drift NE of the West Side shaft to intersect the Empire-Tranquility fourth level.

TREE PROJECT

320 holes one foot in diameter by 18 inches deep have been dug in the tree plot. We expect to hear from the forestry experts in the near future.

POWER

Power cost for January was $876.00. This, of course, included the compressor, hoist, blower and pumps all on a 24 hour per day operation.

CREW

We have 19 men on the payroll as follows:

1-Mechanic
1-Electrician
4-Hoistmen (7 days a week)
4-Skiptenders (7 days a week)
6-Miners (2 each shift - 3 shifts)
1-Geologist helper
1-Tree plot
1-Office (part time)

FINANCES

We do not have a financial statement from Jerome as yet.

Sincerely yours,

DH/ga

Don Hargrove

P. O. Box 526
Tombstone, Arizona
Jan. 2, 1954

Mr. Fred Searls Jr.
Room 1501
14 Wall Street
New York 5, New York

Dear Mr. Searls:

The following is a report on progress at Tombstone for the month of December, 1953.

WEST SIDE SHAFT

Enclosed please find a print which will show the dam and sump as well as the progress made in the main haulageway on the sixth level.

The sump is roughly 12X30 ft. behind the dam. It supplies the station pump for only about ten minutes when the deep well turbine is down.

The sixth level station has been completed. It is 15 ft. high at the shaft and tapers down to drift height going NE. It is high enough to handle 20 ft. pipe and rail. Advance for the month was 52.4 ft. in the sump plus the slabbing, which totaled about 2100 cu. ft. of rock removed in the sump behind the dam. Advance in the NE main haulageway was 23.5 ft. The SW haulageway was advanced 8.5 ft. Total advance for the month was 84.4 ft. on the sixth level plus the sump slabbing. Total tonnage hoisted was 522.

The 2300 volt 2/0 three conductor power cable was installed from the sub-station (underground in conduit) to the shaft collar, thence to the sixth level. The shaft has been cleaned up and guides installed 3 sets below the sixth level.

PUMPING INSTALLATION

The Deming deep well turbine, rated at 600 GPM at a 220 ft. head was installed in the manway compartment. This

compartment is evidently bulkheaded 80 ft. below the sixth level. The pump suction is set 76 ft. below the sixth level. A concrete dam was poured as shown on the print. A base was poured and the Byron-Jackson 400 GPM, 4 stage, 595 ft. head, centrifugal station pump was installed. Switches were installed in the west crosscut where they are protected from moisture.

Steady pumping was started at 11:30 AM, Dec. 27. Pumping rate is approximately 600 GPM, this is due to the lower head on the station pump. The deep well turbine is producing about 900 GPM for the same reason. We have pumped 107½ hours in December, produced about 3,870,000 gallons and lowered the water in the West Side shaft from a point 3.75 ft. below the sixth level station to a point 19 ft. below the station.

We are currently installing two more small station pumps which will probably increase the output to about 750 GPM.

WEST SIDE FIRST LEVEL SOUTH

The six inch pump discharge line was laid from the W. S. Shaft No. 2 to the gulch and connected to the surface line.

PIPE LINE

A ditch was dug under the Charleston road at its juncture with Tombstone Gulch and the pump discharge line laid under the road.

WEST SIDE - TRANQUILLITY SURVEY

The West Side Shaft was plumbed and a survey completed from the West Side Shaft to the Tranquility - Empire fifth level via the Girard Stope and Raise.

The Sulphuret Shaft was plumbed and the survey completed from the Tranquility Shaft on the fifth level up through the Sulphuret Shaft and over to the West Side Shaft.

TRANQUILLITY SHAFT

Spiling through the cave on the fifth level at the Tranquility Shaft was held up due to compressor trouble

during the first half of December.

It was further held up during the last period because we had to use the tugger to install the deep well turbine.

We ran about 8600 gallons of water down the Tranquility Shaft. This wet the muck so that good progress is now being made. We think we are about half way through the caved area.

SURFACE

The headframe repair has been completed. The portable compressor was repaired. All electrical gear was repaired, before installation.

TREE PLOT

About two acres were enclosed by a suitable 4 wire fence in the gulch below the West Side Shaft. We have under fence nearly all of the suitable land in this gulch east of the Charleston road.

CREW

We now have 18 men on the payroll distributed as follows:

1 Mechanic
1 Electrician
3 West Side Hoist
3 West Side Skiptenders and Pump Men
6 West Side Sixth Level Miners (2 shifts)
1 Sulphuret Hoistman
2 Tranquility Miners
1 Office (part time)

POWER

Our power bill has been adjusted since the meter installation was corrected. Power costs are as follows:

October----------$108.00
November---------- 157.50

We have not received the December bill as yet.

GENERAL

We now have on order sufficient pipe, rail and cars to carry out the 1954 program. Car transfers have been ordered. About 7000 ft. of timber has been ordered. Another 12 ft. bay has been ordered in order to house the second compressor. Total orders, including machine parts and steel and pipe fittings will total about $17,000.00

We do not as yet have a financial statement from Jerome.

Sincerely yours,

DH/ga

Don Hargrove

Box 326
Tombstone, Arizona
December 2, 1953

Mr. Fred Searle Jr.
Room 1501
14 Wall Street
New York, N. New York

Dear Mr. Searle:

Re: Tombstone
Report Nov., 1953

Following is a report of progress for the month of November.

WEST SIDE SHAFT

The shaft has been cleaned down to water level and repaired sufficiently to be safely operated through.

The six inch pump column has been installed from the sixth level to the first level and south along the first level to the West Side No. 2 Shaft.

The three-inch air line has been re-hung from the surface to the sixth level.

A chute at the collar of the shaft was constructed. Dumping irons were installed.

The sixth level station is in process of being cut. Approximately 1,000 cu. ft. of rock has been broken. Sixty-four tons of waste have been hoisted.

Blower installed on the fourth level. Spiratube carried to the sixth level and above the fourth level.

WEST SIDE FIRST LEVEL SOUTH

Advance for the month was 72.5 ft. in this slusher drift and 64.5 ft. during the first half of the month. Eight feet further broke through to the surface in the gulch south of the West Side Shaft. Total footage driven was 186.5 ft. Tugger and

slusher removed for use on the sixth level..

WEST SIDE FOURTH LEVEL

Survey nearly completed from West Side fourth level station to the Empire Tranquility fifth level via the Girard stope and raise.

SULPHURET SHAFT

Sheave wheel installed.
Tugger set on concrete block. Built and installed crosshead. Shaft repaired to fifth level. (Very little repairs necessary--except manway and ladders). Air hose installed from surface to the fifth level.

SURFACE

Further repair currently necessary on West Side headframe. (Plating with iron to strengthen joints)
Mucha Little Trammer overhaul completed.
Electric mone lamps received, charging system set up and in operation.

CREW

An average of eleven men on payroll as follows:

3--West Side Shaft and Sixth level station
3--Sulphuret Shaft
1--Hoistman
1--Mechanic
1--Electrician
1--Engineers' Assistant
1--Office--(Laid off November 15th)

FINANCES

According to our estimate we have spent $94, 885.00 to date. This figure includes supplies on order.

Sincerely yours,

Don Hargrove

DH: eo

56

Mr. Fred Searls, Jr.,
Room 1501,
14 Wall St.,
New York 5, N. Y.

Box 326,
Tombstone, Ariz.
Nov. 2, 1953.

RE: TOMBSTONE.

Dear Mr. Searls:

Following is a report of activities for the month of October, 1953:

West Side Shaft.

Guides have been re-aligned to the sixth level. The shaft has been cleaned up to the third level. A station set has been installed on the sixth level. Several wall plates, end plates and posts have been replaced where necessary due to dry rot or breakage. The sixth level station has been cleaned up. The dumping irons have been installed at the shaft collar.

West Side First Level South.

A total advance of 114 feet was made in this slusher drift. Advance for the second half was only 24 feet, due to the lack of dumping room. Car, track and a slusher ramp has been installed in order to get rid of the muck. Drifting is again in process.

Surface.

The Mancha motor is being overhauled, mechanically and electrically. Clamps have been made for the six inch pump discharge line, the three inch air line and the power cable. These clamps are to be used in hanging the lines in the shaft.

Geological Mapping.

Mapping of geology underground continues. We are getting a much clearer picture of geological conditions.

Crew.

We have nine men on the payroll as follows:

1 Electrician
1 Mechanic
2 Shaft repairmen
2 First level drift
1 Hoistman
1 General
1 Office
9

Finances.

October bills are not in as yet. An estimate of expenditures is as follows:

Estimated Supplies & equipment	$2,500.00
Wages & Salaries	4,685.00
Total estimate	$7,185.00

The October financial statement will be sent as soon as bills are received.

Sincerely yours,

DH:H

Don Hargrove.

Box 326,
Tombstone, Ariz.
Oct. 3, 1953.

Mr. Fred Searls, Jr.,
Room 1501,
14 Wall St.,
New York 5, N. Y.

RE: TOMBSTONE.

Dear Mr. Searls:

Following is a report of activities for the month of September, 1953:

West Side Shaft.

Concrete footings were poured for the headframe guy braces - a new sheave wheel installed - new hoisting rope installed - hoist motor braced to take out excessive vibration.

The headframe has been painted with fire resistant paint. The cage has been completed and installed in the shaft - safety dogs overhauled and operating satisfactorily. The shaft guides have been realigned and the space increased between them down to the second level. The second level is caved at the station - no attempt has been made to repair this station. We are endeavoring to reach the sixth level with the skip as rapidly as possible so that shaft repair can be facilitated by use of the skip. Lights have been installed on the headframe and the first station. Signal systems have been installed, both electrical and manual.

Hoist Building.

The rest of the hoist house roof arrived and has been installed.

Compressor-Warehouse Bldg.

This building has been completed and wired.

Compressor.

The compressor has been installed, the receiver installed, air line to the shaft collar and chop installed.

Fire Protection.

A water line has been installed to the hoist house, ample hose is available to reach all buildings. CO_2 fire extinguishers are installed in all buildings, including the office.

West Side First Level.

Air, water and ventilation lines have been installed to the south heading of the first level through the No. 2 shaft. We find we will have a drive of 180 feet to make access for the water line to the gulch south of the West Side Shaft. The drift is being run by slusher. Actual drifting started October 1st.

Mapping.

Joe Mc Daniel is mapping the areas requested by Hal Norman.

Crew.

We have eleven men on the payroll as follows:

1 Electrician
1 Mechanic
1 Underground with Mc Daniel
2 Shaft repair
3 First level rehabilitation.
2 Air, water, vent lines, slusher setup, etc.
1 Office
11

Finances.

Mr. Schmid is to arrive here today - we will go over the finances with him. A report will be forwarded to you in the near future.

Sincerely yours,

DH-H

Don Hargrove.

The six inch
south of the East Side shaft
of about 4,000 feet.

60

Box 326,
Tombstone, Ariz.
Sept. 1, 1953.

Mr. Fred Searle, Jr.,
Room 1501,
14 Wall St.,
New York 5, N. Y.

RE: TOMBSTONE.

Dear Mr. Searle:

The following is a progress report on Tombstone activities for the month of August, 1953:

East Side Shaft.

The concrete retaining walls and concrete footings for the various headframe braces have been poured. The area behind the retaining walls has been filled and packed to support guy brace footings.

The hoist foundation has been poured, the hoist set up and grouted in. The hoist house floor has been poured and the building erected except for one-half of the roof, which did not arrive. The hoist motor has been dismantled, cleaned, painted and wired. The drum controller has been overhauled and broken parts ordered.

Conduit has been laid underground from the sub-station to the hoist house, compressor house and the shaft. All power cables are installed except the shaft cable, which has not yet arrived.

The compressor base has been poured, the compressor set up and grouted in. The compressor-warehouse building foundation and floor has been poured and the building framework set up.

We have constructed a forge, and now have a small blacksmith shop, using the old hoist house for that purpose.

Sub-Station.

The substation has been completed and energized.

Water Line

The six inch water line has been laid from the gulch south of the East Side shaft to the Charleston road, a distance of about 4,000 feet.

Skip.

The Mine Inspector requires an enclosed man cage in this State, consequently we are lengthening the old Silver Pick

skip so that a cage can be built above theskip.

Old Shafts.

A total of 164 old shafts, open stopes, etc. have been fenced.

General.

We finally received our lumber order yesterday. Work is starting on installation of the new sheave wheel which arrived this month.

The 400 GPM 595 ft. head centrifugal station pump has arrived from Grass Valley.

The deep well pump has not yet arrived.

Mapping.

Joe Mc Daniel is mapping underground geology. A man accompanies him, for safety sake, as you requested.

Gen'l.

We have eleven men on the payroll distributed as follows:

2	men electrical work.
3	foundations.
2	building erection.
1	underground with Mc Daniel.
2	shop setup and cage construction.
1	office.
11	

Finances.

In order to stay within budget requirements, I allowed an expenditure of $12,500.00 per month for the eight months of this year, expecting to spend roughly $6,250.00 each month for labor and about $50,000.00 for equipment and supplies, during the eight months. The monthly expenditures are as follows:

	No.		To Date.
May	$ 4,060.00		$ 4,060.00
June	11,011.00		15,071.00
* July	33,629.00	(Est.)	48,700.00
* August	12,829.00	"	61,529.00

* The July and August figures are our own, not Jerome's figures.

We have included the cost, or as close an estimate as possible, on all equipment and supplies purchased or on order, including the pipe and electrical equipment purchased from Resurrection, on which the price has not as yet been adjusted.

About the only major items left to be purchased this year will be powder, more timber and possibly a shop building.

Our labor cost has consistently been kept under the estimate, thus allowing us to carry at least the same sized crew for the rest of the year without exceeding the budget.

Sincerely yours,

DH:H

Don Hargrove.

Box 326,
Tombstone, Ariz.
Aug. 3, 1953.

Mr. Fred Searls, Jr.,
Room 1501,
14 Wall St.,
New York 5, N. Y.

RE: TOMBSTONE

Dear Mr. Searls:

Following is a report of activities for the month of July:

West Side Shaft.

The concrete collar has been poured around this shaft. The forms for retaining walls for side brace concrete pads are under construction. The head-frame is being repaired, some timber has been replaced. It is being reinforced with iron plates where necessary. The sheave wheel will be shipped Aug. 5th.

Forms for the hoist foundation are completed, concrete cityred today.

Sub-Station.

The substation is nearly complete. Transformers and other electrical equipment is nearly all installed.

Pipe.

The pipe has been delivered from Resurrection. We have brushed out a road so that the surface line can be laid to the Charleston road.

Land.

Mr. Embach was here July 29th. His report has not as yet arrived. I expect it this week.

Powder Magazine.

The powder magazine has been cleaned out, timbered and floored.

Additional Claims.

As soon as our printing machine arrives we will send some prints of additional claims, which have been submitted for purchase. Hal Norman and I have discussed them. Mr. Tomlinson has not as yet been able to contact his man concerning the Townsite claim. At my suggestion he is writing registered mail.

Location work has been completed on all claims.

We have not as yet received the location notices on the four Mort claims. As soon as they are received from Mr. Page via Bob Searls they will be sent to you.

Old Shafts.

A total of 133 openings have been fenced. Danger notices have been posted on some of them nearest the roads.

Lucky Cuss Shaft.

All equipment has been moved from the Lucky Cuss to the West Side. The Lucky Cuss headframe has been moved back and the dump around the collar of the shaft cleaned out to bedrock.

Several of the upper sets will have to be replaced as they are rotted out.

Office.

An air conditioner has been installed. Maps are being segregated and filed. Surface geology is being put on topographical maps.

Finances.

Our finances will be pretty well in line with our budget when all factors are taken into account.

General.

We have twelve men on the payroll, distributed as follows:

3 men on Substation.
4 men on Location work and West Side Shaft and Lucky Cuss Shaft.
4 men on West Side Shaft.
1 Office.

Sincerely yours,

DH:H

Don Hargrove.

Box 326,
Tombstone, Ariz.
July 7, 1953.

Mr. Fred Searls, Jr.,
Room 1501,
14 Wall St.,
New York 5, N.Y.

RE: TOMBSTONE.

Dear Mr. Searls:

The following is a report on activities for the month of June 1953:

West Side Shaft

We have replaced the four top sets of old rotted timber with new 6x8 sets, properly aligned.

The dump has been held by spiling, thus allowing us to obtain a minimum of two feet of solid rock around the collar for concrete footings. We are currently installing reinforcing iron and will soon pour the concrete collar.

Mine & Smelter quote ten weeks delivery on a sheave wheel. We will attempt to obtain one from Grass Valley or elsewhere.

Power.

As of July 6th we have a small transformer installed at the sub-station which allows us to use power tools and the arc welder. The concrete pad is poured, the poles are set. The sub-station is now ready for installation of the transformers. Gene Fischer is to call from Louisville this week and regarding transformers, pulps and power cable.

Pipe.

We have received a number of widely varying pipe price bids. After comparison, including adaptability for future underground air line use, we find our best buy on 6" Spiral Weld will cost $1.11 per foot, including couplings, f.o.b. Tombstone.

Old Shafts.

A total of 126 open holes (stopes and shafts) have been fenced. "Danger - No Trespassing" signs have been installed near roads and on the roads leading to the active workings.

Additional Claims.

The April Fool, Overlook and Overlook No. 1 lode claims which cover the fractions on the south end of the Tombstone Extension Group have been surveyed. The locations were recorded. The location

Mr. Fred Searle, Jr. Tombstone, July 7, 1953.

work has been done.

The Mort Group of four claims, (Mort No. 1, 2, 3 and 4) has been recorded and the location work done.

The Mar Group of twenty claims, has been recorded and the location work done on all but 12 of them. These are partially finished. The Mar No. 14 has been re-surveyed for an amended location.

I have called Mr. Tomlinson several times regarding the Tennaite claim. Mr. Tomlinson has been ill - to date he has nothing to report. I will endeavor to get some action as soon as possible.

General.

The office is in fair condition. Considerable repair work was necessary.

Distribution of man power is as follows:

4 men Mort Side Shaft repair.
3 " Sub-Station.
3 " Claims location work.
1 office clerk.
Total 11

Financen:

We do not have the monthly report from Jerome as yet, but we are handling expenditures so that the budget will not be exceeded by the end of the year.

Sincerely yours,

DH:H Dan Hargrove.

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

June 8, 1953

FINAL STATEMENT

LUCKY CUSS PROBLEM -- TOMBSTONE PROJECT

TOMBSTONE, COCHISE COUNTY, ARIZONA

Geophysical tests were made over the granodiorite-sedimentary contact near the Lucky Cuss shaft extending mostly northward along the contact. Magnetic measurements were made to determine the shape of the contact and pulse and resistivity profiles were run to check for the presence of mineralization. The accompanying figures show the results of this survey.

The approximate apex of the intrusive step is outlined on the magnetic contour map. The deduced dips of the contact along the line of profile are also shown where they have been worked out. A tongue of intrusive material is evident on line 8. North of this line the contact behaves as though it has two apexes, the easternmost dipping at around 30 degrees and the normal apex at 10 degrees. This second apex is shown by the dotted line.

There is a shift in the contact between lines 20 and 22 north. An east-west fault could account for this.

The contact at the extreme north on line 34 is not very clear, but it is evident that it is shallow, i.e., less than 30 degrees.

The susceptibility of the granodiorite works out to around 1,800 x 10^{-6} c.g.s. units.

The pulse and resistivity measurements were taken at both 200 and 400 foot electrode separations. A two electrode

array was used. The Huachuca pipe line disturbed the readings on lines 0 and 4N. The degree to which the grounded power lines affected the measurements is not certain. There are two local pulse highs on lines 8 and 28 which are of doubtful consequence since they are considerably less than the range in "normal" for the Tombstone area.

The suggested E-W fault between lines 20 and 22 N is not apparent from either the pulse or the resistivity results.

CONCLUSIONS

It is evident from the magnetic survey that the granodiorite contact is not very steep in this area as it seldom dips at more than 35 degrees.

There is a displacement of the granodiorite between lines 20 and 22 N, the significance of which is speculative.

The pulse and resistivity results do not indicate any commerical sulfide mineralization within a few hundred feet of the surface, although it would be possible for small massive bodies within this range of depth to escape detection.

Robert J Searls

RJS:lu

Robert J. Searls

LUCKY GUESS SURVEY

TOMBSTONE PROJECT

Grid Map 1" = 500'

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

May 22, 1953

FINAL STATEMENT

EAST FAULT PROBLEM -- TOMBSTONE PROJECT

TOMBSTONE, COCHISE COUNTY, ARIZONA

Five pulse and resistivity profiles and three magnetometer profiles were run across the East Fault to determine if the fault could be traced with geophysics south of the Joe shaft where it is last exposed. The attached map shows the location of these lines. The results of this test were negative.

Lines 2, 3 and 3B are pulse and resistivity lines designed to test for displacement along the fault where it exposed. Magnetic measurements were made along lines 3 and 3A for the same purpose.

Lines 4 and 5 were run to test for the presence of the fault south of where it is last known to occur. Both lines 4 and 5 were run with pulse and resistivity. A magnetic profile was also taken along line 4.

The pulse and resistivity measurements were made using a three electrode gradient array. Guyod* has shown that for detection of geoelectrical contacts the gradient array, where the two potential electrodes are closely spaced, compared to the current-potential electrode separation, is superior to the standard equispaced arrays. The spacings used were $C_1 P_1 = 90$ feet and $P_1 P_2 = 10$ feet. Line 5 was run also at $C_1 P_1 = 210$ feet.

The results from the electrical measurements on lines 2, 3 and 3B are confused by the presence of dumps, pits,

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*Electrical Well Logging by Hubert Guyod.

cement foundations and old stopes. Since it would be difficult to state conclusively whether or not the displacement along the fault was observed from these measurements , lines 4 and 5 were run to the south in an area where the fault is not exposed and where there is less interfering material.

The projected extension of the East Fault would cut lines 4 and 5 at about 500' west of the base line. Measurements were taken along these lines to about 510 feet where the current electrode was at 605 feet west. The only marked change in resistivity level is at 250 west on line 4 where the apparent resistivity changes from a high of around 450 ohm meters on the east to a level of 300 to the west. The easterly high is local and possibly due to traversing a dipping bed. The profiles along line 5 do correlate to some extent with line 4. The corresponding resistivity "break" on line 5 is at 225 west. Although the pulse response is disturbed at these points, it is not as definite as the resistivity.

The magnetic results are even less conclusive than the electrical data. The total variation, except in the presence of old stopes, etc., is less than 50 gamma and nowhere do two consecutive stations vary by more than 25 gamma, or approximately 2½ scale divisions.

CONCLUSION

There is no conclusive evidence that the possible change in rock type due to the displacement along the East Fault can be detected by either pulse, resistivity or magnetic measurements. Although the survey might well have been continued another 100 feet westward, it is doubtful whether positive identification could ever be made in the presence of the wide variations of the electrical measurements.

RJS:lu

Robert J. Searls

NEWMONT EXPLORATION LIMITED

BOX 366

JEROME, ARIZONA

May 7, 1953

FINAL STATEMENT

WIDE WEST PROBLEM -- TOMBSTONE PROJECT

TOMBSTONE, COCHISE COUNTY, ARIZONA

Five pulse lines were run over the Wide West patented mining claim to check for mineralization said to have been encountered by W. C. Humphrey's 2 drill holes. A two electrode array using spacings of 200 and 400 feet was employed in this survey.

The pulse and resistivity readings are plotted and contoured on the accompanying grid sheets. The geologic sheet was taken from the Arizona Bureau of Mines Publication. The Wide West Claim, as shown on the map, has been tied into the shaft by stadia survey.

There is a sharp resistivity anomaly on the east end of Line C which is high at the 400 foot spacing and low at the 200 foot spacing. Since this anomaly constitutes only one reading at the end of the line, it is likely a reading or field error.

The area east of the base line, showing pulse values of 10 and 11 units, more than likely represents a formational anomaly. The solution of an expander at 100 west on Line C indicates a two layer case with the following properties:

Resistivity, upper layer, 1500 ohm meters
Chargeability, upper layer, 5 Vs/Vp units
Depth to lower layer, 50 feet
Resistivity lower layer, 500 ohm meters
Chargeability lower layer, 10-12 Vs/Vp units

The correlation between the 200 and 400 foot arrays implies that it is a fairly wide spread abnormal and that it is not deep. Actually, the magnitude of the anomaly is well within the range of formational normals measured heretofore.

The only thing interesting about this pulse anomaly is the unsymmetrical extension westward from the center toward the Humphrey drill holes 1 and 2. It is possible that this small portion of the anomaly might be representative of sulfide mineralization. It is also possible that it is due to some casing left in the holes. The 200 foot measurements on line D would tend to discredit this latter possibility. Since the expander run along Line C solves best using a two layer case, as previously described, it would only seem logical to say that this extended portion of the anomaly arose from the same material as that lying to the east.

We conclude then that this minor pulse high is formational.

Robert J Searls

RJS:lu

Robert J. Searls