Drillers: Metler Bros.
(Dick & Don)
Helpers: Mick Blackburn, Rod

HOLE No. DH # 3
FROM -150'
ELEVATION 107'
COORDINATES EM Grid 5+60 S 4+00 E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan 1, 1958 (?) COMPLETED Jan 24, 1958

SECTION	COL	GEOLOGY (scale: 1 vert. div. = 2.5 ft)	SURVEY	% CORE RECOVERY	CORE ASSAYS: Sample SECTION No.	CORE ASSAYS: % CU.	SLUDGE ASSAYS: Sample SECTION No.	SLUDGE ASSAYS: % CU.
		0–66 Alluvium - drilled with 4¼" rock bit						
		65	66					
La		Weathered qtz latite. rd., br, bl. Fe stain dissem & esp. in seams - some "sintered" type in seams = py oxide no faulting but jointing	3½"	4.0' 100%				
		70	70					
		ditto above - tr. Cu oxide stain @ 70.5, 72	3½"	5.0' 100%				
		75	75					
		ditto above	NX	2.0' 40%				
		80	80					
		ditto above	NX	4.2' 84%				
		85	85					
		ditto above	NX	2.6' 65%				
		90	89					
		ditto above	NX	4.0' 65%				
		95 ditto above	95 96	100% 6.3'				
		100 ditto above	NX	63%				
La		105	106					
		ditto above	108	2.2' 100%				
		110		9.5'				
		ditto above - limonite @ 116'	NX	95%				
		115	118					
		ditto above	120	1.5' 75%				
		120		6.0'				
		ditto above	NX	100%				
		125	126					
		ditto above	NX	3.6' 90%				
		130	130					
La		ditto above - complex recemented fracturing @ 138'	NX	5.4' 90%				
		135	136					
		ditto above		4.6'				
		140 weathered zone (latite) ends @ 143' Tr. sulfides (py) w/cc just above 143'	NX	65%			997	0.08
			143					
		145 fresh (unweathered) qtz latite w/dissem py band py w/cc @ 143.3' cc dissem & in seams @ 145, 146, 147 & throughout interval w/yellow py	NX	4.8' 100%			1313	0.06
			147.5					
		150 fresh latite.		3.6' 80%			1314	0.27

J.W.W. 1-10 & 11-58

HOLE No. DH #3
FROM ... -235'
ELEVATION 107'
COORDINATES (EM Grid) 5460S 4400E E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan. 1, 1958(?) COMPLETED Jan 24, 1958

SECTION	COL.	GEOLOGY (scale: 1 vert div. = 2.5 ft.)	SURVEY	% CORE RECOVERY	CORE ASSAYS Sample SECTION No.	% CU.	SLUDGE ASSAYS Sample SECTION No.	% CU.
		150 fresh latite w/dissem py	152	3.6' 80%			1314	0.27
		155 ditto above - dissem. cc	NX 158	6.4' 100%			1315	0.22
La		ditto above - dissem. cc @ 158.1-158.5	161	2.8' 95%			998	0.45
		165 ditto above	NX 166	2.3' 45%			1324	0.21
		ditto above	168	.5' 25%				
		170 ditto above	NX 173	2.8' 90%			1337	0.06
La		175 ditto above	176	2.0' 65%				
		ditto above	NX 181	1.2' 20%			999	0.18
		180 ditto above	NX 186	1.0' 20%				
		185 ditto above	NX 189	1.5' 50%			1338	1.00
		190 ditto above	NX 193.5	2.0' 45%				
		195 ditto above	NX 210	5.5' 85%			1325	1.06
La		200 ditto above - more py. dissem. & in seams. cc in seams.	BX 204	4.2' 100%			1000	1.03
		205 ditto above	206	1.4' 70%			~~1326~~	~~0.21~~
		ditto above - narrow band yellow py w/cc @ 207.5	BX 210	3.5' 50%				
		ditto above	213	.8' 50%			1339	0.29
		215 ditto above	217	1.5' 60%				
		220 ditto above	BX 222.5	4.6' 83%			1301	0.14
		ditto above	225	2.0' 80%				
		225 ditto above	226.5	.8' 50%				
La		230 ditto above	BX 232	4.2' 75%			1340	0.20
		ditto above 235	BX 235	2.2 75%				

JWW 1-10-11-58

HOLE NO. DH #3
FROM 35-320
ELEVATION 107'
COORDINATES 5+60S N 4+00E E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan 1, 1958(?) COMPLETED Jan 24, 1958

SECTION	COL	GEOLOGY (scale: 1 vert. div. = 2.5 ft.)	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample SECTION NO.	% CU.	SLUDGE ASSAYS Sample SECTION NO.	% CU.
		235 fresh latite w/dissem py	235 BX 239	2.0' 50%				
		240 ditto above	BX 242	1.8' 60%			1302	0.12
		ditto above	BX 244.5	2.5' 85%				
La		245 ditto above	BX 248	3.2' 90%				
		250 ditto above - heavy py (w/tr cc) 249-250	250	1.4' 70%	1057	0.10	1307	0.10
		ditto above - sulfide band @ 251.2 cc(?) @ 253	BX 255	4.0' 80%	1052	0.02	1308 250	0.09
		255 ditto above - heavy py @ 260' (w/tr. cc) assoc. tr. orange-br. min. coating	BX 260	2.5' 50%	1153 1053	0.29 0.48	1312	0.06
		260 ditto above - cc @ 262' - core badly broken	BX 263 264	2.0' 65% 80%			1303	0.08
La		265 ditto above	BX 269	3.5' 70%				
		270 ditto above - core badly broken (same on below)	BX 272.5	.9' 25%			1343	0.08
		275 ditto above - entire interval 'chalky' (altered)	BX 276	2.0' 55%				
		ditto above - heavy py @ 277'	278.5	1.8' 70%			1309	0.08
		ditto above - heavy py @ 279.3'	279.5	95%			1310	0.10
		280 ditto above	BX 281.5	1.7' 55%			1304	0.21
		285 ditto above	BX 286	2.4' 65%			1330	0.12
		ditto above	288.5	1.4' 55%			1327	0.12
La		290 ditto above - heavy py w/cc @ 292'	BX 293.5	5.0' 98%	1054	1.64	1305	0.99
		295 ditto above	295.5	.9' 45%			1328	1.25
Top Fault Zone @ Base La.		300 ditto above - fault zone "sand," gravel + gouge	BX	2.0' 20%	1065	0.63	1306	2.04
		305	305					
		310 ditto above - fault zone - "sand" + gouge altered chert @ 310'? colloidal? talcose orange min. in fractures @ 310'	BX 312	5.0' 70%	1066	0.78	1311	2.00
		315 ditto above - fault zone - gouge	BX 318	6.0' 100%			1329	0.46
		320					1316	0.32

J.W.W. 1-10-4/11-58

also other internals cut 1-15-58
255-260, 288.5-293, etc

HOLE NO. DH #3
FROM 20-407.5
ELEVATION 107'
COORDINATES 5+60S 4+00E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan. 1, 1958 COMPLETED Jan. 24, 1958

SECTION	COL	GEOLOGY (Scale: 1 vert. div. = 2.5 ft)	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample SECTION NO.	% CU.	SLUDGE ASSAYS Sample SECTION NO.	% CU.
J.W.W. 1-58	Fault Zone	320 Interval Continued from 318 (ground sulfides? prec?) – fault zone; qtz. latite(?) gouge – 1st 1/2 run darker ga.	318 323	4.5' 90%	1055	0.14	1316	0.32
		325 ditto above – white gouge	BX 329	6.0' 100%	1056	0.04	1323	0.18
		330 ditto above – dk ga. @ end run – cc? cc? visible in white gouge 1st 1/2 run	BX 333	5.0' 100%	1057	0.11	1319	0.58
		335 ditto above – cc @ end run & @ 338± (little)	BX 337	3.5' 85%	1058	0.16	1320	0.33
		340 ditto above – dk ga @ 346 (end of run) py-cc lump @ 345.5	BX 346	4.8' 55%	1059	0.18	1317	0.18
		345 ditto above – darker ga. 1st 1/2 run cc lump @ 350±	BX 351	4.8' 95%	1060	0.20	1321	0.23
		350 ditto above – "sandier" not so finely ground py. xtals visible	BX 358	2.0' 28%	1061	0.14	1322	0.13
		360 ditto above – white or lt. ga. gouge	BX 363	1.8' 35%	1062	0.07	1318	0.04
		365 ditto above – white or lt. ga. gouge	BX 367	3.5' 85%	1063	0.08	1331	0.06
		370 ditto above – white or lt. ga. gouge	BX 373	4.2' 70%	1064	0.05	1332	0.08
		375 ditto above – 1st 2/3 run all "mud," last 1/3 mixed with solid fragments	BX 382	6.0' 65%			1333	0.06
J.W.W. 1-22-58	Fault Zone	385 ditto above – "mud" except 3' solid core @ end w/cc "brownish"	BX 386	2.0' 50%			1334	0.10
		390 ditto above – mostly "mud", some solid core @ end	BX 396	4.5' 45%			1335	0.22
		395 ditto above – core frags & "mud" – minor cc @ 401± (+398±?)	BX 402	4.2' 70%			1336	0.15
		405 ditto above – 402'-407' mud brownish	BX 406	2.2' 50%			1341	0.17
		407.5 ditto above – minor cc @ 408'		3.5'			1342	0.14

386

396

402

HOLE NO. [illegible]Y#3
FROM [illegible]5 - 495
ELEVATION 107'
COORDINATES 5+60S 4+00E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan. 1, 1958? COMPLETED Jan. 24, 1958

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample Section No	% Cu.	SLUDGE ASSAYS Sample Section No	% Cu.	
		407½ Scale: 1 vert. div. = 2.5 ft.							
		fault zone in latite (?)	409.5	100%			1342	0.14	
Latite		410		3.8'					
		ditto above - end latite @ 416? heavy sulfide @ 410 & 411 heavy cc (?) @ 416 (black)	BX	55%			1344	0.16	
		415	416						
LS				5.5'					
		420 fault zone in ls (?) altered, silicified mostly solid core minor cc @ 419±	BX	65%			1345	0.12	
			424						
		425 ditto above - minor cc @ 424+; mostly solid core	BX	2.8' 70%			1346	0.11	
			428						
		420 ditto above	BX	.4' 65%			1347	0.11	
			434						
		435 ditto above - sand & mud	BX	3.0' 100%			1348	0.10	
			437						
Base of fault		440 ditto above - end fault zone 441 interval gouge & altered?	BX	2.8' 70%			1349	0.11	
			441						
LS		solid alt. ls. (brown) - vuggy, consid. py; heavy cc(?) 441-442±	BX	2.0' 40%			1350	0.09	
		445	446						
		ditto above - very minor cc(?) @ 449±?	BX	1.4' 25%			1351	0.08	
		450	451						
		ditto above - 453±? ls. turns grey (from brown) - lump cc @ 455±? (cave?)	AX	1.0' 20%			1352	0.10	
		455	456						
		ditto above - very little sulfide	458.5	1.0' 40%			1353	0.07	
		460 ditto above - very little sulfide	AX	2.8' 60%			1354	0.08	
			463						
		465 ditto above - barren	AX	1.5' 35%			1355	0.09	
			467						
		ditto above - barren	AX	2.8' 80%					NO MORE SLUDGE
		470	470.5						
		ditto above - barren	473	2.0' 80%					
		475 ditto above - heavy sulfide 2' @ 473'	AX	4.4' 70%					
			479						
		480 ditto above - barren	482	1.0' 30%					
		482-485 ltga marblized ls w/qtz & cal. on fract. w/minor py & cpy.	AX	3.0' 63%					
		485	485						
		485-488 Ditto ls above w/vugs lined w/cal & dol? Some py & cpy.	AX	3.5' 43%					
			488.5						
Monz LS.		490 488-495 Faulted qtz mon por. w/diss. py. Shows distinct feld. phenos.	490	66					
			494	30 4.0'					
		495	495	10					

J.W.W. 1-22-58

HOLE No. DH #3
FROM 95 - 519
ELEVATION 107'
COORDINATES 5+60S N. 4+00E E
DIRECTION
INCLINATION Vertical DEPTH 519'
STARTED Jan 1, 1958 COMPLETED Jan 24, 1958

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Top L.S.		495-506 marblized & serp. ls w/some limy fault gouge. Bleb of cuprite @ 501'	495	5.5'				
			AX	16%				
		-500	500.5	5.5'				
			AX	22%				
		-505	506					
		506-509 marblized ls w/serp, some hema. stn.	AX	80%				
			507	2.5'				
			AX	40%				
Mon Z. L.S.		509-519 Flesh colored matl ltga & ltgn qtz. mon. por. w/some diss py. -510	509.5	2.5'				
			AX	100%				
			512	4.5'				
				33%	1073	0.06		
			516.5	2.5'				
			AX 519	28%				
		519						
		Bot. Hole @ 519'						
		H_2O stands @ 130'-135'						

Summary Assay Intervals

Sludge

Int.	Length	Factor	% Cu Grade
288.5-312	23.5	40.83	1.73
176-351	175.0	86.59	0.49
147.5-424	276.5	103.74	0.37

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Churn Drill Hole
Drill Contractor: O.C. Robinson

Logged by

HOLE NO. CH4
FROM 0- 250
ELEVATION 107.4' (Datum DH1 = 98.7)
COORDINATES 5+60S (EM) N 1+00E (EM) E
DIRECTION Vertical
INCLINATION DEPTH 640'
STARTED 1/13/58 COMPLETED 2/6/58

SECTION	COL	GEOLOGY (1 vert. interval = 5' (Below top bedrx))	SURVEY	% CORE RECOV'D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS sample Number	SLUDGE ASSAYS % CU.	Depth
		0-55 overburden, qtzt. & latite gravel w/much red clay							
		55-75 " coarse gravel w/ much red clay							
		75-95 " hard red coarse sand							
Top Bedrx		95-100 — Top bedrx. Cuttings contain some white & ga qtz. frags w/included scat. py.							95
		100 some angular med qtz cong w/hema. stn.					1356	0.04	100
		105-110 lt ga very sil. La por. w/very minor scat py. some lime stn.							105
		110-120 ga & limo stn., very sil. qtz. La, w/py ±3% est.					1357	0.03	110
									115
		120-130 ditto above for qtz la. py est. ±5% tr cpy? & minor cc(?) blk coatings some limo (weathered) stn, falling?					1358	0.02	120
									125
		130-140 ditto qtz la., py est. ±5%, tr cpy, minor blk coatings on py, cc(?)					1359	0.02	130
									135
		140-150 ditto qtz. la., py est. ±5%, some blk. min. coatings. some lt ga fault gouge.					1360	0.11	140
									145
Latite		150-160 ditto qtz la., py est. ±5% tr blk min. coating, tr bornite stn, minor fault gouge					1361	0.10	150
									155
		160-170 ga qtz la. (very sil.) py est. ±5% w/some cc? coatings					1362	0.10	160
									165
		170-180 ditto sil. qtz la. py est ± 3-5% some dk. min. coating, coarse cuts, some bn stains					1363	0.21	170
							1364	0.10	175
		180-190 ditto sil qtz la, py est ± 3%, coarse cuts minor dk min coating					1365	0.11	180
							1366	0.18	185
		190-200 ditto qtz la w some alt feld, tr cpy. py est ± 5-10%, ± 20% ga fault gouge at 195-200					1367	0.21	190
Top Fault Zone 195									
		200-210 ditto qtz la fragments in fault gouge some por, py est ±10% w/minor cc coat, coarse cuts					1368	0.18	200
									205
		210-220 ditto qtz la frags in heavy fault gouge py est ± 10%					1369	0.05	210
									215
		220-230 alt. sil. frags. qtz La. in heavy fault gouge, py EST ±10%, some cc coats.					1370	0.11	220
									225
		230-240 alt qtz la - lt ga fault gouge - 50-50 py EST ±10%, ±0.2% Ru? coarse cuts					1371	0.07	230
									235
		240-250 alt qtz la frags w/ Kaa feld — ga fault gouge 50-50. est py ± 15%, Tr Ru?					1372	0.06	240
									245

NEE & J.W.M 1/29 - 1/31/ - 1958

Churn Drill Hole

Drill Contracter: O.C. Robinson

HOLE NO. CH#4
FROM
ELEVATION 107.4' (Datum DH#1 = 98.7)
COORDINATES 5+60 S N 1+00 E E
DIRECTION Vertical
INCLINATION DEPTH 640'
STARTED 1/19/58 COMPLETED 2/6/58

SECTION	COL	GEOLOGY (1 vert. interval = 5')	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.	
		250-260 Ditto La. - fault gouge 50-50 est. py ± 25 %, more dk ga qtz par. Bn stains?					1373	0.12	250 255
		260-270 Ditto La. — fault gouge 50-50 some ls frags at 265-270 est. py ± 5 % coa. cuts					1374	0.13	260 265
Ls frag in fault		270-280 Lt ga kao feld w/qtz frags — ga Ls 70-30 porport, est py ± 5 %, some fault gouge, some frags spstn. coa. cuts					1375	0.10	270 275
		280-290 Ls - feld. both kao & fresh plc, 60-40 py est. ±5 %. some fault gouge.					1376	0.09	280 285
295 Bot. fault Top Ls		290-300 Ls - kao feld 50-50, py est. ±3%							
		300-310 Mostly fn gr den ga & dk ga sil? ls. py est 1-2%.					1379	0.05	300 305
		310-320 Ditto ls. py est 1-2% 315-320 1 frag of soft sect (H.3.5-4.5) cu?-Ag? Mn (Bit steel?) NEE.							
		320-330 Lt ga fn gr. ls py ± 1% qtz 10%, some transparent.							
		330-340 Ga & lt ga sil.? ls py ± 1% w/some bn stns on py. 5% Qtz.					1380	0.04	330 335
		340-350 Dk ga & ga sil? ls 5-10% py minor bn stns							
Ls		350-355 Ditto ls. 5% py w/few bn stns on py							
		355 365 Fn gr dense ga ls, some serp spstn & talc py 5% est w/very minor cc? films.					1381	0.06	360 365
		365-375 Ditto ls & talc. some qtz? frags. Py est 5% t. some coa. cuts.							
		375-380 Ditto ls & alt. ls. w/tr. marb. ls.							
		380-385 Py est 5-10% coa. cuts. Ditto ls w/tr buff rexl ls w/thin cal seams showing some py w/cc coatings. py 5-10%							385
		385-395 Ditto ls w/some very porous rexl lt buff ls w/scat py 5-10% py blebs surround by cc, esp along cal seams. some very intensely serp ls & some w/coa. feld frags.					#1378	0.06	390
		395-400 Ditto all. Py est. 5-10% occassional cc coat coa. cuts							
Ls		400-410 Ditto all, tr ch & tr porous rexl ls w/dissem bk specs of cc? or MnO_2? Py 10% Coa cuts							
		410-420 dk ga dense sil ls w/tr ga ch Py est 10-15% coa. cuts							415
		420					1377	0.06	420

NEE & J.W.M. 1/29-1/31-1958

NEE 2/5/58

Churn Drill Hole
Drill Contractor: O.C. Robinson

HOLE NO. CH4
FROM 0 - 590
ELEVATION 1071.4' (Datum DH1 = 987')
COORDINATES 5+60 S N 1+00 E
DIRECTION
INCLINATION Vertical DEPTH 640'
STARTED 1/19/58 COMPLETED 2/6/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.	
		420 ga & dk ga ls, some cherty?, py est. 1-2%							
Ls		430 ga & dk ga ls some cherty? py (replace?) scat. thru ls, est 1-2% some serp ls. coa. cuts							
		440 - 450 ls same as above, some qtz w/py. py w/tr cpy & sphal in ls., py est 1-2%							
		450 - 460 ditto ls & chert w/tr fn gr dense ls coa. cuts. py est 1-2%. tr qtz					1382	0.11	450
		460 - 470 ditto ls & ch. coa cuts 460-465 py est 15% & tr ZnS 465-470 py est 3%							
Ls		470 - 480 ga fn gr. ls w/scat py est. 3% some lt gn serp. ls.							
		480 - 490 ditto ls w/some cherty ls. py est 1-3% 480-485 coa. cuts					1383	0.06	480
		490 - 500 ditto ls & chert py est 1-3% spec. nearly bk ZnS.							
		500 - 510 ditto ls & chert some frags x/qtz & gn serp. py 3%							
		510 - 520 ditto all py est 1-2%					1384	0.07	510
		520 - 530 ditto all,							
Ls		530 - 540 ditto all, abund. near-clear qtz frags py est. 1-3% med-fn cuts.							
		540 - 550 lt ga & ga sil ls? or dol.? abund. qtz frags. & some gn serp frags. py 2-3% Fine gr cuts. very wk HCl react.					1385	0.15	540
		550-560 ditto all very sil. py est 2-3% tr muscovite							
		560-570 ditto above w/more ls (stronger HCl react). w/abund. qtz. py est 2-3%							
		570-580 ga & lt ga fn gn. sil. ls w/qtz frags py est 1-3%. 575-580 abund qtz frags some muscovite					1386	0.07	570
Ls		580-583 ditto sil ls w/abund qtz frags. Py est 2-3% No cuts from 583-590 as hole shot @ 583 & shooting wire lost in hole was cleaned out next few ft.							
		590							

NEE 2/5/58

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Churn Drill Hole

Drill Contractor: O.C. Robinson

HOLE NO. CH 4
FROM.
ELEVATION 1074'
COORDINATES 5+60 S N 1+00 E E
DIRECTION
INCLINATION Vertical DEPTH 640'
STARTED 11/19/58 COMPLETED 2/6/58

SECTION	COL.	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.	
		590-600 ga & lt ga sil ls w/scat py est 5%. Abund qtz frags. 595-600 py est 10 ± %							595
600 ls		600-605 ditto sil ls. Abundant qtz Mag. & py intergrown w/traces cpy? Mag est 10% ± & py 5% ±					1388	0.17	600
Mag Rx							1387	0.21	605
		605-610 ditto sil ls w/abund qtz. Ditto Mag & py Mag est 5±%, Py est 15% ±					1389	0.16	610
ls		610-615 ga sil ls w/abund qtz. Mag est ± 3% Py est ± 5%. Med cuts							615
		615-620 ditto sil ls. Minor mag, Py est ± 5%					1396	0.17	620
		620-625 ditto sil ls. No mag. Py est ± 5% med to fine cuts.							625
		625-630 Ditto above					1397	0.21	630
		630-635 Ditto sil ga ls. Coarse to fine cuts. Py est ± 5%							635
		635-640 ga sil ls w/abund qtz Py est ± 10-15%					1398	0.20	640
		Bot. Hole @ 640'							
		H_2O stands @ 190'							

J.W.M. 2/13/58 — NEE 2/5/58

Diamond Drill Hole
Drill Contractor: Metler Bros.

HOLE NO. DH 5
FROM 195
ELEVATION 118'
COORDINATES 5+60 S N 2+00 W E
DIRECTION
INCLINATION Vertical DEPTH 584.5'
STARTED 1/24/58 COMPLETED 2/11/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.	
		1 vert interval = 2.5'							
		0-116 aluvium overburden, La, qtzt grav & boulders w/much red hema stn. clay last 40'							
		Top of alt. softened bedrx, poss struck @ 83' where first hard drilling occur.							
		115	115						
Top Alt La?		116-121 No core. Material too soft & broken to core w/NX rigid tube core bbl.	NX	No Core					
		120	121						
		121-123 Kao. La, webbed w/limo. stn fract & py bxwk.	123		1558	0.09			
Top Fault Zone		125 123-129. Alt. spstn w/seams & specs dissem py coated w/ bk, soft min (cc?). w/alternating gouge zones which ~~[illegible]~~ py w/assoc (cc?) (poss. some Mn?)	NX 126	92	1067	12.60			
					126				
		129-131 Alt. spstn (waxy) some lt ga & some lt gn. some scat. py & minor cc?	129.5		1068	12.68			
			131		129.5 1559	0.56			131
		131-138 No core recovered. NX core bbl would not core this interval					1553	1.34	
			NX	No Core					139
							1554	0.64	
			138						138
		138-145 ga to dk ga fault gouge w/ waxy spstn. scat py & minor cc? 144-145 sulphide interval. Fngr py w/bk sulphide	BX	87	1069	0.48	1555	1.09	
			145						145
		145-149.5 Kao. softened fault gouge w/minor py & cc? dissem & on seams	BX	76					
			149.5				1556	0.82	
		149.5-152 Kao. fault gouge w/spstn on seams. Est 5% py & cc dissem & on seams.	BX 152	68	1071	0.30			
		152-160 Soft Kao. fault gouge w/ 3-5% est py & minor cc dissem in some sections							152
		(155 - not to scale)	BX	71			1557	0.42	
			160						160
		160-162 ditto gouge & mineralization above	BX	40					
		162-164 Ditto gouge & mineralization w/some minor qtz. frags.	162 BX	48					
		164-166 Ditto above	164 BX	43					
		166-169 Ditto above	166 BX 169	67					
		169-172 Badly broken qtz, feld, some kao, & fault gouge. Py est 3% ±	BX						
		172-177 Alt La por w/feld kao & gouge. Minor dissem py w/cc coatings. Badly broken	172 BX	67					
		177-180 Alt broken "sandy" La w/kao feld. py 10%	177 BX 180	67					
		180-187 Badly broken alternating nar bands Kao fault gouge & shattered alt La w/diss py & trace of cc? coats	BX 183	60					
		187-190 Ditto above	BX	68					No Sludge
			188	65					
		190-195 Alt Kao fault gouge w/some diss py	190 193	77	1070	0.36			
Bot Fault Zone		195							

Diamond Drill Hole
Drill Contractor: Metler Bros.

HOLE NO. DH 5
FROM 95 - 282.5'
ELEVATION 118'
COORDINATES 5+60S N. 2+00W E
DIRECTION
INCLINATION Vertical DEPTH 584.5
STARTED 1/24/58 COMPLETED 2/11/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		175						
		Badly shattered alt Kao La w/ diss py & cpy? tr	BX 198	72				
		201 Ditto all above w/tr cc?	201	71				
			204	50				
			207	70	1072	0.28		
		207 La por w/diss py & minor cc? some fract	BX 212	86				
		212 Ditto all above, py est ± 1-3 %	216	98				
		216 Ditto La above, py est ± 3%	219.5	97				
		219.5 Qtz La por, Lower 6" fault gouge py est 1-2 %	BX 223	60				
		223 Ditto por, py diss & in blebs, est 3% cc? tr on fract	227	90				
		227 Ditto por above, broken feld kao, some fault gouge, py est 1-2%	232	94	1092	0.14		
		232 Ditto qtz La por w/diss py & py on late fract w/poss assoc qtz, minor cc?	BX 235.5	100				
		235.5 Ditto above, badly shattered, py est ± 3%	240	73				
		240 Ditto qtz La, badly shattered, feld kao & seri, py est ± 3%, some fault gouge	242	85				
			BX 245	75				
		245 Ditto qtz La por & alt felds, shattered w/ fault gouge, py est 1-3%	249	68				
		249 Ditto qtz La por, alt, tr's cc?, broken	253	60				
		253 Ditto qtz La por, badly broken, some fault gouge, py est 1-2%	257	35				
		257 Ditto shat alt qtz La por, py est 1-3%	260	60				
		260 Kao & seri feld in shat La, py est 1-3%	261.5	97				
		261.5 Less shat qtz La, hi sil, py est ± 1%	266	51	1074	0.07		
		266 Alt La por, high sil, w/py diss & on seams	271.5	110	1075	0.07		
		271.5 Ditto above, badly shattered	274	95	1085	0.06		
		274 Sil. qtz La por w/diss. py est 1-3% some seri & feld. alt. Tr sphal. @ 280 @ 279 seam is coated w/ H orange red min. - Realgar?	281	84	1076	0.12		
		281-287 gr. La qtz. por. py diss. & in nar. seams						

Latite

282.5

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Diamond Drill Hole
Drill Contractor: Metter Bros.

HOLE NO. DH 5
FROM 255 - 371
ELEVATION 118'
COORDINATES 5+60 S 2+00 W E
DIRECTION
INCLINATION Vertical DEPTH 584.5'
STARTED 1/24/58 COMPLETED 2/11/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Latite		281-287 (con't from page 2)		281				
		285 @ 283 tr G in py seam.			1077	0.04		
		287-293	287					
		ga La qtz por. Py est. 1-3 diss & in seams						
		290 some cpy? & brn (both very minor)	BX	85	1086	0.03		
		tr Realgar? @ 288.5'						
		293-398 Ditto qtz La. por. w/more sil. &	293					
		kao of feld. py seams & diss	BX	76	1087	0.02		
		est. 3%.						
		298-301 Qtz La por. some broken & kao.	298					
		300 some fault gouge & py est 1-3%.		60	1088	0.02		
		301-307	301					
		Qtz La Por. sil. py est 3%	BX		1079	0.03		
		307-315.5 ga qtz La por. w/few scat blebs serp?	307					
		or talc? 309-311 scat blebs sphal & G.						
		310 tr cpy? & fer cc?	BX	88	1080	0.02		
		315.5-318 ga qtz. La por. w/diss py est 1-2%	315.5					
		ditto La. por. w/diss brassy py est 1-2%		80				
		318-324	318					
		320 ga qtz. La. por. w/diss. py est 1-3%	BX	90	1089	0.03		
		324-327 ga qtz La por. w/diss py est 1-2%	324					
			BX	82				
		327-332 ditto La por w/diss brassy py est 1-2%	327					
			BX	60	1090	0.03		
		330						
		332-336 ga sil qtz La por broken near bot.	332					
		run.		65				
		336-346 ga sil qtz. La por. less broken	336		1091	0.02		
		py (some brassy) diss. & in seams, est	BX	96				
		1-3%	338					
		340	BX	108	1084	0.03		
		346-352.5	346					
		Ditto La above. w/diss py est 1-3%						
		@ 348.5 is 2" seam of solid sulphide	BX	104	1078	0.79		
		350 w/some cpy & minor brn & py.						
		352.5-356 Ga & lt ga sil. qtz La por.	352.5					
		diss py est 1-3%. Few qtz seams.		91	1083	0.06		
		356-358 Ditto above. w/tr. cpy.	356					
			BX	108				
		358-363 Ditto qtz La por. py est 2-3%	358		1082	0.10		
		360		86				
		363-371 Ditto qtz La. por. sev qtz seams w/cpy	363					
		& py w/some cc.						
		some very sil La por. intervals		100	1081	0.23		
		370						

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Diamond Drill Hole #5
Drill Contractor: Meller Bros.

HOLE NO. DH #5
FROM 1 - 457.5
ELEVATION 118'
COORDINATES 5+60S N 2+00W E
DIRECTION
INCLINATION Vertical DEPTH 584.5
STARTED 1/24/58 COMPLETED 2-11-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS Sample SECTION No.	% CU.	SLUDGE ASSAYS Sample SECTION No.	% CU.
		370	371					
		Latite	BX 376	100%				
		375						
		"	BX 380	85%				
		380					1390	0.13
		"	BX 386	95%				
		385						
		"	BX 389	70%				
		390						
		"	BX 396	60%				
		395						
		"	BX 400	80%				
		400					1391	0.10
		"	BX 404	30-%				
		405	406	50-%				
		"	BX 411	60-%				
		410						
		"	413	50-%				
		415	BX 418.5	60%				
		"						
		420	BX 424.5	55%			1392	0.16
		"						
		425	BX 428	75%				
		"	BX 431	70%				
		430						
		"	BX 436	70%				
		435						
		"	BX 440.5	95%			1393	0.20
		440						
		" calcite in seams (442±)	BX 443.5	80%				
		445						
		" "	BX 448.5	80%				
		450						
		" " by band @ 450±	BX 453.5	60%				
		455						
			BX					

Latite

J.W.W. 2/10/58

page 5

Diamond Drill Hole #5
Drill Contractor: Metler Bros.

HOLE NO. DH #5
FROM [illegible]5 – 545
ELEVATION 118'
COORDINATES 5+60S 2+00W
DIRECTION
INCLINATION Vertical DEPTH 584.5
STARTED 1/24/58 COMPLETED 2-11-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV'D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Latite		457.5						
		460 solid limestone @ 459'±	BX 461	85%			1394	0.12
		limestone - progressively more serpentinized w/ depth sulfides @ 463±	BX 465	95%				
		465 "	BX 469	60%				
		470 " black metallic min @ 470.5± (sulfide?)	BX 475	55%	1093	0.10		
		475 "	BX 480	60%	1094	0.06		
		480 alt. ls. - highly serpentinized & fractured	BX 483	55%			1395	0.09
		485 bleach + alt. ls. end of run, rest rounded frags (cave) frags lt. ga. ls. + latite	BX 486	30%				
		lt. ga. ls. - alt, mottled alt zone to 499'± py-1%	AX 488.5	88%	1095	0.06		
		490 alt. ls.; fn. grained, lt. gn-ga, poor HCl react. 488-493 py-1%; small crumbled + high py zone 489'±	AX 493	55%				
		495 lt. ga. ls. more sulfides this run, + to 505'± py 5%	AX 496	65%	1096	0.08		
		ga. gn. fn. gr. alt. ls. 499-505.5'± poor HCl react. serpentinized - fairly high sulfides: 5%+	AX 501	95%	1097	0.22	1407	0.02
		500 ga. ls. py-1%	AX 508	100%			1408	0.14
		510 darker ga. ls. py-1% bleached + alt. 513-514, py band @ 514±	AX 518	95%				
		515 dk. ga. 516-524 (argillaceous?)						
		520 ga. ls. - darker 1st ½ run py 1% 524±-528, lighter color, more granular, xtalline (metamorphosed?) - more bl. min in xtals (hematite?)	AX 528	100%			1409	0.12
		530 ga. ls.; py band @ 528 + @ 532 bleached 532-534 py-1%	AX 538	95%				
		540 ga. ls. mottled + banded w/ dk. min py-1% darkest @ 538, progressively lighter color lt. gn-ga talcose zone (no HCl) 542-543	AX		1098	0.08		
		545						

J.W.W. 2/10/58

J.W.W. 2/11/58

page 6

Diamond Drill Hole #5
Drill Contractor: Metler Bros.

HOLE NO. DH #5
FROM 5[illegible]-584.5
ELEVATION 118'
COORDINATES 5+60S 2+00W
DIRECTION
INCLINATION vertical DEPTH 584.5
STARTED 1/24/58 COMPLETED 2-11-58

J.W.W. 2/12/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV'D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Ls		545 qa. ls. - bleached white after 547 est py 1% - relict bedding ? @ 45°± py bands edge bleach zone	AX 548.5	93%	1098	0.08		
		550 "White" ls. w/ghosty bands dk. purp. min (hematite?) bleached & silic. 548.5 - 549.5	AX 554	90%	1099	0.07		
		555 lt. qa ("white") ls. w/ purple-black min. in cloudy bands (hematite?)	AX	70%			1410	0.20
		560 heavy bleach alteration @ 564, followed by heavy yellow sulfides 564.2-564.5 (est. 75%)	564.5					
		565 "white" ls. to 571± w/ heavy py to 569.5 (est. 15%) est. py 569.5 - 571 = 1% heavy alt. @ 567± (alt.-min. zone 563-571")	AX	58%	1100	0.57		
		570 Latite @ 571± (?) - est. py 2% HCl reac. stops @ 570±	573					
Latite		575 Latite est. py. 2%+	AX 580	28%				
Ls		580 Latite to 582.5± - est. py 2% Ls. @ 582.5± - est. py 1%	AX 584.5	44%			1411	0.23
		585 Bottom of hole						

Driller reports H_2O stands at about 135' depth in this hole.

Churn Drill Hole #6

Drill Contractor: Robinson

HOLE NO. CH#6 CH#6
FROM 0 - 230' 0 - 230'
ELEVATION
EM Grid COORDINATES 3+85 S 4+00E
DIRECTION
INCLINATION Vertical DEPTH 300
STARTED 2/6/58 COMPLETED 2-14-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Alluvium Weathered, Fe stained latite & bolsa frags w/red clay						
Latite		85 partly weathered, partly fresh latite; latter w/py, cc, bn est py 1% both coarse + fine frags (high qtz)					1399	0.03
		90 less weathered latite (mostly fresh) - fine frags py 1%						
		95 more altered + weathered latite - coarser frags tr py?					1400	0.02
		100 fresher + finer latite frags than above still consid. weathered est. py 3%						
		105 weathered + coarse tr. unweathered sulfides					1401	0.03
		110 finer, fresher than above - uniform med coarse still consid. weathered est py 1%						
		115 fine, fresher latite frags - little weathered est py 2%					1402	0.13
		120 fresh, somewhat coarser latite (med., uniform) est py 2%						
		125 ditto above					1403	0.30
		130 med coarse, ½ alt. (bleached) little cc est py 3%						
		135 like above - little coarser est py 2%					1404	0.15
		140 med coarse, much sericitized est py 3%						
		145 finer, less alt. est py 5%					1405	0.05
		150 fairly fine, some sericite alt. few bn - cp gr. some cc est py 5%						
		155 med coarse, much sericite alt est py 4%					1406	0.06
		160 like above, but darker, some yellow py, bn chlorite in qtz? est py 5%						
		165 finer, lighter gray est py 3%						
		170 like above - uniform med coarse est py 2%						
		175 fine, w/cc granular texture (sugary) est py 7%						
		180 fairly coarse, dark w/bn, cv some coarse "peacock ore" frags est py 5%						
		185 fine + coarse, dark w/bn, cc "					1412	0.15
		190 coarse, dark + light w/some cp powder est py 1%						
		195 more uniform med coarse, lighter (still some dark gray) tr cc est py 2%						
		200 uniform fine, lt. gray est py 5%						
		205 med coarse tr. cp, cc est py 2%						
		210 med. coarse (not uniform) tr cp est py 3%						
		215 like above (slightly coarser) "					1413	0.10
		220 like above, darker powder cc grains + coatings est py 6%						
		225 tr. "peacock"						
		227 fine, tr. cc, cp. consid. brown (weathered?) grains est. py 3%						
		230 227-230 fine brownish sand fault zone? "						

J.W.W. 2-19-58

Churn Drill Hole #6
Drill contractor: Robinson

HOLE NO. CH #6
FROM 0-300
ELEVATION
COORDINATES 3+85 S 4+00 E
DIRECTION
INCLINATION vertical DEPTH 300
STARTED 2/6/58 COMPLETED 2-14-58

SECTION	COL	GEOLOGY		SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.	
		230 med. coarse latite cc coatings on py	est py 3%							
		235 ditto above								
		240 uniform fine latite	est py 2%							
		245 med. coarse latite	"					1414	0.14	245
		250 ditto above	"					1415	0.15	250
		255 ditto above (more powder?) w/little cc	"					1416	0.16	255
		260 fairly fine, w/cc fines dark	est py 2%					1417	0.80	260
		265 med coarse (not uniform) w/cc dark fines	est py 5%					1418	0.22	265
		270 coarse (not uniform) w/cc	est py 1%					1419	0.22	270
		275 uniform fine w/dark grains + dark fines cc, cb	"							275
		280 uniform med. coarse w/cc	"							
		285 fine, w/cc, dark fines (high sulfide)	est py 6%					1420	0.44	285
		290 med fine w/cc no dark fines	est py 1%							290
		295 med coarse w/minor cc	"					1421	0.17	295
		300 bottom churn drill hole								300
		water stands @ 184 makes 120 gals/hr by bailer test								

latite

J.W.W. 2-14-58

Drill Contractor: Metter Bros.

HOLE NO. DH # 6
FROM 00 - 387.5 ft
ELEVATION
EM Grid COORDINATES 3+85 S 4+00 E
DIRECTION Vertical
INCLINATION DEPTH 472 ft.
STARTED 2/22/58 COMPLETED 3/3/58

Logged by J.W.M. 2/27/58

Depth	Section	Geology	Survey	% Core Recov'd	Core Assays: Sample Section number	Core Assays: % Cu.	Sludge Assays: Sample Section number	Sludge Assays: % Cu.
300		1 Vert. Int. = 2.5 ft						
	Latite	Ga alt La - broken frags w/diss wh py. minor cp, cc & bn coats. sulfides est ± 5 %	Nx	1.3 26%	1184	0.14	1451	0.42
305		Ditto La frags w/increase in Kao sulfides est ± 5 %	Nx	2.4 48%				
310		La frags - sm fault zone 310-311 ? py est ± 2 %	Bx	1.1 55%			1474	0.24
312		Ditto La frags - py est ± 1%	Bx	60%				
313.5		Alt La w/more Kao & less qtz Diss py est ± 2 %	Bx	1.8 60%				
316.5		Alt La w/diss sulfides - chiefly wh py. minor cc & cp along some fracts w/diss dk fine grain min - cc? sulfides est ± 5%	Bx	2.7 50%	1185	0.13	1452	0.13
322		Ditto all above. cc esp. ± 325 core in sm frags last 6 in.	Bx	3.7 62%			1453	0.27
328		Ga alt La w/diss py. cc along some fracts esp 328-329 & 332. Sulfides est ± 10% Broken frags w/more Kao at bottom	Bx	3.1 62%			1454	0.23
333		Ditto La - cc diss w/py sulfides est ± 10%	Bx	1.4 47%	1186	0.10	1455	0.44
336		Ditto La & diss cc & py w/several thin seams cc, esp ± 338. sulfides est ± 10%	Bx	3.3 82%	1187	0.33	1456	0.58
340	Bottom Latite	Ga alt La - increased Kao. diss py est ± 5% w/minor cc at top	Bx	3.4 68%			1475	0.26
345	Top fault zone	Frags alt La - start of fault zone. Increase in Kao w/diss py est ± 3%	Bx	1.6 40%			1476	0.13
349		Ditto above - fault zone	Bx	1.7 34%			1477	0.14
354		Fault zone w/wh gouge at bottom	Bx	1.0 50%				
356		Fault zone - sandy gouge w/cc? specks & Kao frags. py diss in the sand	Bx	1.9 63%			1457	0.21
359		Kao frags alt La w/gouge at top & bottom. py est ± 2 %	Bx	1.7 34%				
364		Fault zone - poor core recovery Kaolinized frags w/diss py & some cc?	Bx	0.25 10%			1458	0.03
366.5		No core recovered	Bx	0				
368		Fault zone - dk ga sandy gouge at top, Lt ga sandy gouge & frags at bottom. py est ± 10 %	Bx	2.8 47%			1459	0.30
374		Fault zone - lt & dk ga gouge. py erratic & spotty. Some diss dk min - cc?	Bx	2.6 43%	1188	0.11	1460	0.28
380		Fault zone - sandy gouge & qtz frags cc in some frags, cp traces. py est ± 10 %. Poor core recovery	Bx	0.85 17%			1461	0.64
385			Bx				1462	0.34

Drill Contractor: Metler Bros.

HOLE NO DH # 6
FROM 387.5 – 472 ft
ELEVATION
COORDINATES 3+85 S N 4+00E E
DIRECTION vertical
INCLINATION DEPTH 472 ft
STARTED 2/22/58 COMPLETED 3/3/58

Logged by J.W.M 2/27/58 by J.W.M 3/3/58

SECTION: Top Sil. Ls. – Bottom Fault Zone

COL: mag.

Depth	GEOLOGY (1 vert int = 2.5 ft)	SURVEY	% CORE RECOVERY	CORE ASSAYS Sample SECTION number	% CU.	SLUDGE ASSAYS Sample SECTION number	% CU.
387.5							
	Sandy gouge w/qtz frags. py est ± 10% w/ traces cc & cp	Bx	1.5 25%			1462	0.34
391							
	Fault zone – sandy gouge w/qtz frags. Py est ± 5%	Bx	3.6 90%			1463	0.34
395							
	Fault zone – ga gouge w/poss cc? Py very minor.	Bx	2.7 90%	1189	0.28	1464	0.25
398							
	Fault zone – Lt ga gouge w/sand at top. minor cc in gouge?	Bx	2.1 70%			1465	0.36
401							
	No core recovered	Bx	0				
409							
	Fault zone – very lt ga wet gouge Extremely fine material – no apparent min	Bx	4.0 100%			1478	0.14
408							
	Fault zone – sandy gouge w/qtz frags diss py w/ some cc? sulfides est ± 5%	Bx	2.3 66%				
411.5							
	Fault zone – wet sandy gouge w/qtz frags. Diss py & dk min – cc? – est ± 5%	Bx	2.9 65%			1466	0.13
416							
	Fault zone – wet gouge some drier at bottom. wh & dk ga. Some qtz frags scattered py est ± 1%	Bx	2.9 58%			1467	0.09
421							
	Fault zone – ga gouge w/diss py to ± 423 py est ± 10%. wh gouge from ± 423 w/py est ± 2%. minor dk min throughout.	Bx	2.7 54%				
426							
	Fault zone – wh gouge to ± 429 w/slick fracts. Some diss dk min. slight HCl reaction ± 429 – mag, py w/calcite cement	Bx	3.1 78%			1468	0.08
430							
	Fault zone – ga gouge to ± 432, hard core to ± 435, wh gouge to bottom. Heavy sulfide, est ± 80% to 435.5 w/strong mag at ± 433 & considerable dk min. Calcite cement	Bx	5.3 88%	1190	0.09	1469	0.06
436							
	Fault zone – gouge & frags Kaol & qtz. Some serpentinization & slight calcite. Py & sulfide est ± 10%	Bx	2.8 93%			1470	0.07
439							
	Fault zone – greenish semi-muddy gouge. slight HCl reaction. No susceptibility. No apparent mineralization.	Bx	3.3 82%			1471	0.07
443							
	Green gouge of above grading into ls. Some py upper portion – negligible lower.	Bx	1.7 113%			1472	0.06
444.5							
	Ga sil Ls – vuggy – min almost nil. Broken frags at bottom.	Bx	2.1 105%			1473	0.05
446.5							
	Frags hard sil & serp Ls. Few blebs of sulfide – est < 1%	Bx	1.7 42%				
450.5							
	Broken frags sil Lm & gouge Py est ± 1%	Bx	0.9 20%				
455							
	Broken frags sil Lm w/py diss & in massive seams.	Bx	1.6 32%			1479	0.12
460							
461	Fault zone – Lime frags & mud w/minor py	Ax	80%				
	Broken frags sil Ls. py < 1%	Ax	1.1 18%				
467							
	Frags Ls – sil at top & bottom, soft in center. minor seams of sulfide.	Ax	1.2 24%				
472							
	Bottom of hole at 472 ft. Driller reports water stands 135-140 ft						

Driller Metler Bi

HOLE NO DH 7 Pete Area
FROM to 86.5 ft
ELEVATION
COORDINATES EM GRID 4+75 S N 1+50 W E
DIRECTION
INCLINATION VERTICAL DEPTH
STARTED 2/12/58 COMPLETED 2/21/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		OVER BURDEN DRILLED WITH 4 1/4" ROCK BIT						
10								
20			4 1/4 ROCK BIT					
30								
40								
50								
60		ALT LATITE - (OXIDIZED, KAOLINIZED, yellow, brown limonite)	57	2.0				
			2 3/4 CORE	22 %				
		ALT LATITE - OXIDIZED (more redish) kaolinized	66	1.5'				
			2 3/4 CORE	38 %				
70		ALT LATITE - REDISH OXIDES 71-73.5 siliceous w/ diss PY	70	2.7'				
			2 3/4 23	90 %				
		ALT LATITE - more strongly oxidized purpleish oxides no visible PY		4.2'				
			2 3/4 CORE	60 %				
80		ALT LATITE - MINOR OXIDES w/ diss PY	80 81 NX	100%				
		ALT LATITE - (yellowish MINOR OXIDES) w/ diss PY	NX 23	1.2 60 %				
		ALT LATITE - YELLOW OXIDES - MINOR DISS PY	NX 86.5 NX	3.0 86%				

Logged by [illegible] 17/2/58

Driller: Metler Bros.

HOLE NO. DH 7 Pete Area
FROM 86.5 to 176 ft
ELEVATION
COORDINATES EM GRID 4+75 S N 1+50 W E
DIRECTION
INCLINATION VERTICAL DEPTH
STARTED 2/12/58 COMPLETED 2/21/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV'D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
90		ALT LATITE - KAOLINIZED - MINOR DDS /py YELLOW OXIDES	86.5 NX	2.5 56%				
		ALT LATITE - KAOLINIZED - PURPLISH OXIDES DISSEMINATED THROUGHOUT	91 NX	2.4 20%				
		ALT LATITE - KAOLINIZED - MAGNETIC GOSSAN IN 1/2" SEAM - PURPLISH OXIDES	96 NX	3.1 89%				
100		ALT LATITE - KAOLINIZED - PURPLISH OXIDES TO 100 FT OXIDES change to yellowish brown	99.5 NX	4.5 75%				
110		ALT LATITE - KALINIZED - OXIDES yellow brown TRACES pyrite	105.5 NX	8.3 98%				
		ALT LATITE - KAOLINIZED - Traces Pyrite	114 NX 116	1.2 65%			1422	0.03
		KAOLIN GOUGE from 117 - traces pyrite 4-14-59 Re-inspection: Chalcocite from 114-121 est. 1-2% Zone similar to ore intersections in holes 5 & 15	NX	2.0 50%			1423	0.18
120		Kaolin w/seams of py coated w/cc est ± 10%	120 BX	2.2 88%			1424	0.55
122.5		Kaolin - scat py w/cc coats est ± 1%	BX	2.4 96%	1173	0.37	1425	0.29
125		Gouge - pink, wh, & dk ga. minor py, considerable dk ga mat - cc?	BX	2.5 83%			1426	0.25
128		Kaolin w/minor qtz. Diss py w/cc coats ± 1%	BX	2.6 87%	1175	0.29	1427	0.25
131		Kaolinized gouge - py w/cc coats diss & in blebs est ± 5-10%	BX	3.8 95%	1174	0.25	1428	0.39
135		135-136 white kao gouge - py w/cc coats est ± 10% 136-138 dk ga gouge - cc? est ± 75%	BX	3.0 100%	1176	0.35		
138		Gouge - ga to nearly black at bottom py & cc? est ± 60%	BX	5.3 95%	1177	0.14	1429	0.30
143.5		Gouge to ± 146 - broken frags alt kao La at bottom some yellow clay min & qtz frags py & cc? est ± 50%	BX	3.2 91%	1178	0.17		
147		Alt kao qtz La. Gouge at top. Diss py est ± 10% cc as coats & thin seams	BX	2.3 77%	1179	0.06		
150		Broken frags alt qtz La. py w/cc coats est 10-15%	BX	2.7 90%				
153		Ditto above - py est ± 5%	BX	2.1 70%				
156		Ditto above - py est ± 1%	NX	1.2 60%				
158		Ditto alt qtz La py est ± 2%	BX	1.0 100%				
159		Frags alt qtz La py est 3-5%	BX	1.7 57%				
162		Ditto above py est ± 2%	BX	1.9 63%				
165		Ditto alt qtz La w/ gouge at bottom py est 3-5% w/cc in fractures & gouge	BX	2.5 83%				
168		Ditto above	BX	2.5 83%				
171		Alt qtz La w/ diss py est ± 3%	BX	2.0 100%				
173		Ditto above. py diss & in seams w/cc coats py est ± 5%	BX	2.7 90%	1180	0.02		
176								

Logged by [illegible] 17/2/58

By J.W.M 2/20/58

Page 3.[illegible]3

Driller: Metler Bros.

HOLE NO. DH #7 Pete Area
FROM 16 to 219
ELEVATION
COORDINATES EM GRID 4+75 S N 1+50 W E
DIRECTION
INCLINATION Vertical DEPTH
STARTED 2/12/58 COMPLETED 2/21/58

Logged by J.W.M 2/20/58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
176		Alt qtz La - broken frags. Py diss & in seams, some w/cc coats. Est py ± 3%	BX	2.0 67%				
179		La more highy alt w/strong kaolinization & less qtz. Diss py est ± 5%, some w/cc coats	BX	2.8 93%				
182		Ditto all above	BX	2.0 80%				
184.5		Highly alt & Kao La. Large seams of py. Green min at 186.5 Py est ± 15%	BX	2.4 96%	1181	0.02		
187		Ditto all above	BX	2.0 67%				
190		Alt Kao La w/diss py est ± 10% some cc coats Dk ga mud at bottom	Bx	2.3 77%				
193		Highly Kao La - diss py w/cc coats, est ± 15%	Bx	2.9 97%	1182	0.03		
196		Ditto above. 197-199 very broken sulfides est ± 5-10%	Bx	2.6 87%				
199		Alt Kao La w/diss py w/cc coats Py est ± 15%	Bx	3.3 73%				
203.5		Ditto above to 205 ± 205-207 broken & w/gouge & more qtz. Diss py w/ dark min - cc?	BX	3.5 100%				
207		Qtz La frags - very sil. Diss py est 5-10%	BX	2.1 105%				
209		Alt qtz La - py diss & in veins, some w/cc coats py est 10-15%	Bx	3.4 85%	1183	0.02		
213		Ditto above - broken frags. py est 2-3%	Bx	1.5 50%				
216		Alt qtz La - py diss & in seams, est ± 5%	Bx	2.6 87%				
219		Bottom of hole water stands in hole at 135 ft ?						

Page 1 of 2

Drill Contractor: Cloeter + Vought

HOLE NO. DDH # 9
FROM ... to 160 ft
ELEVATION
COORDINATES E.M. Grid 22+50 S N 5+00 E E
DIRECTION
INCLINATION Vertical DEPTH 244
STARTED 3/7/58 COMPLETED 3-15-58

Logged by J.W.M. 3/14/58

SECTION	COL	GEOLOGY (1 vertical int = 2.5 ft)	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		Alluvial covering to bedrock at 78 ft.						
Alt La?		78 white, highly altered, soft Kaolinized rock w/py boxworks of hematite & finely diss hem & lim.	Bx	2.0 / 18%				
		89 Alt clayey rock w/ Kao & much limonite - yel, brn, & red - w/some hem & py boxwork	Bx	3.1 / 62%				
		94 Talc & serpentine w/ Lim & hem as above.	Bx	5.7 / 95%	1225	.21		
		100 Ditto above w/manganese from 103±	Bx	5.2 / 87%				
Alt Ls		106 Alt Ls - serp w/ lim & hem replacing previous min.	Bx	3.1 / 155%				
		108 Serp. w/ oxidizing iron min along seams & fractures.	Bx	5.0 / 125%				
		112 Ditto above - core very broken	Bx	1.7 / 57%				
	Mag Seams	115 Serp Ls w/ strong limonitization & magnetite	Ax	2.8 / 70%	1226	.14		
		119 Ditto above - Broken frags	Ax	130%				
		120 Ditto above	Ax	40%				
		122 Broken frags serp Ls - slight reaction to HCl w/ oxid py inclusions & seams	Ax	2.7 / 39%				
		129 Ditto above	Ax	2.9 / 32%				
		138 Poor recovery - very broken frags Ls alt to serp & talc - strong reaction to HCl. Oxid fe min.	Ax	1.4 / 16%				
		147 Serp Ls w/ fe oxides replacing min in seams. Mag diss & in seams.	Ax	2.8 / 93%	1227	.03		
		150 Ditto above. Drill tools dropped thru open cavity 151-157	Ax	3.0 / 30%				
		160						

Page 2 of 2

Drill Contractor: Cloeter & Vought

HOLE NO. DDH #9
FROM 60 to 244
ELEVATION
COORDINATES EM Grid 22+50 S N 5+00 E
DIRECTION
INCLINATION Vertical DEPTH 244
STARTED 3-7-58 COMPLETED 3-15-58

SECTION	COL	GEOLOGY (1 vert. int. = 2.5 ft.)	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		160						
		161 Dark brown-black mud w/ mn?	AX	80%				
		sil & serp Ls w/py diss & in veins		5.7				
		py fresh in places, oxid in others - est	BX					
		±10%. Mag in bleb & seams		95%				
		167 Heavy mag 167-167.5 in serp. py & mag		2.3				
		in veins to bottom - est ±25%, cc?	AX	115%	1228	.37		
		169 Ditto above		2.4				
			AX	80%	1229	.03		
		172 Heavy py to ±173 - serp Ls w/diss		3.5				
		oxid py to 175. No magnetite cc?	AX	117%	1230	.33		
		175 serp Ls w/oxid py diss, in seams		3.3'				
		& in dendritic pattern along fracts.	AX	55%				
		(181) weathered, altered, ls.; originally lt. ga,		3.7'				
		alt. to brownish, mn dendrites, Fe stain						
		dirt? (dk br) @ 188± fine calcite veins	AX	50%				
		reactive to HCl little finely dissem. py (-.5%)						
		few thin qtz seams near top						
		188 soft lt. ga. dolomitic ls.; unweathered (except top)		5.4'				
		little finely dissem. py (-.5%±) other sulfides?						
		mostly poorly reactive to HCl fine textured	AX	90%				
		(194) like above - w/Fe stains - mn dendrites		3.6'				
		narrow qtz veins tr. epidote	AX	120%	1231	.02		
		197 like above - more weathered, Fe stain	197	90%				
		198 like above -	198	130%				
		199 like above - consid. alt.	199	3.0'				
			AX	100%				
		(202) lt. ga. dolomitic ls. less altered	202	7.3'				
		top 1 ft. gn. ga., Fe stained, rest unweathered						
		more py in seams + blotches, + dissem (2%?)	AX	104%	1232	.04		
		tr. other sulfides? (see @ 204+206±) sil. @ 206						
		209 narrow qtz veins. fine grained texture	209	1.8'				
		soft, lt. ga. dol. ls.	AX	90%				
		(211) like above; alt., Fe+Mn stained @ 214	211	3.6'				
			AX	90%				
		215 harder alt. lt. ga. dol. (?) ls.	215	5.3'				
		very fine grained; dendrites 215-217	AX	88%	1233	.01		
		qtz veined + Fe stained @ 217						
		(221) lt. ga. dol (?) ls. fine grained	221	2.4'				
		narrow band serp. @ 222 (slickenside)	AX	80%				
		224 like above Fe, mn stain @ 227±	224	7.0'				
			AX	116%	1234	.01		
		(230) qtz, sil. dol., latite? altered, qtz veined, Fe stained @ 230	BX 230	3.8'				
		interval highly silicious (esp BX)						
		(latite facies interfingering?)	AX	47%	1235	.03		
		cemented faulting from 232+ on						
		more sulfides (5%+) coarse texture						
		238 highly alt. lt. ga. dol. (?) ls. w/tr. epi., chl., serp.	238	3.5'				
		little HCl reaction less sulfides toward end	AX	58%	1236	.03		
		crushed, faulted (cemented), silicified, serp						
		244 Bottom of hole	244					

J.W.M. 3/14/58 — Ls — Mag Rx

J.W.W 3-17-58 — Alt. Ls

page 1 of 4

Drill Contractor: Cloeter & Vought

HOLE NO. DDH #10
FROM ... to 213 ft.
ELEVATION
E.M. Grid COORDINATES 21+45 S N 0+85 E E
DIRECTION
INCLINATION Vertical DEPTH 417
STARTED 3/17/58 COMPLETED 3-26-58

SECTION	COL	GEOLOGY (1 vertical interval = 2.5 ft)	SURVEY	% CORE RECOVERY	CORE ASSAYS: Sample SECTION number	% CU.	Au.	Ag.	SLUDGE ASSAYS: SECTION	CU.
		Alluvial covering to bedrock at 135 ft.								
		135 Soft, highly alt to Kao & talc w/ some sericite. Thick gossan zones of limonite	Bx	4.3 143%						
		138 Ditto – lim now more yellow & less red Kao increase at bottom. No qtz	Bx	3.7 123%						
		141 Ditto above – very talcy at bottom	Bx	3.5 117%						
		144 Highly alt rock – talc, limonite w/some purple staining. Oxidized py crystals diss in minor amount	Bx	7.0 140%						
		149 Ditto above. At the bottom the talc becomes pale green.	Bx	7.3 104%	1247	0.16				
		156 Same as above – talc green to ±160, then white again.	Bx	5.4 90%						
		162 still highly alt. white Kao w/pink-purple staining & much limonite. 162-162.5 is dr red to black unusual min w/irridiscent color – cuprite?	Bx	5.6 80%	1248	0.13	.005	0.2		
		169 Same alt rock as above. Talc or Kao is pale green in places. Lim & gosson in zones & along fractures.	Bx	6.6 132%						
		174 pistachio green, soft, Kao w/limonite in seams, fracts, & sm veins. –179 abrupt change to ga w/diss sulfides.	Bx	5.0 100%						
		179 sulfides are py w/dk coats – est ± 15% Some frags contain pink-red fib min – Erythrite?	Bx	2.8 93%	{@182' core frag. taken for qual. Sample No 1260, Red Mineral, results: not erythrite, maybe Cu silicate, Maybe Zoisite or Kaemmererite – Chromium mica					
		182 ga w/wh py diss in harder core	Bx	2.8 140%						
		184 complex, alt fault zone – green, gray talc, serp, epidote. Concentrations of diss py in places & seams of lim & hem.	Bx	6.3 126%	1249	0.22				
		189 Ditto above – core very broken w/slicks.	Bx	3.4 113%						
		192 lt. green ga. talcose w/serp. slickensides, ±1% py in seams probably much altered, bleached, faulted dolomite? no HCl react. tr.(3) na.cu @ 193. partly Fe stained	Bx	5.2 104%						
		197 197–198 soft, bleached (lt. ga.) talcose –1% py 198–199 dk. ga., Fe stained, harder, partly talcose –1% py more original structure than above 199–203 med. ga. siliceous – latite –1% py	AX	4.7 78%						
		203 203–207 hard, siliceous, ga. latite 1% py 207–209 soft, bleached latite(?) –1% py tr. dk. min (sph.?)	AX	6.5 108%	1250	0.06				
		209 soft, bleached, faulted latite(?) –1% py	AX	3.4 85%						
		213								

J.W.M. 3-20-58

J.W.W. 3-25-58 ← alt. Mg ls. → ← latite →

Drill Contractor: Cloeter & Vought

HOLE NO. D.D.H. # 10
FROM 3 to 300
ELEVATION
COORDINATES E.M. Grid 21+45 S N 0+85 E
DIRECTION
INCLINATION Vertical DEPTH 417
STARTED 3/17/58 COMPLETED 3-26-58

SECTION	COL.	GEOLOGY (1 vertical interval = 2.5 ft.)	SURVEY	% CORE RECOVERY	CORE ASSAYS: Sample Section Number	% Cu.	Pb	Zn			SLUDGE ASSAYS: SECTION	CU.
		213 soft, bleached, faulted latite (?) -1% py		3.3								
		216 like above	AX	110%								
		218 bleached latite; harder, less alt than above, more py (3%±)	AX	1.7 65%								
latite		223 like above -dk. min, may be crushed sulfides (hema?)	AX	4.3 86%	1251	0.10						
		226 like above -galena @ 226.5 some vuggy, semi-filled seams	AX	3.4 113%	1252	0.08						
		229 soft, much bleached, faulted latite (?) py 1%±, some crushed serp. + talc inclusions @ end	AX	4.0 133%	1253	0.09						
		232 232-234 like above; 234-235 partly bleached, alt. ls. (?) -1% py	AX	2.8 93%								
		235 bleached, alt. ls.; tr. Fe stain; no HCl react. very little py	AX	2.3 77%								
ls.		239 bleached, faulted latite; py +1% dk. dissem. streaks crushed sulfides? (hema?) heavy, well formed py @ 241 tr. ls. @ 241.5?	AX	0.4 10%								
		244 bleached, alt. latite (?) py ± 1%, some crushed semi-limy appearance @ 247.5	AX	5.4 108%	1254	0.17						
		248 like above	AX	2.6 65%								
		255 like above -1% py	AX	5.2 75%	1255	0.11						
		259 like above -very alt. + bleached - very low py almost limy in appearance	AX	3.2 80%	1256	0.10						
latite		262 like above	AX	2.6 87%								
		269 slightly less alt. than above - heavy py @ +269 variegated around 270, buff harder, lt. gr. chalky soft still much alt., gaugy	AX	5.1 73%								
		274 bleached, alt. latite - much harder than above not gaugy, less broken py ± 1% dk. dissem streaks crushed sulfides? (hema?)	AX	5.0 100%								
		279 279-280 bleached, alt. latite - almost limy look; 280-283 fresh, lt. green qz., hard latite soft green qz. inclusions (serp?) sericite phenos. py -1%	AX	4.6 92%	1257	0.07	(2" core sect. taken for quartz @ 278' Sample No. 1259 found tremolite, sphalerite)					
		283 fresh latite to 287, faulted 287-287.5 287.5-289 variegated qz. med. fine gr. alt. seds? (ls?) color, texture, hardness of ls. - no HCl reaction no mag. banded + streaked lt. qz. - dk. qz. py -1%	AX	3.0 75%								
		289 banded, streaked alt. seds? (ls?) (part volcanic?) dk. bands may be hematite (crushed sulfides)? banding horiz. to low dip - old seams 60°+ py -1% general color: lt. green qz. scant HCl react.	AX	6.5 108%								
ls		296 like above - faulted + alt. @ end	AX	7.0 100%	1261	.02	.10	.05				
		298	AX	2.5 125%								
		300										

J.W.W. 3-25-58

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Drill Contractors: Cloeter & Vought

HOLE NO. DDH # 10
FROM [illegible] to 387.5
ELEVATION
COORDINATES E.M. Grid 21+45 S N 0+85 E E
DIRECTION
INCLINATION Vertical DEPTH 417
STARTED 3-17-58 COMPLETED 3-26-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS: Sample Section Number	% CU.	% Zn	% Pb	SLUDGE ASSAYS: SECTION	CU.
		1 vertical interval = 2.5 ft.								
		300								
		Cave - no recovery	AX	0.0 0%						
		304								
		304-306 vuggy, siliceous lt. br. "sponge", "boxwork"; py -1%	AX	4.8						
		306-308.5 faultzone: above stuff w/ 2% py alternating w/ dk qa. gauge (crushed sulfides?)	BX	96%						
		309								
		308.5-310 dolom. gr. qa. ls. w/ calc. seams py 2%	AX	4.6 153%						
		310-312 lt. qa. ls. py -1% good HCl react.								
		312								
		lt. qa. banded ls. good HCl react. very low py	AX	3.2 80%	1262	.03	.10	.10		
		316	316							
		316-317 bleached, alt. ls. no HCl react. py -.01%	318	6' 100%+						
		318 317-318± br.-qa "sand" good HCl react py ±5%		2.6'						
		318-321 bleached, faulted ls. no HCl react. no py	321	86%						
		321 bleached ls. not much faulted or alt. as above no HCl react "ls." = bleached + alt. latite? latite(?) appearance @ 322, + 324-327 py spotty, -1%		6' 100%						
		327	327							
		327-328 latite ~ alt. ls. mix(?) tr. Fe stain -1% py		2.4						
		328-330 latite w/ ls. inclusions (?) tr. py	AX	80%						
		330 330-332 faulted latite ~ ls. mix(?) -1% py	AX	120%	1263	.02	.05			
		331								
		332-351 bleached, alt. ls. no HCl react. partly alt. latite? (346-351?) py 1%	AX	5.1 64%						
		339								
			AX	8.6 86%						
		349								
		351	AX	1.8 90%	1258	0.02	2.2	Jacobs		
		bleached, alt. ls. - lt. qa. py in old seams 1%+ banded, old cemented fractures dk. min in cloudy bands - hematite? sph? scattered, dissem HCl react.	AX	3.4' 42%						
		359	359							
		like above ~ narrow fault zones @ 363', 365', 360'	AX	6' 86%						
		like above	AX	9.7' 88% 3.7' 90%						
		370	370							
		like above	AX	8.3' 92%						
		like above	AX							
		379	379							
		like above	AX	8.3' 100%						
		like above	AX							
		387	387							

J.W.W. 3-25-58 — alt. ls. — latite

J.W.W. 3-28-58 — alt. ls.

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Drill Contractor: Cloeter + Vought

HOLE No. DDH #10
FROM 3[illegible].5-417
ELEVATION
COORDINATES EM grid 21+45S N 0+85E E
DIRECTION
INCLINATION vertical DEPTH 417
STARTED 3-17-58 COMPLETED 3-26-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV	CORE ASSAYS Sample SECTION No.	% CU.	% Zn				SLUDGE ASSAYS SECTION	CU.				
		387.5 1 vert. int. = 2.5 ft.														
		alt. lt. gz. ls. to 388 w/2% py,		3'												
		388-398 med. gz. lztite? More probably qtzt	AX	75%	1265	.21	.10									
		391 w/some remnants of ls. structure (i.e. banding)	391													
		fine grained to sugary texture - no phenocrysts	AX	1.6' 80%												
		393	393													
				3.5'												
		like above (More probably qtzt)	AX	58%												
		398														
		399 alt. ls. lt. gz., bleached, no HCl react, py 2%	399													
		like above	AX	1.9' 60%												
		402	402													
		404 402-417 lztite, med-dk gz., fn. grained	AX	1.0' 50%												
		some w/remnants ls. banding	404													
				1.3'												
		py 2%, little dissem, most in cemented fractures	AX	26%												
		409 N.E.E. (More probably qtzite.)	409													
		like above	BX	2.3' 92%												
		411.5	411.5													
		like above	AX	1.0' 28%												
		415	415													
		like above	AX	1.6' 80%	1264	.05										
		417	417													
		bottom of hole														
		H_2O @ 100-125'														

J.W.W. 3-28-58

qtzt

ls.

qtzt

Drill Contractor: Metler Bros.

HOLE NO. DH 11
FROM 0 350'
ELEVATION
COORDINATES EM Grid SEC. 3, 0+88N, 5+68W
DIRECTION
INCLINATION Vertical DEPTH 350'
STARTED 3-20-58 COMPLETED 3-24-58

SECTION	COL.	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		drilled with mud, $4\frac{3}{8}$" rock bit 1 vert. int. = 10 ft.						
		0 – 350' Alluvium (examined to 198') sand + gravel, intermixed silt + mud very few boulders, few caliche seams sand seems fairly uniform in size (med. fine) uniform composition down hole 50% ± qtz, (white, Fe stained) 35% ± feldspar (buff, pink) 15% various: epidote, biotite (qtzite?) chert, ls., serp., hema., limo. consid. ls. magnetite content minus 1%, up to 1%? susceptibility tests throughout hole made with Sharpe hand-mag max. deflection = 2 scale div. = 40γ ± (not enough to account for anomaly)						
		350 – Bottom of hole						

Drill Contractor: Metler Bros.

HOLE NO. D.D.H. #12
FROM ... to 107.5 ft
ELEVATION ...
COORDINATES E.M. Grid 1 N N. 21+25 W
DIRECTION ...
INCLINATION Vertical DEPTH 202
STARTED 4-7-58 COMPLETED 4/14/58

SECTION	COL	GEOLOGY (1 vertical interval = 2.5 ft)	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample SECTION number	% CU.	Ag	Au	Mo	SLUDGE ASSAYS SECTION	CU.
Alluvium		0-32 ft — alluvium & overburden of La, Bolsa & Ls. frags & boulders w/ much red hem. stn. & yel. lim clay.									
Qtz		32 Sil rock to ± 33' w/about 90% qtz. then breccia in red hem. & limonite	NX	4.6 92%							
		37 Soft orange limonite frags w/ some white talc frags.	NX	1.6 53%							
		40 soft yellow limonite frags w/remains of vugs & seams coated w/hem & manganese	NX	2.0 67%							
		43 Same as above	Bx	0.7 23%							
		46 Highy alt - talcy w/Fe oxides - pronounced pink color — originally Ls?	Bx	1.7 68%							
By J.W.M. 4-8-58 alt Ls?		48.5 Ditto	Bx	2.2 73%							
		51.5 Ditto	Bx	2.3 77%	1269	.04	none	.005			
		54.5 Ditto	Bx	2.0 67%							
		57.5 Ditto	Bx	1.5 60%							
		60 somewhat more siliceous — less pink	Nx	1.0 50%							
		62 Ditto	Nx	20%							
		63 Alt highly sil rock - qtz La? - w/seams & vugs of fe oxides, mainly limonite	Nx	4.8 96%							
		68 Ditto above. Some of the fe oxide may be turgite?	Nx	5.4 90%							
		74 Phenocrysts larger & talcy									
		Ditto above. Strong limonitization (yellow) 75-77, then becoming red & pink. Less sil at bottom	Nx	6.3 79%							
J.W.M. 4-11-58 Alt qtz Latite?		82 Core is a pronounced red color — texture like alt feld, or kao. white talc along seams & fracts. Boxworks of former sulfide min along some seams. No sil.	Nx	8.6 86%	1266	.04					
		92 Alt sil La? Groundmass other than qtz is pale yellow clay min. Some seams of limonite & some open seams coated w/dk fe oxides.	Nx	9.8 93%							
		102.5 Ditto alt La? - more sil at top than bottom. Lim boxworks after py	Nx	↓ next page	1267	tr	none	.005			
		107.5									

Drill Contractor: Metler Bros.

HOLE NO. D.D.H. #12
FROM 107.5 to 194
ELEVATION
E.M. Grid COORDINATES 1+00 N N 21+25 W E
DIRECTION
INCLINATION Vertical DEPTH 202
STARTED 4-7-58 COMPLETED 4/14/58

SECTION	COL.	GEOLOGY (1 vertical interval = 2.5 ft)	SURVEY	% CORE RECOVERY	CORE ASSAYS Sample SECTION number	% CU.	Ag	Au	Mo	SLUDGE ASSAYS SECTION	CU.
		107.5 alt La? – dark fe oxides along some fracts. Appearance of golden colored glistening, cry, min – complex oxide?	NX	8.5 81%	1267	tr	none	.005			
		113 alt La? w/white talcy phenos, & turgite? along some seams near the bottom.	NX	8.9 85%							
		123.5 Alt La? w/some py Boxworks & Lim gossan. Few specks blue min – Cu ox? Azurite?	NX	4.4 80%							
		129 open cave 129-133, then reduced bit to set hole again. Broken frags: X-taline, golden min on fracts.	NX	2.0 33%							
		135 Alt. La? more Kao, less qtz. Limonite stains. Green Cu oxides at bottom	NX	4.0 100%							
		139 Alt La? – mainly Kao w/little qtz. Green Cu oxide throughout – mc? Dk bn – golden, x-taline min on fracts.	NX	6.8 85%	1268	.05					
		147 Alt La? w/increase in lim boxwork. Some green cu oxide – mc? – to 149	NX	3.8 85%							
		151.5 Ditto alt La? becoming more si/ at bottom where unalt. py. appears	NX	5.5 122%							
		156 Grey quartzite — complex yellow oxides on fracts to 160 ft. Some blebs Mo. Diss white py & in seams, increasing at bottom sulfides est ± 15-20 %	NX	5.9 98%	1270	tr	none	tr	.008		
		162 Ditto qtz w/mo & py	NX	1.4 70%							
		164 Quartzite w/py diss & in veins Some traces mo. sulfides est ± 15 %	NX	5.8 83%	1271	tr			.014		
		171 Qtzite w/diss py & traces mo. Some specks cp. Dk min along some fracts – prim.cc? Sulfides est ± 20%	BX	5.0 83%	1272	.06			.02		
		177 Ditto all above	BX	0.9 45%							
		179 qtzite – fracts filled w/py & some black min — cc or fe/mn ??	BX	2.0 80%							
		181.5 Same as above w/one speck mo & a little talc along some slip fracts. Py also diss. sulf. est 10-15%	BX	5.4 83%							
		188 Qtzite w/py diss & along fracts. Some dk min in the fracts. sulfides est. 10-15%	BX	5.3 88%							
		194									

J.W.M. 4-11-58 — alt qtz Latite

J.W.M. 4-14-58 — Quartzite

J.W.M. 5-19-58

Drill Contractor: Metler Bros.

HOLE D.D.H. # 12
FROM 194 - 202
ELEVATION
COORDINATES E.M. Grid 1+00 N N 21+25 W E
DIRECTION
INCLINATION Vertical DEPTH 202
STARTED 4-7-58 COMPLETED 4-14-58

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		194 1 vert. int = 2.5 ft.						
Quartzite		Qtzite w/py diss & along fracts. Some dk min & traces mo. Talc along breaks.	BX	1.7 57%				
		197 Ditto above - sulfides est ± 15 %	BX	1.7 57%				
		200 Ditto above	BX	1.3 65%				
		202 Bottom of hole at 202'.						

J.W.M. 5-7-58

Drill Contractor: Metler Bros

HOLE NO. DH #13
FROM 0- 106'
ELEVATION
COORDINATES EM Grid 1N N 23+25W E
DIRECTION
INCLINATION Vertical DEPTH 106'
STARTED 4-14-58 COMPLETED 4-18-58

SECTION	COL	GEOLOGY (1 Vertical Interval = 2.5 ft.)	SURVEY	% CORE RECOVD	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		0-63' Alluvium with quartzite boulders			No assays			
		20'-63' NX diamond bit	NX					
Top Rock		63 Pinkish + Bleached, yel stains Alt qtz?? very soft 63-65 Red " " " " 65-7		3.5'				
		py casts Poss. Alt. La?	NX	87%				
		67 Red Alt qtzite?? soft 67-73 py casts		7.5'				
		Pinkish " " " 73-75 " "						
		Poss. Alt. La?	NX	94%				
		75 Slight brn stains py casts 2% 75-82 qtzite?		10.5'				
		gry qtzite 2% py dissem 82-85						
			NX	100%				
		85 gry qtzite 2% py dissem		5.5'				
		slips coated blk (Cpy? crushed)	NX					
		92		79%				
		Same Brkn pcs	NX	2.2'				
		96 Same Brkn pcs	BX	1.7'				
		99 Same	BX	2.7'				
		102 Same	BX	2.1'				
		106 End of Hole						

4-18-58 WB

Alt La? or Alt Qtzt

WB-4-21-58

Qtzt

Drill contractors: Metler Bros.

Vertical Scale 2.5' = 1 division

HOLE DH #14
FROM 0 - 95
ELEVATION
COORDINATES EM 2+15 N N 26+00 W E
DIRECTION
INCLINATION Vertical DEPTH 273
STARTED 4-20-58 COMPLETED 5-5-58

4-25-58 WB

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SAMPLE NO.	CORE ASSAYS CU %	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		0-15' Overburden						
		15' gray qtzite boulders - Fe stained	NX	1.5' 50%				
		18' Highly Alt. La, clay, Hematite + Limonite thru-out		5.0' 83%	1277	.04		
		24' Same		0.4' 13%				
		27' Same		1.2' 24%				
		32' siliceous La?	NX	0.5' 17%				
		35' Alt La? with Limonite, Hematite, Turgite Sereite	BX	1.8' 36%				
		40' Same		2.4' 48%				
		45' Same Feldspar Avg 2-3MM Max 10MM		2.9' 58%	1273	.02		
		50' lt. gry Latite, py disem & in tiny stringers thru-out Minor Lim, Hematite & Turgite (Blk) on fractures Sereite 1% py		5.6' 100%				
		55' Same 2-4% py 55-62' Very sil La? or qtzite? 0.5-1% py 62'-65' Minor Limonite	BX	9.9' 99%	1274	.02		
		65' Siliceous La? 0.5-1% py Minor Limonite 67-75.5 " " " " Lim Turgite very siliceous		8.4' 80%				
		75.5' Same		4.0' 80%				
		80.5' Same Brkn Last 1" 50% py	BX	1.2' 80%				
		82' Gray qtzite? 10-2% py		2.5' 50%	1275	.03		
		87 Same Leached out py seam 87-89 (vuggy) 1% py	BX	2.7' 34%				
		95						

HOLE DH#14
FROM 95 - 176
ELEVATION
COORDINATES EM 2+15N N 26+00W E
DIRECTION
INCLINATION Vertical DEPTH 273
STARTED 4-20-58 COMPLETED 5-5-58

SECTION	COL	GEOLOGY (Vertical 1 division = 2.5')	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample Section No	CU.	Zn				SLUDGE ASSAYS Sample Section No	CU.	Composite
4-25-58 WB		95' gray qtzite? dissm py 1%	BX	2.1 52%	1278	.03							
		99' Same		2.1 52%									
		103 Same Brkn Bottom of py oxidation		1.6 32%									
		Blk metallic coating on py at 108											
		108 Same Brkn		1.7 34%	1276	.14	0						
		113 gry qtzite? or siliceous latite? dissm py, blk metallic coating on some py (bornite? chalcocite?)		2.7 45%									
		119 Same		2.0									
			BX	33%									
5-8-58 WB		125 Same	AX	1.9 63%									
		128 Same	BX	2.8 56%									
		133 Same		1.5 43%	1286	0.15							
		136.5 Same wht fault gouge with small qtz xtals at 141		2.6 58%	1287	0.23					1490	0.89	Av: 85' = 5.44
		141 Same		0.8 53%						?			
		142.5 Same		0.9 36%	1279	0.78					1489	0.69	0.64
		145 Same		0.8 40%									
		147 Same		1.6 53%	1288	0.12	x9						= 1.08
		150 Same		1.1 55%									
		152 Same		0.7 35%									
		154 Same		2.0 67%	1280	0.35	x5						= 1.75
		157 Same	BX	1.2 60%									
		159 Same	BX	1.9 95%	1289	0.06	x2						= 0.12
		161 gray qtzite?? diss py with Blk coating	AX	5.1 100%	1281	0.46	x5						= 2.30
5-9-58 WB		166 Same		5.8	1290	0.28							= 2.80
			AX	58%									
		176											

Factor

60' @ 0.68% CU

Page 3 of 4

HOLE: PH #14
FROM: 176 - 260
ELEVATION:
COORDINATES: EM 2+15N N 26+00W E
DIRECTION:
INCLINATION: Vertical DEPTH: 273
STARTED: 4-20-58 COMPLETED: 5-5-58

SECTION	COL	GEOLOGY (Vertical Scale 1 division = 2.5')	SURVEY	% CORE RECOV-D	CORE ASSAYS Sample No	CU.	Zn	Au	Ag	Pb	SLUDGE ASSAYS Sample No	CU.	Composite
		176 mottled gry & grn qtzite? dissm py blk coating on some pyrite (0.4% Cu?)	AX	6.1 / 81%	1291	0.35					1491	1.49	Factor ↓ Av: 1.45 x 10 = 14.5
		183.5 Same, Increase of blk min., Trace chalcopyr		1.8 / 72%	#1282 1295	2.47	tr	.005	.3	.1			
		186 Same (1.5% Cu?)		5.5 / 69%	1292	1.41	x 8'						= 11.76
		194 Same (0.6% Cu?)		1.3 / 65%	1293	0.46	x 2'						= 0.92
		196 Same		2.4 / 48%	1294	0.16							
		201 Same		5.0 / 100%	1283	0.25							
		206 Siliceous Latite? or Altered arkosic qtzite,? dissm py - bk coating slight	AX	8.5 / 85%									
		216 Same		3.6 / 72%	1284	.14							
		221 Same		1.9 / 38%									
		226 Same 226-226.5 226.5-231 Sil Alt. La.? por. Some fresh pink feldspars, (py with blk coating		3.3 / 66%									
		231 231-231.5 Same 231.5-236 gry mottled Latite? pyrite with slight amt of blk coating		2.2 / 44%									
		236 Same		2.0 / 40%									
		241 Same		4.7 / 78%									
		248 Same Trace Cu Fe S4		4.1 / 51%									
		256 Same	AX	1.8 / 45%									
		260											

5-9-58 WB

60' @ 0.68% Cu

Page 4 of 4

HOLE DH #14
FROM 260 - 273
ELEVATION
COORDINATES EM 2+15N N. 26+00W E
DIRECTION
INCLINATION Vertical DEPTH 273
STARTED 4-20-58 COMPLETED 5-5-58

SECTION	COL	GEOLOGY Vertical Scale 1 division = 2.5'	SURVEY	% CORE RECOVERED	CORE ASSAYS Sample SECTION No.	CU.					SLUDGE ASSAYS SECTION	CU.				
		260 gry mottled Latite?														
		py with slight amt of blk coating	AX	1.4 47%												
		263 Same Trace $CuFeS_4$		4.5 64%	1285	.13										
		270 Same	AX	2.7 90%												
		273 End of Hole														

5-9-58 WB

Drillers: Metler Bros.

HOLE Diamond Drill Hole # 15
FROM 0 to 160 ft.
ELEVATION
COORDINATES 5+60 S & 2+18.5 W
DIRECTION Vertical
INCLINATION DEPTH 160 ft
STARTED 4-9-59 COMPLETED 4-11-59

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	% CU.	% Au.	% Ag.	SLUDGE ASSAYS SECTION	CU.
Alluvium		0-91 ft. Overburden & alluvium.								
Altered Latite		91 Highly altered, white w/red & purple along seams & fractures. Latite altered to kaolin? No quartz	NX	4.6' 115%						
		95 Alt. Latite - less kaolin, some quartz.								
		97 Leached gossan cavities.	NX	1.1' 55%						
		Highly altered - fault? Kaolin & clay minerals, little or no quartz.	BX	5.3' 99%						
		102.6 well leached gossan zone.								
		As above - latite altered to Kaolin & leached. Core progressively	BX	5.5' 92%						
		108.6 more broken toward bottom.								
		As above but harder core.	BX	5.0' 100%						
		113.6 Ditto to about 114 where change								
		115.8 to grey-white w/pyrite & some cc?	BX	2.8' 127%	115.8					
ORE		Highly altered, white w/some py & dark grey mineral, probably chalcocite.	BX	4.5' 107%		3.24	0.001	2.0		
		120 Best concentration at 118.5 - 120								
		121.2 As above w/good concentration cc?	BX	1.2' 100%	121.2					
		Some altered material but almost no pyrite or chalcocite	BX	1.7' 61%						
		124 As above, with some py & cc? core				0.22				
		126 broken & may be altered ls.	BX	1.7' 85%	126					
		Increase in both py & dark cc? for 2 feet then core is chalky white	BX	3.1' 78%	128	0.26				
		130 & barren again.								
Fault?		Still gouge &/or alt. kao. material In places some grey mineral, probably	BX	5.0' 100%		0.12				
		135 sericite. 132-133 is orange-red w/pale green			134					
		137 As above	BX	1.3' 65%						
		As above. Darker w/some green.	BX	2.0' 67%		0.22				
		140 Signs of alteration from limestone consid. py.								
		As above. Pyrite fresh & in larger x-tals, in seams.	BX	4.7' 99%	141					
		145				0.18				
Altered Limestone?		Alt. Limestone w/pyrite	BX	2.6' 100%						
		147.5 Change about 148. Core pale yellow			147.5					
		150 & green & in larger pieces. w/pyrite	BX	2.5' 100%						
		As above, w/pyrite.	BX	5.0' 100%						
		155								
Latite		As above - altered w/pyrite but harder & sil. in places. Possible	BX	5.0' 100%						
		160 contact back into latite at 158±								
		Core logged 5/26/59 d. W. M.								

Drillers: Metler Bros.

HOLE No. Diamond Drill Hole #16
FROM 0 to 135 ft.
ELEVATION
COORDINATES 5+80 S 2+00 W
DIRECTION Vertical
INCLINATION DEPTH 135 ft
STARTED May, 1959 COMPLETED May, 1959

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		0 to 100± feet Alluvium & over burden						
		100						
Altered Latite?		Highly altered, Kaolinized & clayey w/fragments of probable latite. Brown Fe staining w/black boxworks.	Ax	4.3' 72%				
		106						
		Highly altered, probably from limestone to about the middle. Core very broken all the way. Last half white, possibly fault. Dark grey min., poss. Chalcocite appears in last 3 inches.	Ax	4.0' 44%				
		115			115			
ORE		White, altered, fault? w/cc. & a little pyrite	Ax	3.6' 144%		5.74		
		117.5						
		Ditto above	Ax	3.0' 120%	120			
		120						
Fault?		Ditto above – more pyrite, less chalcocite	Ax	3.5' 100%		1.99		
		123.5						
		Ditto fault, broken frags. & mud, grey mineral, possibly sericite.	Ax	1.1' 73%	125			
		125						
		Ditto fault. Minor cc. at start then only pyrite, increasing.	Ax	2.5' 50%				
		130						
		Ditto fault. White clay or gouge w/pyrite lessening. Soft and muddy at bottom.	Ax	3.3' 66%				
		135						

Core logged 5/26/59 J.W.M.

Drillers : Metler Bros.

HOLE NO. Diamond Drill Hole #17
FROM 0 to 142 ft.
ELEVATION
COORDINATES 5+60 S 1+80 W
DIRECTION Vertical
INCLINATION DEPTH 142 ft.
STARTED May, 1959 COMPLETED May, 1959

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	% CU.	oz. Au.	oz. Ag.			SLUDGE ASSAYS SECTION	CU.
Alluvium		0-80 ft. Alluvium & overburden										
		80										
Altered Latite w/possible Limestone inclus.		Highly altered kaolinized fragments. First two feet of the core stained red-brown, next two feet has a pale green color, last foot grades into altered latite.	BX	5.0' 42%								
		92										
		Very altered & leached latite. Red, purple, brown, white & black colorations.	BX	3.2' 32%								
		102										
		Altered latite with a little quartz	BX	2.0' 100%								
		104										
		Altered latite	BX	2.4' 60%								
		108										
		Latite - a little less altered. Gossan-boxworks & leached seams are prominent.	BX	3.5' 87%	110							
		112										
		Ditto above. Some greenish color 111-113 suggests former limestone inclus.	BX	3.0' 100%			0.005	0.6	OXIDE			
		115										
		Alt. Lat. Purple brown very prominent as are leached openings also.	BX	2.6' 130%	117							
		117										
		Ditto above	BX	2.5' 50%								
		122										
		Ditto above but less purple color alteration.	BX	2.2' 88%	125							
		125.5										
Fault ?	Otz	white talc - fault? w/diss. chalcocite & pyrite.	BX	2.0' 110%		2.21						
		127.3										
		Ditto above w/cc increasing	BX	1.8' 106%								
		129										
		Ditto	BX	3.0' 100%	131							
		132										
		Ditto	BX	2.0' 57%		0.49						
		135.5										
		Ditto but chalcocite decreasing	BX	1.1' 73%	137							
		137										
		Ditto	BX	1.7' 94%								
		138.8										
		Ditto white talc - fault? but cc & py minor. Some grey sericite.	BX	3.0' 94%								
		142										
		Core logged 5/26/59 J.W.M.										

Drill Contractor: Metler Bros.

HOLE No. #18
FROM 0 - 56.5'
ELEVATION
COORDINATES See below N E
DIRECTION Vertical
INCLINATION Vertical DEPTH 56.5'
STARTED 8-31-59 COMPLETED 9-1-59

Logged 9-8-59 J.W.M.

SECTION	COL.	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled in the north end of Tat #12, 63' west and 5' south of the northeast corner. Rock bit used to 49'. Bedrock encountered at 47' under alluvium & over burden.	Tricone	0.0'				
			Rock Bit	0%				
Latite		47 — 49 Leached & altered qtz. Latite caprock. Formerly had much sulfide. 56.5	BX "C"	7.2' 96%				

Drill Contractor: Metler Bros.

HOLE No. #19
FROM 0' to 111
ELEVATION
COORDINATES See below N E
DIRECTION Vertical
INCLINATION Vertical DEPTH 111
STARTED 9-1-59 COMPLETED 9-2-59

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled at common corner of Tat 28 & Tat 29 — NE 28, NW 29.		0.0'				
		Alluvium & over burden to 90'.		0%				
Alt. Latite		90 Soft decomposed bedrock, presumably altered Latite.		0.0' 0%				
		107 Soft & highly altered Latite w/ much fe & py. pseudomorphs. 111		4.0' 100%				

9-8-59 L.W.M.

Drill Contractor: Metler Bros.

HOLE No. #20
FROM 0' to 164
ELEVATION
COORDINATES See below N E
DIRECTION Vertical
INCLINATION Vertical DEPTH 164
STARTED 9-3-59 COMPLETED 9-4-59

Logged 9-29-59 J.W.M.

SECTION	COL.	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled at common corner of Tat 29 & Tat 30 — NE 29, NW 30.						
			Tricone Rock Bit	0.0' 0%				
		Overburden						
		129						
Clay		Drillers report clay.						
		148						
Latite		Drillers report soft rock.						
		154						
		Hard, slightly altered quartz Latite. Seams & vugs of former mineralization, now leached.	BX "C"	9.7' 97%				
		164						

Drill Contractor: Metler Bros.

HOLE No. # 21
FROM 0' to 35'
ELEVATION
COORDINATES See below N E
DIRECTION Vertical
INCLINATION Vertical DEPTH 35'
STARTED 9-4-59 COMPLETED 9-5-59

Logged 9-29-59 J.W.M.

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled at end center common to Tat 53 & Tat 54.	Tri cone	0.0'				
		Alluvium & overburden to 27'	Rock Bit	0%				
		27 Fresh gray qtz. Latite w/pyrite to 33' then altered & reddish pink in color.	BX "C"	7.7' 96%				
Latite		35						

Drill Contractor: Metler Bros.

HOLE No. # 22
FROM 0' - 76.5'
ELEVATION
COORDINATES See below N. E
DIRECTION Vertical
INCLINATION Vertical DEPTH 76.5'
STARTED 9-6-59 COMPLETED 9-6-59

Logged 9-29-59 J.W.M.

SECTION	COL.	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled at common corner of Tat 23 & Tat 24 — NE23, NW 24.	Tricone	0.0'				
		Alluvium	Rock Bit	0%				
		70						
		75 Drillers report soft rock or clay		0				
Latite		76.5 Altered & pinkish Latite	GX	100%				

Drill contractor: Metler Bros.

HOLE No. #23
FROM 0' to 219.1'
ELEVATION
COORDINATES See below N. E
DIRECTION Vertical
INCLINATION Vertical DEPTH 219.1
STARTED 9-7-59 COMPLETED 9-9-59

Logged 9-29-59 L.W.M.

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
Alluvium		Hole drilled at N.E. cor. of Tat 25 which is also on the north end line of Tat 26	Tricone					
		Alluvium	Rock Bit					
		180						
		Drillers report clay or soft bedrock.						
		190						
		Drillers report hole caving badly.						
Granite? & Latite		210						
		Quart latite w/mineralized seams & vugs, faulted about 212 over altered granite?	BX "C"	7.3' 80%				
		219.1						

This hole drilled w/ Mayhew rotary Rig.
Driller: Goodwin. Helper: Halvorson

Core for this hole logged on 2/21/58
by Norman Eastmoore, Jr.

HOLE NO. C R3 (United Geophysical Co.)
FROM - 200'
ELEVATION
COORDINATES Hole Located 60 ft. due West of the NW Cor. TAT 11 N E
DIRECTION
INCLINATION Vertical DEPTH 403
STARTED 7/27/52 COMPLETED 8/27/52

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	Zn	SLUDGE ASSAYS SECTION	CU.
		0-42 Boulders & sand.							
		42-115 Clay							
		115-121 Bedrock No core							
		From 0-121 drilled w/ 4½" rock bit.							
		121-127 ga & lt ga ls w/dk ga blotches & mottling	121						
Ls		Text. dense & very fn gr. All sil. Minor py	123	90%					
		& few bl-bk spots (cc?). Minor gar & epid on	124	140%					
		seams.	125					125	
			126			0.06	1.40	126	
		127-133 Ditto ls - hi sil. Py bands up to 6" wide							
		Minor bl-bk mottling in spots (cc?) Int. broken		65%					
		Py est 3-4%	131						
			133	100%					
		133-140 Dense fn gr ga sil ls w/some bro ch & dirty							
		gn ls-sil min. Vuggy & broken. Minor py.	135	100%		0.17	0.40		
		Few nar. bed. seams py & qtz.	137	120%				136	
						0.19	0.30	138.5	
				100					
		140-148 Dense fn gr sil ga mot dk ga ls.	140						
		Few vuggy nar. qtz & py seams							
		Specs cpy @ 144		76					
			145						
				90					
		148-161 Ditto ls above, w/some nar bro ch bands	148						
		Py in bed seams & scat est 5%.							
				84					
Ls			153						
			156	83					
				66	1237	0.13	0.15		
		161-168 Dense fn gr. hi sil ls w/qtz bands, some dk ga.	161						
		Py est. 8% w/tr. cpy.							
				98		0.75			
		168-187 Dense fn gr sil ls w/few qtz seams.	168						
		Very minor py. Some lt bro ch.		110					
		168-180 not broken 180-187 more broken	171						
				110					
			182						
				100					
		187-193 Ditto above w/nar. serp. seams. Few	187						
		nar. py seams. Tr cpy @ 189.5'		110					
			190		1238	0.35	0.10		
Top sil Zone in Ls		193-200 Dense lt ga hd very fn gr almost completely		96					
		sil ls. Very minor py.	194						
			196	55					
				100					
			201						

HOLE NO. CR 3 (United Geophysical Co.)
FROM 0'-288
ELEVATION
COORDINATES Hole located 60 ft. due west of the NW cor. TAT 11 N E
DIRECTION
INCLINATION Vertical DEPTH 403
STARTED 7/27/52 COMPLETED 8/27/52

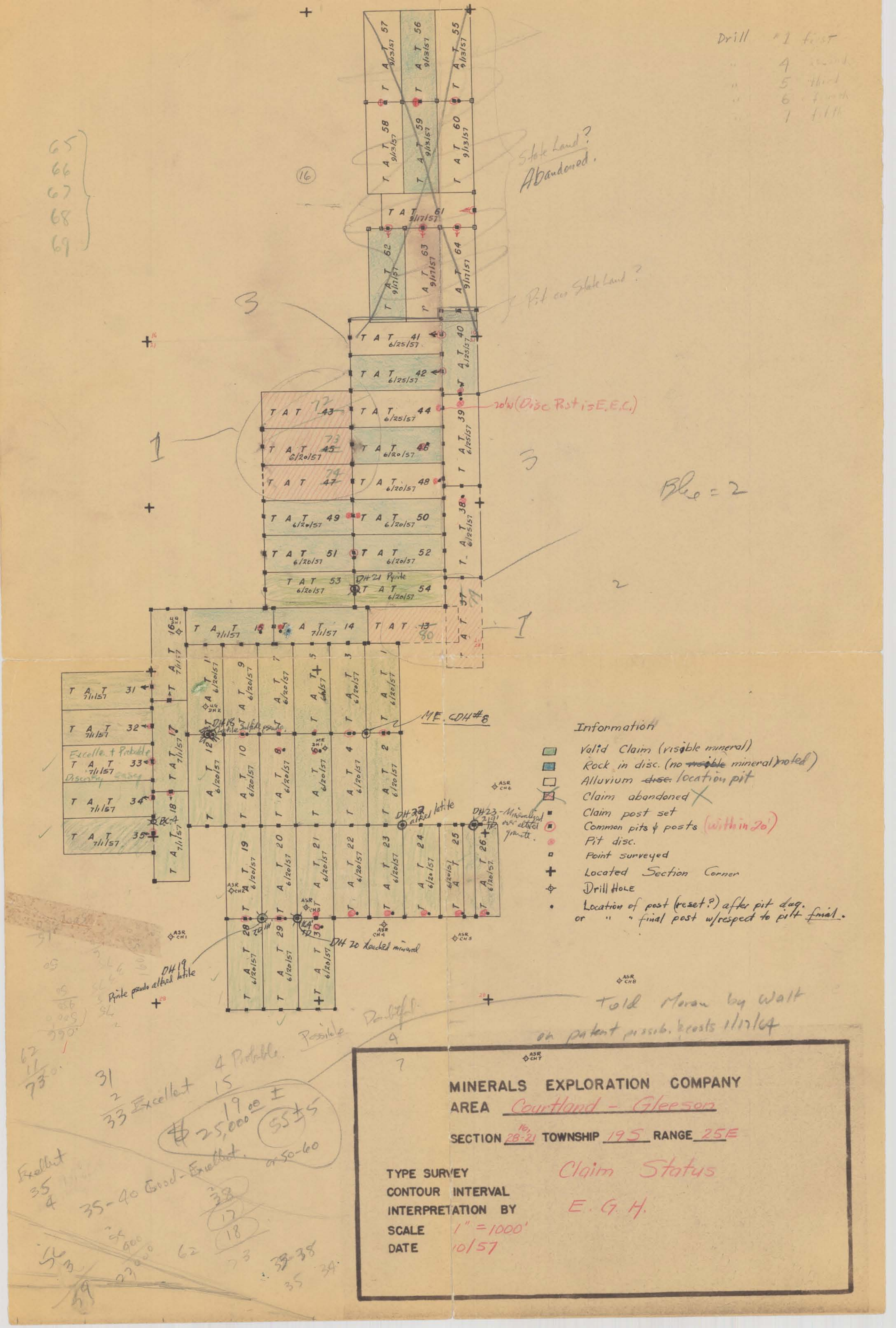
SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION	CU.	ZN				SLUDGE ASSAYS SECTION	CU.				
		200														
		201 200-218 Dense fn gr hd ga almost completely sil ls. Minor brassy py. 200-201 hvy brassy py	201	100	1239	0.09	0.20									
			205													
			206	100												
				95												
			211													
			212	98												
			215	98												
			217	96												
		218-231 Ditto all above Very minor brassy py.	218	70												
			221	96												
			223	100												
			225	98												
			227	75												
			228	98												
		231-240 Ditto all above. Minor brassy py.	231	110												
			233	105	1240	0.04	0.05									
			237	100												
		240-248 Ditto all.	240	100												
			243	98												
			246	100												
Sil. Ls.		248-263 Ditto all	249	100												
			252	98	1241	0.06	tr									
			255	105												
			259	100												
			261	100												
		263-276 Ditto all. Vuggy chalky seam @ 268	263	100												
			266	95												
			268	100												
			271	100												
				98												
		276-284 Ditto hi sil ls. Minor brassy py.	276													
			278	98												
Bot Sil. Ls			281	90												
Zone		284-288 Ditt above. More broken Lower 2' more ruggy w/qtz & brassy py. Tr $ZnCO_3$	284	100												
Top Contact Metamorphism				98												

HOLE N C R3 (United Geophysical Co.)
FROM 38 - 375
ELEVATION
COORDINATES Hole located 60 ft. due west of the NW cor. T.A.I.I. N E
DIRECTION
INCLINATION Vertical DEPTH 403
STARTED 7/27/52 COMPLETED 8/27/52

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV'D	CORE ASSAYS SECTION	CU.	Zn	SLUDGE ASSAYS SECTION	CU.
Contact Metamorphosed Zone		288-289 Ox. Vuggy sil. ls.	288						
		289-296 Ga sil hd fngr. ls w/minor py.	291	95	1242	0.23	0.10		
				98					
		296-305 Ditto ls above w/streaks gr serp & dk ga ls-sil. min.-(gar.-epid). Brassy py 3% Bedding? planes @ 45-60°	295						
				99	1243	0.25	0.05		
		305-321 Ditto above w/more dk gn ls-sil min. Few specs of FeO or CuO? Beds? dip ±60° to core axis.	305						
				100					
			311						
				96					
			317		1244	0.18	0.10		
				95					
		321-331 ditto sil ls & gar-epid. Beds dip ± 60° to core axis Minor py stringers & specs.	321						
				85					
		331-335 lt tan very dense fn gr. sil ls. w/dk ga mot dk gn ls in lower 1 ft.	331						
				96					
		335-356 Dense very fn gr ga very sil. ls. Minor py. Bed? planes dip @ ± 60° to Core axis Very minor gar & serp.	335						
				98					
			341						
				96					
			346						
				110					
Top Serp. Zone in LS		356-379 Thin bedded ls gan alt. w/gn gar. beds. Minor py, serp ch & qtz bed. seams Bed planes dip ± 60° to Core axis	356						
				90					
			360						
				90					
			365						
				93					
			373						
			375						

HOLE NO. CR3 (United Geophysical Co)
FROM 375-403
ELEVATION
COORDINATES Hole located 60 ft. due West of the ~~N.W. cor. TAT 11~~ N. E
DIRECTION
INCLINATION Vertical DEPTH 403
STARTED 7/27/52 COMPLETED 8/27/52

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CU.					SLUDGE ASSAYS SECTION	CU.				
		375														
Serp. Is Zone		379-385 ga dense fn gr hi sil hd ls w/ nar ch beds & serp bands & clots some nar qtz seams w/ brassy py	379	90	372- 1245	0.23	0.05									
		385-391 Ditto ls above w/ some gar-epid. Tr pk dol @ 390. Minor qtz, py, & serp.	385	95	387-											
		391-393 Lt ga mass, dense, fn gr. sil ls.	393													
		393-403 ga mot gn-tan sil ls w/ ls-sil min. scat throughout. Py est 4-5% some qtz seams & bro ch. Few alt & softened nar intervals Broken throughout interval.	395	95	1246	0.16	0.05									
			401	100												
		403	403	80												
		403 Bot. of hole														


Drill #1 first
4 second
5 third
6 fourth
1 fifth
State Land? Abandoned.
Pit on State Land?
20'W (Disc Post is E.E.C.)
Blue = 2
ME. CDH #8
DH 21 Pyrite
DH 18 Pyrite Sulfide pseudo.
Excellent Probable
Discovery
DH 22 altered latite
DH 23 - Mineralized over altered granite.
DH 20 touched mineral
DH 19 Pyrite pseudo altered latite
Told Moran by Walt on patent possib. breaks 1/17/64
Information
Valid Claim (visible mineral)
Rock in disc. (no ~~visible~~ mineral noted)
Alluvium ~~disc.~~ location pit
Claim abandoned
Claim post set
Common pits & posts (within 20')
Pit disc.
Point surveyed
Located Section Corner
Drill Hole
Location of post (reset?) after pit dug.
or " " final post w/respect to pit final.
MINERALS EXPLORATION COMPANY
AREA Courtland - Gleeson
SECTION 28-21 TOWNSHIP 19S RANGE 25E
TYPE SURVEY Claim Status
CONTOUR INTERVAL
INTERPRETATION BY E. G. H.
SCALE 1" = 1000'
DATE 10/57

EXPLANATION

Quaternary
- Qal — Alluvium (includes talus)

Middle Tertiary
- Pick porphyry

Unconformity

Upper Cretaceous or Lower Tertiary
- qsl — Quartz-sericite-limonite veins
- fel — Felsite

Unconformity

Triassic and/or Jurassic
- Jkts — Turquoise granite, altered
- Jkc — Copper Belle monzonite porphyry

Unconformity

Pennsylvanian and Permian
- Ch — Horquilla limestone

Disconformity

Early and Middle Mississippian
- Ce — Escabrosa limestone

Disconformity

Upper Devonian
- Dm — Martin limestone

Disconformity

Middle and Upper Cambrian
- Ꞓa — Abrigo limestone

Middle Cambrian
- Ꞓb — Bolsa quartzite

LEGEND

- Formation contact
- Fault (normal)
- Concealed fault
- Inferred fault
- Thrust fault
- Glide thrust fault
- Fracturing
- Dip & strike
- Dip & strike; overturned beds
- Strike of vertical beds
- Triangulation station
- Photo control point
- Drill hole
- Mine workings
- Mine dump
- Adit
- Railroad; no track
- Building
- Strike & dip of foliation
- Limit of major surface hydrothermal alteration and mineralization zone

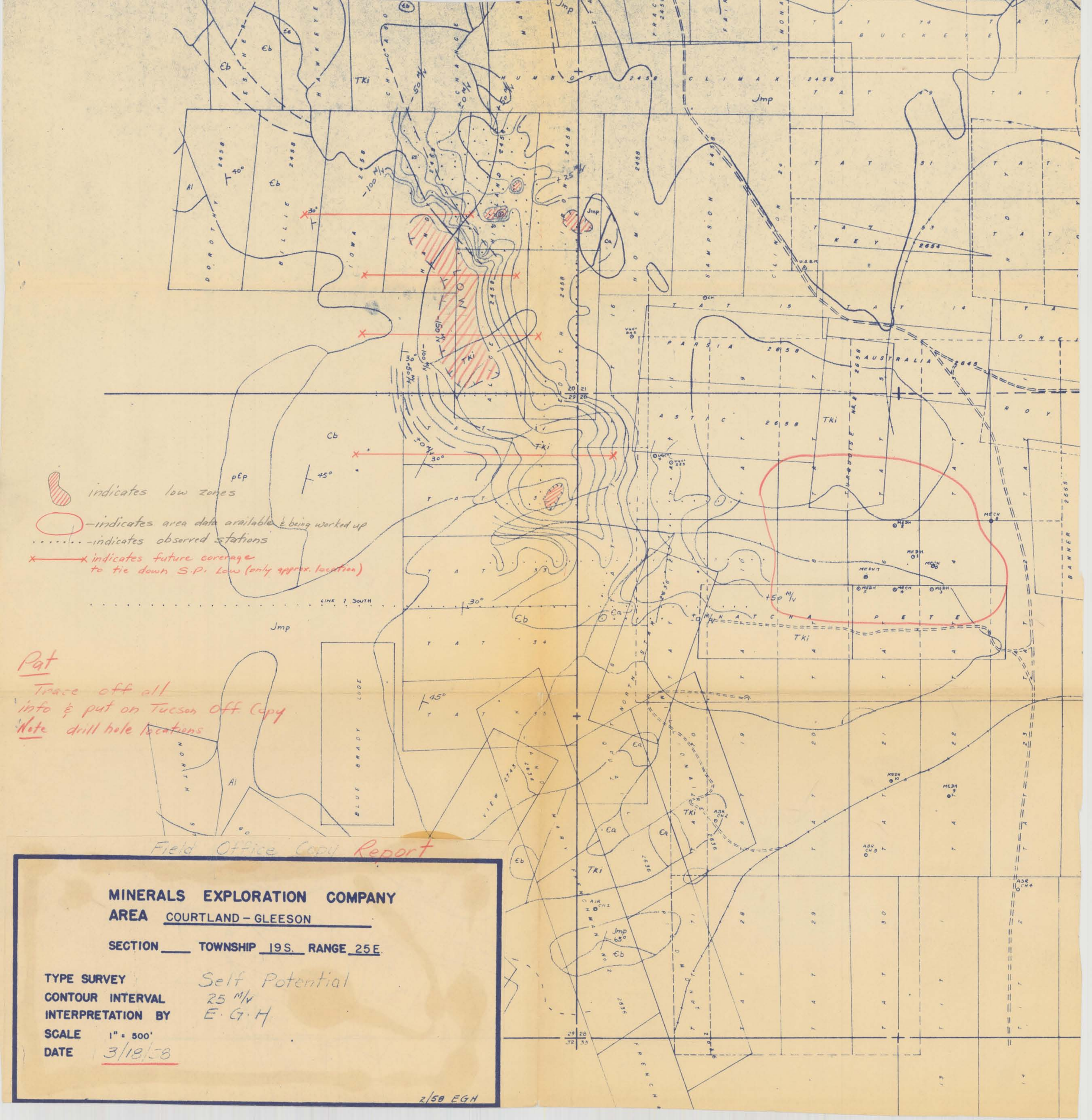
Geology by: S. A. Taylor, E. Schmidt, E. W. Wheeler, O. M. McRae
Surveyor: R. R. Ritter
Drafted by: S. A. Taylor, O. M. McRae, E. W. Wheeler

BEAR CREEK MINING COMPANY
SOUTHWEST DISTRICT

HOPE MINING & MILLING CO. OPTION
GEOLOGIC MAP
COURTLAND-GLEESON AREA
COCHISE CO., ARIZONA

DR. BY O.M.M., S.A.T., B.J.D., F.L.M.

DATE JAN. 7, 1963


indicates low zones
—indicates area data available & being worked up
. . . . . -indicates observed stations
indicates future coverage to tie down S.P. Low (only approx. location)
Pat
Trace off all info & put on Tucson Off. Copy
Note drill hole locations
Field Office Copy
Report
MINERALS EXPLORATION COMPANY
AREA COURTLAND - GLEESON
SECTION ____ TOWNSHIP 19S. RANGE 25E.
TYPE SURVEY Self Potential
CONTOUR INTERVAL 25 M/V
INTERPRETATION BY E.G.H.
SCALE 1" = 500'
DATE 3/18/58
2/58 EGH

LEGEND

- Silicification (silic)
- Qtz = sericite (Qtz-ser)
- Clay
- Chlorite (ch)
- Epidote (ep)

+	Strong
±	Moderate
—	Weak
°	Trace
gar	Garnet

Geology by: S.A.T

ALTERATION MAP

BEAR CREEK MINING COMPANY
SOUTHWEST DISTRICT

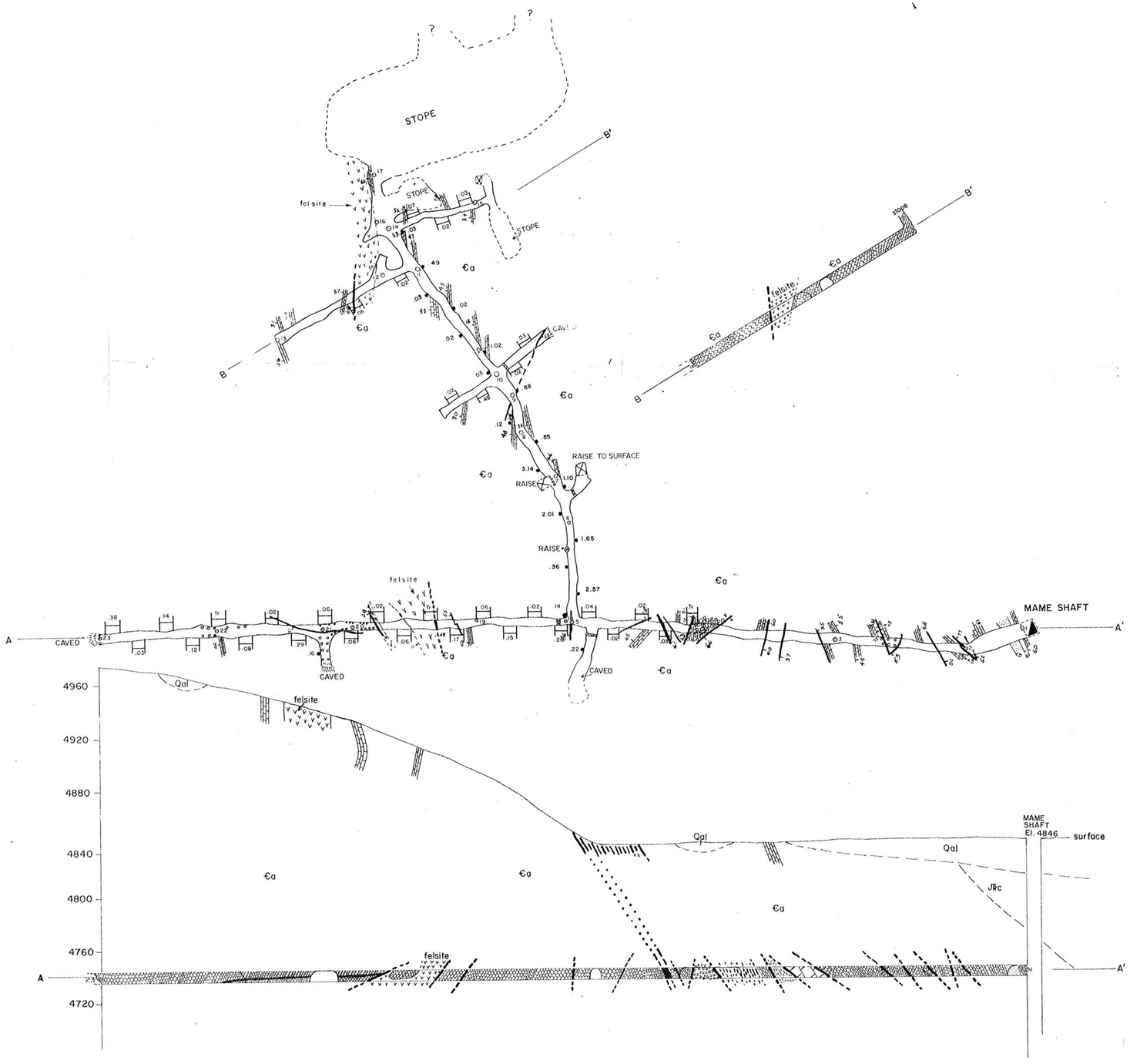
MAP NO. 60-000 / 9-2

MAME MINE MAP
100 FT. LEVEL

COURTLAND-GLEESON AREA
COCHISE CO., ARIZONA
SCALE 1" = 50'

Drawn by: B.J.D, F.L.M

Date: September 4, 1962



.02 = 10' HORIZONTAL CHANNEL SAMPLE TAKEN AT SHOULDER LEVEL IN CROSSCUTS. VALUE IN % CU.

.16 • = 6' VERTICAL CHANNEL SAMPLE, FLOOR TO BACK, IN DRIFTS. VALUE IN % CU.

Geology by: S.A.T

ASSAY MAP

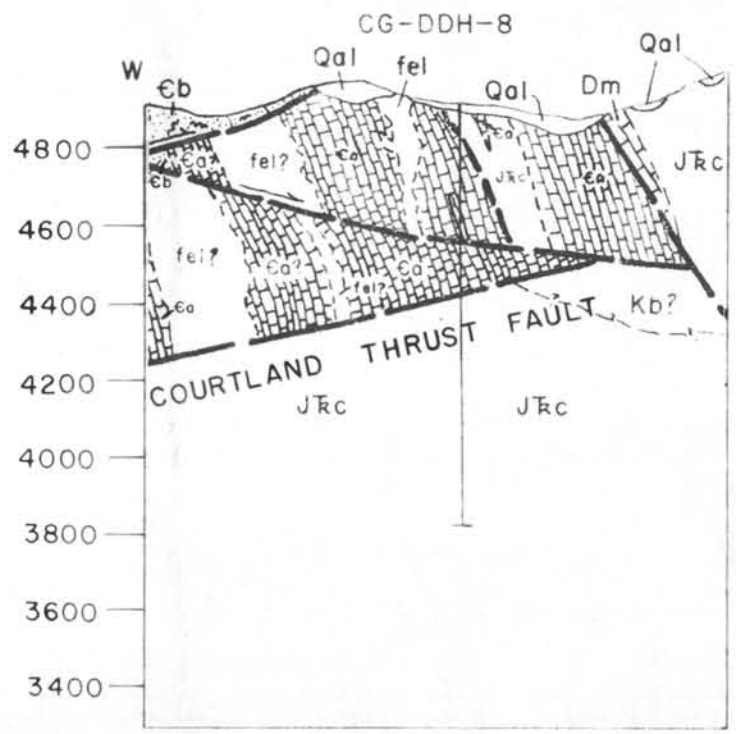
BEAR CREEK MINING COMPANY
SOUTHWEST DISTRICT

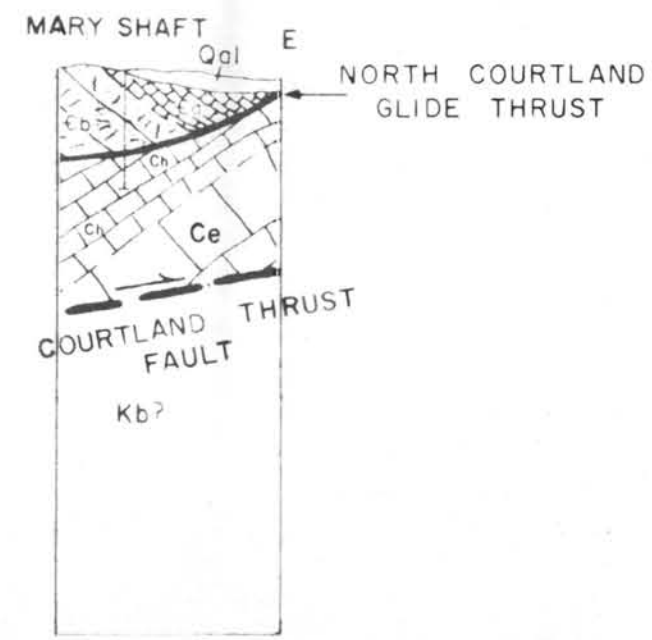
MAME MINE MAP
100 FT. LEVEL

COURTLAND-GLEESON AREA
COCHISE CO., ARIZONA
SCALE 1" = 50'

Drawn by: B.J.D, F.L.M
Date: September 4, 1962

MAP NO.
60-000
9-2





HOPE MINING & MILLING CO. OPTION (SECTION A-A')

COURTLAND GLEESON PROJECT

Relog of DDH-8; January, 1962

col. elev. 4,891.0
T.D. 1087.0
Co-ords. 280,997.6 N.; 609,101.56 E.

BCMC - DH 8
Page 1 of 2
Scale 1" = 50'

Geology

No core recovery, 0'-23'. Rock bit drilling.

Limonite congl. frags. (up to 4") of Balso quartzite in maroon, dull red, and black limonite.

DEPOSITIONAL CONTACT

Felsite porphyry, hydrothermally altered = Copper Belle monzonite porphyry? Medium to coarse grained qtz, ±10%; medium to fine grained sericitized and argillized feldspar, ±30%; medium to fine grained sericitized biotite, ±5%. Remaining ±55% of rock is aphanitic groundmass completely altered to qtz, sericite, and clay.

FAULT CONTACT

TOP OF SULFIDE ZONE

Hydrothermally altered, mineralized, and bleached Abrigo limestone. Above top of sulfide zone, rock is clay, sericite, and qtz. Abundant alunite(?) veinlets. Much brown, maroon, & yellow limonite. Some limonite shows boxwork after pyrite and Cu sulfides(?).

In sulfide zone, Ea is altered completely to qtz.-sericite, and much clay. Silicification, where present, is in form of thin grey veinlets and blebs. Pyrite = ±1% to massive replacements. Chalcocite coatings on pyrite, and sparsely on chalcopyrite & bornite. Chalcopyrite-bornite grains, fine grained, are present with pyrite as disseminations and in replacement veinlets. Replacements are mostly parallel to the bedding.

Rock originally a siltstone to fine sandstone plus some green shale or claystone.

Portions of the rock (esp. in the shale) are highly chloritic, and also show some serpentine. Locally, white kaolinite(?) exists along fractures. Locally, some garnet(?), with epidote.

Locally, qtz. druse fills fractures (subhedral to euhedral, fine to med. grained). Considerable siderite(?) druse along fractures below ±208'. Massive pyrite = vuggy.

Bedding is commonly preserved but locally completely destroyed.

Some limonite along fracs. below top sulfide zone.

IGNEOUS CONTACT

Very fine grained diorite or andesite. Probably related to lamprophyres. Composition: feldspar = 60% (orthoclase < plagio.); qtz = 5%, with sparce medium grained qtz.; mafics = 35%. Rock very fine grained to microcrystalline; holocrystalline; allotriomorphic to hypidiomorphic. Thin films of clay, chlorite, pyrite, and siderite(?) druse exist along fractures. Some calcite along fracs. Rock lightly altered = some chlorite and clay(?).

Disseminations & thin veinlets of fine grained pyrite = Tr to ½%. Incl. of alt. & mineralized Ea at 258'-259', and 280'-281'.

IGNEOUS CONTACT

Hydrothermally altered & mineralized Abrigo limestone. Rock altered to garnet & epidote locally, plus clay, chlorite, and silica. Rock is commonly banded = relict bedding. Grey, thin streaks of silica appear to be original qtzite beds, are common. Rock is porous, vuggy. Siderite (?) druse is common.

Original rock = siltstone, sandstone, & qtzite with some limy and/or shaly beds (?).

Below 371' = broken, white, to light grey limestone = Ea? Chlorite streaks are common. Some calc-silicates (e.g., wollastonite) seen locally, plus serpentine. No viz. bedding.

Replacement bands & blebs of pyrite above 371' = 1% to ±80% locally, with fine, sparce grains & thin streaks of chalcopyrite and bornite. Chalcocite (secondary) bottoms at 316'.

From 371'-396' = approx. 1%, fine grained disseminations of pyrite. Also, very sparce, fine grains of disseminated chalcopyrite(?).

From 396'-400' = highly chloritic, medium to dark green limestone. Mineralized: 5-10% fine grained disseminations & massive replacements of pyrite with traces of thin streaks & disseminations of chalcopyrite and bornite. Weak silicification = thin qtz. veinlets. Abundant calcite veinlets.

Int	%Cu	%Mo	oz./ton Au	oz./ton Ag	% Zn
85.0	1.19		.005	1.0	
95.0	0.79		.005	0.4	
105.0	1.30		Tr	0.3	
115.0	0.76	145'	Tr	0.4	
125.0	0.91	0.81 %Cu	Tr	0.3	
135.0	0.16	Tr	Tr	0.2	
145.0	0.22		Tr	0.2	
155.0	0.45	Tr	.005	0.5	
165.0	0.46		Tr	0.3	
175.0	2.18	0.002	.005	1.4	
185.0	1.73		.005	1.0	
195.0	1.00	0.002	.005	0.8	
205.0	0.23		Tr	0.5	
210.0	0.32		Tr	0.6	
220.0	0.16		.005	0.6	
230.0	0.09		Tr	0.5	
240.0	0.02		Tr	0.5	
250.0					
280.0	0.02		Tr	0.10	0.1
290.0					
310.0	0.92		.005	1.00	0.4
320.0	0.07		Tr	0.20	Tr
330.0	0.04		Tr	0.10	Tr
340.0					
397.0	0.26				
405.0					

COURTLAND GLEESON PROJECT

RE-LOG. OF DDH-8 ; JANUARY, 1962

col. elev. 4,891.0
T.D. 1057.0'
Co-ords. 280,997.6 N. ; 609,101.56 E.

DH 8
Page 2 of 2
Scale 1" = 50'

Geology

From 400'-421' is chloritic limestone mentioned above.

From 421' - 429' is a very fine grained to microcrystalline broken, green to light green to grey limestone. Pyrite-Chlorite streaks are common. Rock is locally weakly banded. Pyrite content = 2-15% as fine grained disseminations & streaks.

At 425' is a thin vein of sphalerite, containing fine grained blebs of chalcopyrite & pyrite; this vein is cut by a thin vein of rhodochrosite (?). Rock has been silicified, and calcite veins are common.

From 429' to 484 is banded, grey to green, chloritic limestone. Chlorite exists in rock as streaks & blebs. Locally, epidotized bands & serpentinized rock are present. Grey silicification is common, although some of the thin, grey siliceous bands appear to be original quartzite beds. Bedding dips from 35° to 70°. Locally, the rock is dolomitic. Calcite veinlets are common. Pyrite disseminations & thin streaks = <1% to 50% in veinlets. Sparce traces of fine grained, disseminated chalcopyrite.

FAULT CONTACT ?

Copper Belle monzonite porphyry with thin intervals of limestone (Co?). Some inclusions of limestone. Logging stopped for other work at 800'.

Rock: sparce qtz (±1%); felds. are → to clay, silica, sericite (?); groundmass to silica, chlorite, clay(?). Some secondary pink feldspars. Some fresh feldspars in the groundmass? Mafics → Chlorite. Silica & calcite fill fractures. Rock is less altered below 537'. Pyrite in JTc = 1% or less as fine gr. diss. and thin veinlets.

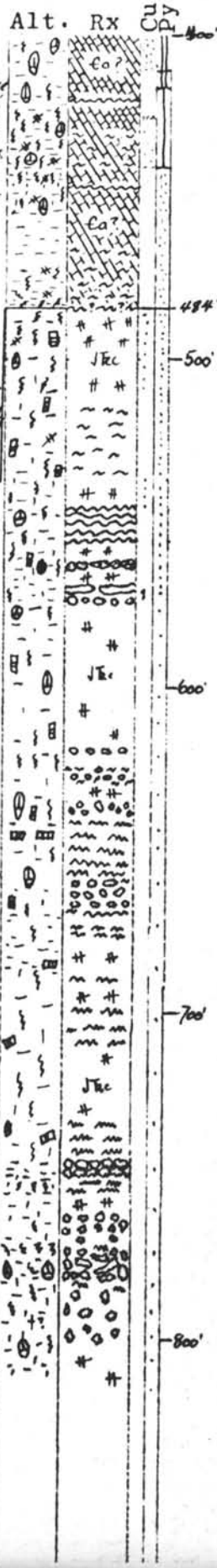
Limestone inclusions, fragments, and thin units: completely alt. to silica, epidote, hematite & calcite. Frags also include broken & shredded white ls. Some of the lower ls units are also ~~chloritized &~~ argillized. Some grey ls frags. near bottom of logged core (± 770').

Traces of cpy & cc from 484' to 510'. Sparce traces of cpy from 537' to 546'. Traces of cpy along fracs. from 571' to 572'.

Some disseminated pyrite (1% or less) in some ls frags. Some of lower ls frags. are chloritic.

DATE STARTED: 3-17-61
DATE FINISHED: 4-13-61

End of re-log = ± 800'
TD = 1087.0'



Int	%Cu	%Mo
405.0		
414.5	0.23	Tr
424.1		
440.6	0.22	
484.3	0.02	
497.4		
538.7	Tr	Tr
548.3		

cpy
Bn
cpy, cc
cpy
cpy

COURTLAND GLEESON PROJECT

CG-DDH-19

col. elev. 5580.0'
T.D. 950 3/4 ft.
Co-ords. 278,167.9 N.; 607,574.9 E.

DH CG-DDH-19
Page 1 of 3
Scale 1" = 50'

Geology

Bolsa quartzite. Cambrian. Rock: 70-95% anhedral, fine to coarse grained, grey qtz; 5-30% feldspathic material alt. to qtz-ser.-clay. Rock is more feldspathic in lower portion. Yellow, reddish-yellow & brown & maroon limonite is in the quartzite and along fractures. Red hematite = common along fractures. Limonite boxwork = common.

Breccia zones at: 44', 118', 122', 126', and 139'. Contain frags. of Єb in matrix of brown & yellow limonite and microcrystalline qtz.

Traces of pyrite mixed with limonite above top of sulfide zone.

Rock is locally silicified (?).

— — — Top of sulfide zone — — —

Fine grained disseminations and sparce, thin veinlets of pyrite (< 1% by rock volume). Sparce traces of cpy & bornite.

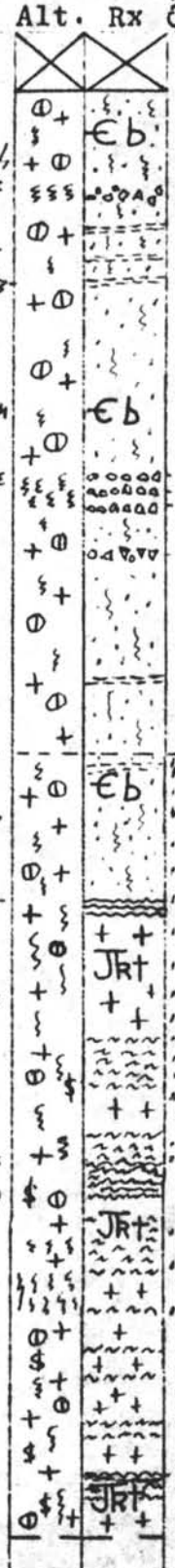
— Faulted contact —

Turquoise Granite. Rock = fine to medium grained feldspars (60%) alt. to qtz-sericite & clay; fine to medium grained, grey primary qtz, (30%); fine to medium grained mafics (10%), altered to chlorite, qtz-sericite, clay. Rock texture = locally destroyed. Rock moderately to locally intensly broken & sheared.

Fine grained disseminations & thin veinlets of pyrite (1% or less) and traces of cc coating pyrite.

Very strong shear from 384'-390'

Thin, grey qtz. Veinlets & vague, grey qtz. zones are common.



Depth	Int	%Cu	%Mo
0			
15'			
44'	FeS2, 34'; Cpy?, 36'		
100'	FeS2, 102'		
118'			
122'			
126'			
139'			
	FeS2, 180'		
192.5'	cc, 192'-196'; Cpy, 195'		
200'			
	cc, 208'-284'; bn?, 208'-280'		
231'			
235.5			
300'	cc, 296'-300'		
	cc, 319'; cc, 328'; MnCO3, 315'; MnCO3, 324'; cc, 340'		
384'			
390'			
400'			

Int	%Cu	%Mo
195.6	tr	0.006
205.6	tr	
215.6	0.02	
225.2	0.07	
235.4	0.23	
245.6	0.14	0.002
255.6	0.18	
265.6	0.19	
276.4	0.06	
285.6		
295.4	0.06	
304.2		
318.3	0.02	0.002
330.0	tr	
340.8		
358.8	0.04	
369.4		
391.3	0.02	tr

COURTLAND GLEESON PROJECT

CG-DDH-19

col. elev. 5580.0'
T.D. 950± ft
Co-ords. 278,167.9 N.; 607,574.9 E.

DH CG-DDH-19
Page 2 of 3
Scale 1" = 50'

Geology

THRUST (?) FAULT

Top of oxidized zone & Bottom of sulfide zone

Leached Bolsa Quartzite. Cambrian.

TOP OF MIXED OXIDE-SULFIDE ZONE

Bolsa Quartzite: Cambrian. Rock = 90-95%, fine to coarse grained grey qtz and 5-10% feldspathic material altered to qtz-sericite & clay. Silicification = weak to moderate, locally intense. Limonite mixed with fine gr. diss. & thin veinlets of py (Tr to ½%).

Top of the sulfide - Copper Oxide Zone

Fine gr. diss. of py (Tr to ½%); fine gr. diss. & thin coatings on py of cc (Tr to ½%; locally, in thin py veinlets, cc = 1-30%).

Turquoise as irregular crusts along fractures, from 486'-496', from 502'-523', and at 483', 484', and 500'.

Rock = well broken.

FAULTED CONTACT

Turquoise granite. Rock: Fine to med. gr., primary qtz. (20%); fine to med. gr. feldspars (70%) alt. to qtz.-ser-clay; fine to med. mafics (10%) alt. to qtz-ser-clay. Thin to thick, grey qtz. veinlets & zones. Rock moderately to intensely broken.

Bottom of visible cc min.

Fine grained disseminations & thin veinlets of pyrite (1-3%).

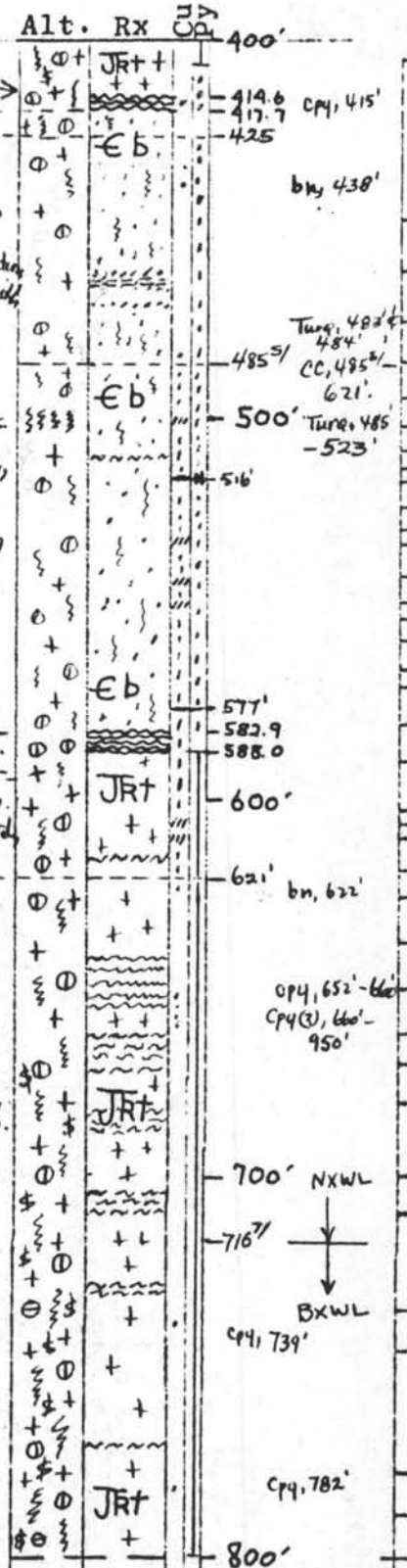
Below 736', some mafics locally alt. to chlorite away from silic. zones.

Silic. is strong to moderate.

Local, thin pyrite veins increase the total sulfide content (by rock vol.) to 5-25%.

Trace of cpy, associated with pyrite and/or silica, at 739', 783', 840' & 844'.

Very thin veinlet (less than ¼ inch) of ZnS with silica at 863'.



Int	%Cu	%Mo
405.3		
448.8	tr	
461.4		
474.1	tr	
485.3	0.03	
495.4	0.02	
502.0	0.06	tr
508.9	0.06	
513.3	1.00	
516.7	0.18	
524.0	0.06	
530.1	0.10	tr
533.8	0.05	
542.4	0.31	
549.1	0.24	
553.1	0.04	
559.8	0.03	tr
566.8	0.04	
571.4	0.43	
581.6	0.12	
591.5	0.12	
603.3	0.13	tr
606.6	0.13	
610.7	0.05	
619.7	tr	
626.5	0.02	
638.0	0.04	tr
631.3	0.04	
662.8	0.02	
671.2	0.04	
681.4		
700.1	0.05	tr
709.7		
735.3	0.02	tr
745.6		
778.1	tr	
789.3		

COURTLAND GLEESON PROJECT

CG-DDH-19

col. elev. 5580.0'
T.D. 950±
Co-ords. 278,167.9 N.; 607,574.9 E.

DH CG-DDH-19
Page 3 of 3
Scale 1" = 50'

Geology	Alt.	Rx	Dip		Int	%Cu	%Mo
				800'			
Do.		JR+					
				cpy, 834'-843'	839.4	tr	
				ZnS, 863'	853.8		
					868.8	0.02	
					879.0		
				900'	903.4	0.02	0.002
					911.9		
DATE STARTED: 4-5-62		JR+					
DATE COMPLETED: 5-8-62					937.8	tr	
				950.2 T.D.	950.2		

Pictorial Drill Log, cont'd.
Diamond drill hole no. 8

page 3.
date 4-17-61

Slightly altered Copper Belt monzonite porphyry with thaps of ls.= intrusive breccia (?). Description on p.2.

DDH-8

Date started: March 17, 1961
Date completed:
TD: 1087'

Geology	Depth	Bit	Foot Interval	Core Assays Cu %	Mo %	Ag oz/ton	Au oz/ton	Pb %	Zn %	Fe %
	700'									
	800'									
		BX								
	900'									
	1000'									
TD	1087'									

COURTLAND GLEESON PROJECT

CG - DDH - 23

col. elev. 4834.0'
T.D. 967.7
Co-ords. 278,400.6 N.; 609,888.8 E.

DH CG - DDH - 23
Page 1 of 3
Scale 1" = 50'

Geology	Alt.	Rx	Depth	Int	%Cu
Rock bit drilling					
Felsite, silic & seric; porp. tex. dest reddish pink.		fel	20.0 – 24.7		
Abrigo ls., completely altered to silica, sericite, epidote, limonite, mottled grn., brown, & loc. wh. non-calc., bedding 55°		€a	71.0		
Felsite, wh. & brwn., sercite and silica alteration obiterate tex. except 80'-106', loc. chlorite after biotite.		fel	100' – 106.0	First pyrite at 106.2	
Abrigo ls., mottled green and white, non-calc in upper 10', below 117' mod. calc., micra-xyl., loc. vy. fn. gr. partly silicified, below 145' heavily chloritized. Bedding 25-30°		€a	200'		
Bedding 30°		€a	300'		
Bedding 50°		€a	400'		

COURTLAND GLEESON PROJECT

CG-DDH-23

col. elev. 4834.0'
T.D. 967.7
Co-ords. 278,400.6 N.; 609,888.8 E.

DH CG-DDH-23
Page 2 of 3
Scale 1" = 50'

Geology	Alt.	Rx	Depth	Int	%Cu
		Ꞓa			
		Ꞓa	NxwL 497.0 500' BxwL		
Bedding 30°		Ꞓa	600'		
Pick porph, qtz, feldspar felsite porph, wh		Tp	620.5		
Felsite, completely silicified with relict porph. tex		fel	636.0		
Abrigo ls., chloritized and epidotized but calc. bedding 45°		Ꞓa	652.3		
Felsite, completely silicified, as above		fel	686.2		
Abrigo ls., chloritized and epidotized but calc. as above.		Ꞓa	696.4 700'		
THRUST FAULT			732.7	THRUST	FAULT
Felsite, silicified THRUST FAULT		fel	749.8	THRUST	FAULT
Bisbee grp, (Cret.), ss, grey, silicem, fn.gr. bedding 35-40°		kb	762.1		
Pick porphyry, qtz, feld, felsite porphyry, hematite along fract		Tp	785.1		
Bisbee grp. (Cret.), alternating sequence of		kb	800'		

COURTLAND GLEESON PROJECT

CG - DDH - 23

col. elev. 4934.0'
T.D. 967.7
Co-ords. 278,400.6 N.; 609,888.8 E.

DH CG-DDH-23
Page 3 of 3
Scale 1" = 500'

Geology	Alt.	Rx	Cor.		Int	%Cu
SS, grey, vy. fn-fngr, sil, cem., siltstone, grey, non-calc., ls. grey. epidotiferous, and andesite, greyish red, dark brown, aphanitic		Kb				
Pick porph, qtz. feld. felsite porphyry	+ + + +	Tp		838.0		
Bisbee group, (Cret.), alternating sequence of ss., grey, vy fn.-fn. gr. bed dip 40°, vy thn-bed, sil. cem., siltstone, dark grey, red grey and red, calc. and grey andesite		Kb		850.2		
				900'		
				967.7 T.D		

Date started: 6-14-62

Date completed: 6-29-62

COURTLAND GLEESON PROJECT

INCLINATION: -45° BEARING: WEST

col. elev. 5034.0'
T.D. 1201.Y ft.
Co-ords. 279,623.1 N.; 608,864.5 E.

DH CG-004-25
Page 1 of 3
Scale 1" = 50'

Geology	Alt.	Rx	Co	Int	%Cu
Alluvium. Incl. alt. ls. boulders/intensely kaolinized & hematite stained.		Qal			
Abrigo ls? Completely silic/hematite, limonite. Beds: near vert. Tr. of fine gr. diss. py.		Ca?	34.1'		
Feld. felsite porph. In to med. grey felds & white to light grey groundmass → sericite & silica. Turq.(?) along fracs. Small is. incl. at 60.9', 61.8', 62.8'		fel	53.0' 63.2' Turq?		
Abrigo ls. Completely → qtz, sericite, clay. Core well broken. Hematite in rock & along fracs.		Ca	90.0'		
Quartz-feldspar felsite porph. Felds < 10% of rock vol. Rock → quartz-sericite. Hem-limonite-manganese oxide staining. Much clay along open fracs. from 109'-114'		fel	100' 117.0'		
Abrigo ls. Completely → qtz-sericite and clay. Locally, intensely → garnet, epidote, and chlorite. Zones of intense silic are common.			138'	121.5	0.02
— — — — Top of sulfide zone — — — —				131.5	0.02
Hematite, limonite-jarosite(?), and MnOx stain in leached zone.		Ca		138.8	0.23
Fine gr diss. py & thin py veinlets are common. Locally, massive py repl. First pyrite at 130.8'.				147.5	0.10
Chalcocite coatings on pyrite are common. Calcite is common in the rock & along fractures.		ca		158.2	0.03
Rock: thin bedded ls & silt.				167.0	0.02
				177.5	0.22
				186.8	0.12
			200'	197.2	0.03
				207.0	0.03
				215.5	0.02
				225.7	Tr
				232.6	Tr
				242.4	Tr
				251.4	0.02
				260.7	0.09
				269.4	
Qtz. fel. porph. Fine to med. gr. qtz (15%) in orange white groundmass. Rock → sericite, kaol fine gr. py = 1-6%			276.0' 279.8'		
Abrigo ls. Rock → silica, epidote, chlorite, garnet, sericite(?), & locally clay. Colr. very dark green & greenish-grey. Rock: siltstones & ls. Disseminated pyrite from 2-4% to 307'; less than 1% from 307' to 373.7'. No cu sulfides. Some patches of hematite & yellow-brown limonite. Pyrite is commonly along the bedding.		Ca	300'		
Felsite. Grey with a few med. grey felds → sericite. Groundmass → sericite & amorph. silica. Rare: med. grey qtz. Some fine gr. aggregates of chlorite around some py. Fine gr. diss. py = 1% or less.		fel	373.7' 384.2' 400'		
Abrigo ls. Completely → silica, chlorite, & epidote. Rock: white to greenish-grey, very thin bedded. Diss. py 1% or less; locally 2-4%. Hematite stain locally.		Ca	429.3'		
Feldspar felsite porph. (see next page)		fel	450'		

COURTLAND GLEESON PROJECT

col. elev. 5034.0'
T.D. 1201'
Co-ords. 279,623.1 N.; 608,864.5 E

DH CG-DDH-25
Page 2 of 3
Scale 1" = 50'

Geology	Alt.	Rx	Cu	Int	%Cu
Feldspar felsite porph. Med. gr., relic, white feldspars → sericite; fine to med. gr. Qtz (<5% of rock volume); groundmass → sericite. Mostly strongly silic, & is later than sericite.		fel.	450'		
Diss. py = 0.5% or less.			500'		
Traces of Covellite grains at 519.0'					
Traces of bornite along fractures at 537.0; 542.4; 571.5; 589.0' & 613.0'.				Cv Bn	
Traces of bornite/chalcopyrite/pyrite/Qtz. at 615.1'.			550'	Bn	
				Bn	
		fel.		Bn	
			600'		
			620.6	Bn, Cpy	
Qtz-feldspar felsite porph. Fine- med. gr. phenos (Qtz, 5-10%; felds, 10-20%) and groundmass → Qtz, sericite, and locally, clay. Rock: orangish-white to locally greenish-grey. Traces of pyrite. No Cu sulfides.		fel.	645.7' 650'		
Copper Belle mons. porph. Pink & white, med. to fine gr. felds (some fresh ortho) = 20%; med to fine gr mafics = 5-10%; greenish-grey to pinkish-grey, aphanitic groundmass. Felds → argillized & some Qtz-ser(?). mafics → chlorite; groundmass → silic, argill.		JRc	700'		
Chlorite streaks along fracs, incl. white calcite along fracs.					
Pyrite as fine gr., cubic, disseminations = ½% or less, 645.7'-670'; sparce traces, 694'-726' & 759'-790'.			750'		
No Cu sulfides.		JRc			
Fresh, pink ortho. is common.					
Some alt. due to bleaching?					
Hematite locally			800'		
Inclusion of very fine gr. Calc-argill. & grey. fine gr. qtzite. Slight silic. Ca.			812.9' 817.7'		
Abundant grey, white, & black ls frags		JRc			
Incl. of black Calc-argillite at 830.9'			831'		
Abrigo limestone. Finely xalline to micro-xalline dark grey to black ls; med to dark grey, coarse granular ls & sandy ls; med. to dark grey Calc-argillite. All beds = thin to laminated.			837.0' 847.1' 850' 851.3'		
A few, very thin fracs are filled with qtz.					
Beds commonly are broken.					
Ls congl. or breccia/coarse granular ls from 854.9' to 859.5' (Cont'd)		Ca	900'		

COURTLAND GLEESON PROJECT

col. elev. 5034.0'
T.D. 1201'
Co-ords. 279,623.1 N.; 608,864.5 E.

DH CG-DDH-25
Page 3 of 3
Scale 1" = 50'

Geology

Tongues of JRc from 847.1' to 851.3' and at 858'. No sulfides.

Also in sequence: thin, grey, fine to very fine gr. qtzite or ss beds.

Sparce traces of diss. py from 854.9' to 859.5'.

No sulfides in Ꞓa — or Fe. oxides.

Some local chloritization?

Fracs. are healed with white calcite

Dip of beds is variable.

Calc-argillite beds are commonly medium, greenish-grey below ± 880'. Rocks are also locally mottled med. green.

Beds overturned at 1006'?

Below 1031', thin beds of grey, fine gr. calc-ss are common. Coarse gr., light grey calc-ss is present locally. Otherwise, dark calc-argillite & argillaceous ls. Beds are thin bedded to laminated. Some med. grey to white, thin bedded ls intercalations.

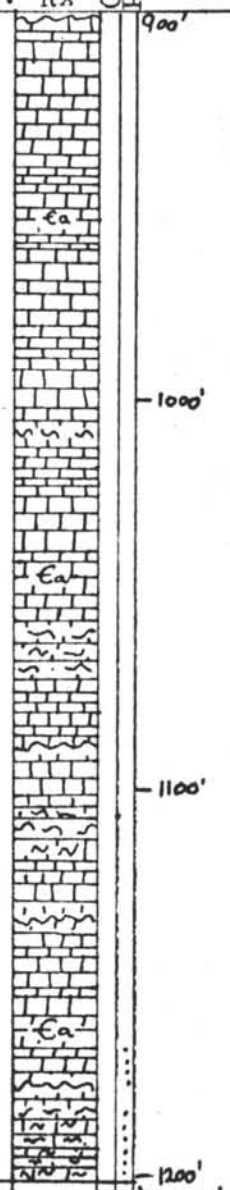
Below 1188' are more uniformly grey, laminated to thin beds of ls and med. to dark grey calc-claystone (and fine ss?). Light, greenish-grey calc-claystone laminations are also present.

Traces of fine gr. diss. py. and thin repl. streaks of py. are present from 1168' to TD

TD = 1201.1'

DATE STARTED: 8-7-62
DATE COMPLETED: 9-22-62

Alt.	Rx	Int	%Cu



COURTLAND GLEESON PROJECT

CG-DDH #24

col. elev. 4993.0'
T.D. 725.0
Co-ords. 277,322.7 N.; 609,262.1 E.

DH CG-DDH#24
Page 1 of 2
Scale 1" = 50'

Geology	Alt.	Rx	Depth	Int	%Cu	%Mo
Rock bit drilling						
Abrigo ls., compl. metamor. to silica, sericite, hematite, limonite, clay. Relic bed. 45°-60°		Ꞓa	20.0			
Copper Belle monz. porph., feld. pheno. up to 8mm. x 6mm., alter. ser.-clay-silica 25% in grey aphan. grdmass. of Sericite and silica		JKc	44.5 55.0 First pyrite	55.0 63.0	0.02	
Abrigo ls., compl. metamor., altered to sericite, clay, and silica, abdt. hematite 83.4-90.8, much limonite. Relic bedding 50°-60°		Ꞓa	80.3 100'	94.3 102.0	Tr	
Bolsa quartzite, med. gray, vy. fn.-fn. gr. quartz grains cemented by silica, thick bedded, limonite along fractures.		Ꞓb	118.8 tr. chalcocite	121.2 127.8 136.5	Tr 0.02	
			200'	203.4 212.0	Tr	
Relic bedding dips 50°		Ꞓb				
			tr chalcocite films on pyrite	250.6 260.2 270.5 279.0 289.8 298.7 304.8 310.5 319.4 329.6 339.2 349.3 359.3	Tr 0.08 0.14 0.12 0.20 0.25 0.11 0.11 0.25 0.24 0.15 0.15	
			300'			
			tr chalcocite films on pyrite			
Feldspathic 374-376 Relic bedding dips 45°		Ꞓb				
			400'			

COURTLAND GLEESON PROJECT

CG-DDH #24

col. elev. 4993.0'
T.D. 725.0
Co-ords. 277,322.7 N.; 609,252.1 E.

DH CG-DDH #24
Page 2 of 2
Scale 1" = 50'

Geology	Alt.	Rx	Cu		Int	%Cu	%Mo
				Tr chalcopyrite?			
Feldspathic		Eb		NXWI			
				437.8			
				Tr chalcocite films on pyrite BXWI	449.6	0.08	
					459.8	0.07	
					470.5		
Lower contact fract. mod. second qtz.		Eb		500' 502.0	499.3	0.02	
Turquoise granite, wh.-lt. grey, med. gr. wh. feldspars completely altered to sericite and silica, much secondary granular qtz. 504.5'-506.1' inclusion of Bolsa qtzite. Vy. rare books of wh., waxy chlorite after biotite Introduced and primary quartz 65%, altered feldspar 30% ±		JRt			507.8	Tr	
					516.5		
					552.2	Tr	0.002
					563.2		
					595.0	0.02	0.008
				600'	605.0		
					640.2	0.02	Tr
					650.4		
wh. qtz. veins 679-680							
				700'			
					709.7	Tr	0.002
					720.0		
				725.0 T.D.			

DATE STARTED: 7-2-62
DATE COMPLETED: 7-30-62

COURTLAND GLEESON PROJECT

col. elev. 5000' (alt.)
T.D. 1010.0'
Co-ords.

DH CG # 10
Page 1
Scale 1" = 50'

Geology	Alt.	Rx	Int	%Cu
Overburden, pebbles and boulders of Bolsa quartzite				
Bedrock				
Sugarloaf qtz. latite? (Tertiary) Argillized and ferruginized (limonite) may be ea.				
Abrigo limestone (replaced) (Cambrian) Argillized, silicified and ferruginized. Relict bedding dips 60° Non-calcareous	Limonite	Cu	160.6-170.0	.02
			170.0-182.5	.06
			182.5-192.0	.07
			192.0-200.3	.11
			200.3-212.0	.07
			212.0-216.7	.03
No Core Recovery				
		Cu	222.0-232.0	.08
			232.0-243.5	.02
Faulted sedimentary contact				
Bolsa quartzite, grey, dense, hard, massive, fn - co. gr. Upper 1.5 ft. brecciated. Detrital quartz grains and silicious cement (Cambrian)		Cu	243.5-259.0	.02
			259.0-263.9	.06
			351.0-362.3	
			453.3-462.8	

56
72
100
169 — Top sulfide zone
Tr. chalcocite
200
215
222
244
Tr chalcocite
Non fract.
45° dip
300
tr chalcocite
45° dip
400
50° dip

COURTLAND GLEESON PROJECT

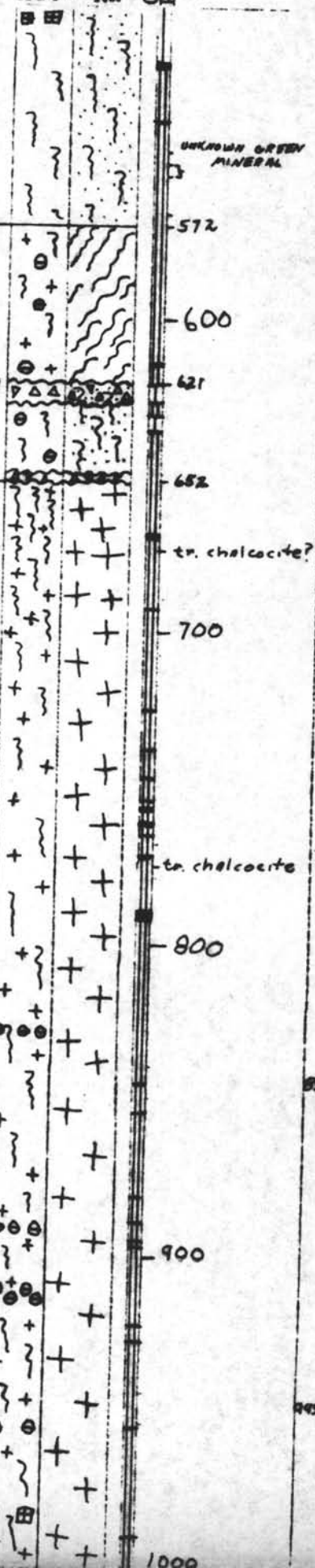
col. elev. 5000' (alt.)
T.D. 1010.0'
Co-ords.

DH CG #10
Page 2
Scale 1" = 50'

Geology

Alt. Rx Cu Py

Int %Cu



545.0-557.5
575.7-587.4
630.8-641.0
651.0-663.0
663.0-674.1
674.1-690.0
690.0-698.1
698.1-708.1
768.0-779.1
839.8-849.0
943.5-954.7

Depositional contact?

Pinal schist, olive grey to dark grey, quartz-chlorite-sericite? schist pyritized, very fine grained, locally sub-laminated. (Precambrian)

Quartzite of Pinal schist., med. grey crypto-crystalline

Thrust Fault contact

Turquoise Granite, fn-med. gr, med. grey, intensely silicified, original quartz about 20%, original feldspar completely altered to sericite and quartz about 35%, secondary quartz 40%, pyrite 5%. No matic minerals

COURTLAND GLEESON PROJECT

col. elev. 5000' (alt.)
T.D. 1010.0'
Co-ords.

DH CG #10
Page 3
Scale 1" = 50'

Geology	Alt.	Rx	Cu		Int	%Cu
				T.D. 1010.0'	995.0-1010.0	

COURTLAND GLEESON PROJECT

ANGLE HOLE

inclination = -45°, BEARING = S 70 W

col. elev. 4797.0'

T.D. 746.1

Co-ords. 276,424.1 N; 610,777.1 E

DH CG-DDH 26

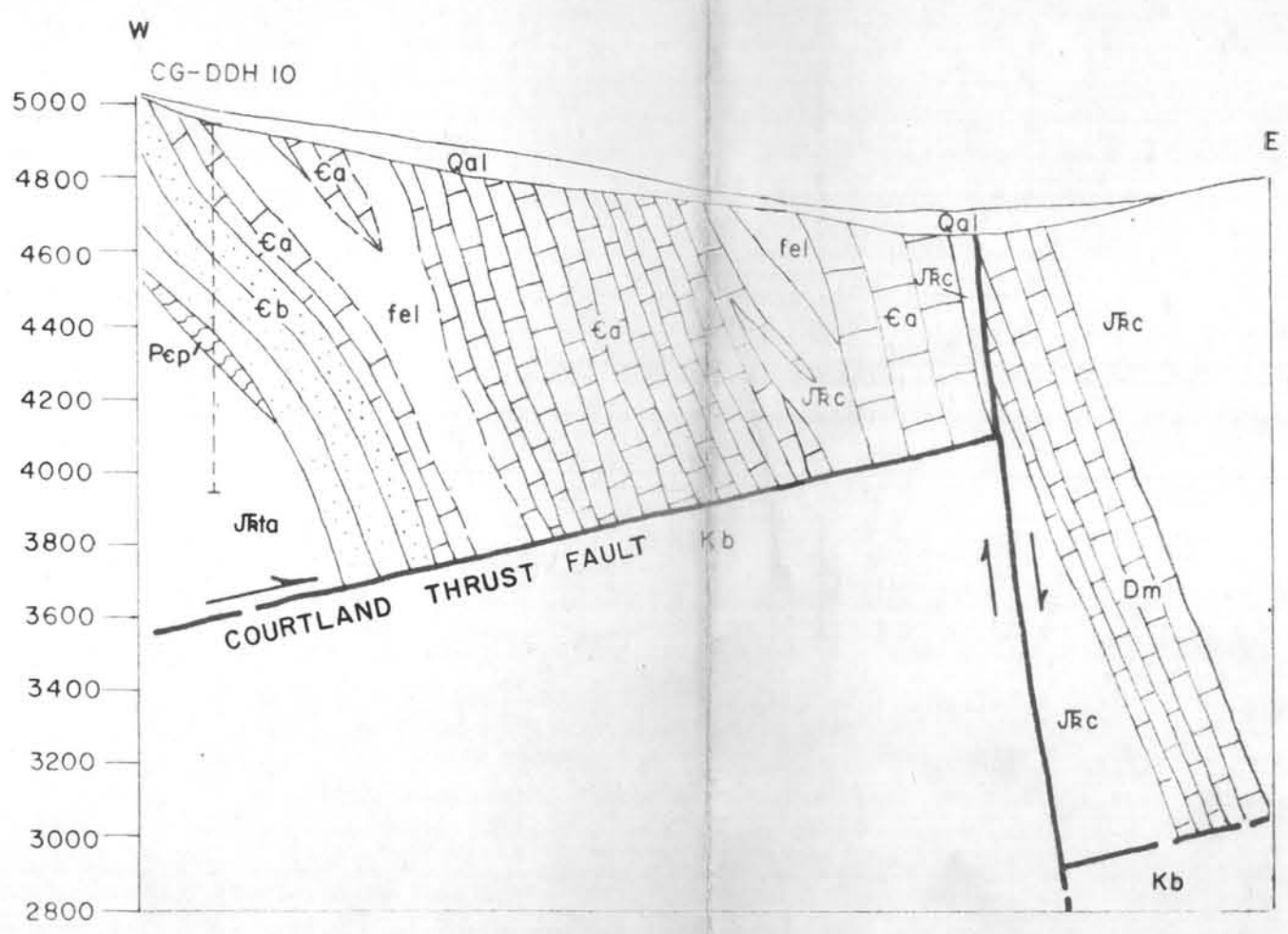
Page

Scale 1" = 50'

Geology	Alt.	Rx	Cu Py	Int	%Cu	%Mo	%Zn
			400				
			500				
			600				
Abrigo limestone. Greenish-grey, brownish-grey, & streaked with grey qtz bands. Rock is altered to clay, qtz, sericite. Grey qtz. bands along bedding. Serpentine (?) locally. Some qtz veinlets. Local epidote, clinozoisite (?) zoisite (?), and free calcite. Chloritic zones locally. Some sericite. Abrigo is thin bedded. Strong pyrite is in zones & veins, commonly with silica. 0.3' to 0.4' tongue of lamprophyre (?) at 665'. Abrigo is is very sandy at bottom. Contact at bottomost argillaceous bed.			644.2' 665'	660.7 669.3	Tr	Tr	Tr
Bolsa Quartzite. Rock made up of ± 85% quartz and ± 15% feldspathic material. Below 695', rock contains 90% or more quartz. Rock is uniformly fine grained. Argillaceous material is altered to clay and sericite (?). Rock is massive, showing little to no bedding. Some silicification? Sparse qtz veining. Slight clay along fracs. Pyrite (1-5%) as disseminations, veins, stringers and blebs. No visible copper sulfides.			680.0' 700'				
TD = 746.1'			746.1				
			800'				

Date started: 9-28-62

Date completed: 10-26-62



HOPE MINING & MILLING CO. OPTION (SECTION B-B')

DRAFT RMF:ks 9-26-60

Rec'd: 9/28/60

OPTION AGREEMENT

DATE: 1 September, 1960

PARTIES: MINERALS EXPLORATION COMPANY,
a California corporation,

hereinafter called "Optionor",
and

BEAR CREEK MINING COMPANY,
a Delaware corporation,

hereinafter called "Bear Creek".

PROPERTY: All those certain unpatented mining claims situate in the Turquoise Mining District, Cochise County, Arizona, more particularly described as Parcel 1 in Exhibit "A" attached hereto, and the rights of Lessor and Optionor under those certain agreements more particularly described in Parcels 2, 3 and 4 in Exhibit "A" hereto attached, and the Key patented mining claim, more particularly described as Parcel 5 in Exhibit "A" hereto attached.

RECITALS:

1. Optionor represents that it is the owner of record of the properties or property interests described in Exhibit "A" attached hereto, and that the property or property interests are free and clear of any encumbrances made by it. Optionor further represents that the unpatented mining claims of Parcel 1 have been located in accordance with the applicable statutes, but does not warrant a discovery of mineral on each and every claim. 2. Bear Creek is desirous of entering into an agreement with Optionor for the purchase at Bear Creek's option of the property interests above described, as set forth in Exhibit "A" and for the exploration of the properties covered thereby and included therein upon the terms and conditions hereinafter set forth.

COVENANTS:

In consideration of the mutual covenants of the parties hereto, it is hereby agreed as follows:

3. Optionor hereby grants to Bear Creek the exclusive option to purchase, free of any mortgages, liens or incumbrances of any kind made by Optionor, the Optionor's interest in the unpatented lode mining claims described as Parcel 1, the ~~lessor's and~~ Optionor's interest under the agreements described in Parcels 2, 3 and 4, and Parcel 5, as set forth in Exhibit "A" hereto, on or before December 31, 1965, for a total purchase price determined as follows: The sum of Eight Hundred Thousand Dollars ($800,000.00) if the option be exercised on or prior to December 31, 1962, the sum of Eight Hundred Fifty Thousand Dollars ($850,000.00) if the option be exercised after December 31, 1962 but on or prior to June 30, 1964, and if the option be exercised after June 30, 1964 but on or before December 31, 1965, the sum of Nine Hundred Thousand Dollars ($900,000.00). The option herein granted shall terminate at 12 o'clock Midnight December 31, 1965. The option herein granted shall be exercised by Bear Creek by the giving of written notice thereof to the Optionor and by the payment to the Optionor of the purchase price within thirty (30) days after the date of such notice. Upon the exercise of the option by Bear Creek, Optionor shall promptly execute a quitclaim deed conveying to Bear Creek its interest in the property set forth in Exhibit "A" hereto, together with assignments

in form satisfactory to Bear Creek of its interest in the leases and option agreements set forth as Parcels 2, 3 and 4 of Exhibit "A" hereto, and concurrently with delivery of such deed and assignments, Bear Creek shall pay to Optionor the purchase price.

4. While this option shall remain in effect, Bear Creek will, on behalf of Optionor, perform the obligations imposed upon it by the terms of the leases and options set forth as Parcels 2, 3 and 4 of Exhibit "A" hereto, and will in addition pay all taxes which may be assessed against any of the properties listed in Exhibit "A" hereto attached, provided that Optionor will pay all taxes which may be levied and assessed against said properties for the year 1960, and Bear Creek shall promptly, upon submission of bill therefor, pay to Optionor the prorata of such taxes from the date of this agreement to December 31, 1960, it being understood that Optionor will not pay the second half of said taxes until after said date and provided further that should Bear Creek terminate this option during any calendar year thereafter, it will at the time of such termination pay to Optionor an amount equal to the prorata of taxes levied and assessed against said properties to the date of such termination and such payment shall relieve it of any obligation with respect to taxes for the calendar year in which termination occurs.

5. Upon the execution of this instrument, Bear Creek shall be entitled to enter upon the lands listed in Exhibit "A" hereto, and with respect to the lands included within Parcels 2, 3 and 4, to exercise thereon all rights given by the terms thereof to Optionor and with respect to Parcels 1 and 5, to conduct thereon to the extent and at such locations as to which it seems desirable, prospecting, exploring, drilling, trenching, stripping, excavating, test pitting, sampling and any other operations which it may desire for the purpose of determining the mineral or metal content thereof and to use structures and tools located thereon, and to place thereon any equipment, structures or other facilities which it may desire, and to remove the same if placed thereon by it at any time within ninety (90) days after it shall have in any manner terminated or allowed the option herein granted to terminate. It may remove such material or minerals from Parcels 1 and 5 as in its judgment are necessary in order to properly prospect, test and explore the same, [but may not remove such material or minerals from Parcels 1 and 5 as in its judgment are necessary in order to properly prospect, test and explore the same,] but may not remove such material or minerals for sale.

omit

omit

6. While this option shall remain in effect, Bear Creek shall be entitled to exclusive possession of

the properties described as Parcel 1 and Parcel 5 of Exhibit "A" and to such exclusive possession as may be granted by the terms of the leases and options covered by Parcels 2, 3 and 4 to Optionor, provided that Optionor at any reasonable time may designate one or more of its officers, representatives or employees to inspect the operations of Bear Creek on any of the properties listed in Exhibit "A", provided that such person or persons in so doing shall not hinder the work in any way, and provided further that any of them so doing shall before entering upon any of said properties execute a written release of Bear Creek from liability for personal injury to or death of such person or persons while so visiting the property, and Optionor agrees that it will indemnify and save harmless Bear Creek from liability for any such personal injury to or death of any such person or persons or damage or destruction of property of Bear Creek or others done or caused by any such person or persons while so visiting the properties listed in Exhibit "A" pursuant to or by direction of Optionor.

7. So long as this option shall continue, Bear Creek shall, during each assessment year, do with respect to such portions of the area included within the unpatented claims listed as Parcel 1 of Exhibit "A", work consisting of digging, road building, drill-site

preparation, drilling, trenching or pitting of an amount having a value of at least $6,200.00, and on or before the 10th day of August of each such year, or if the option be terminated before that date, then within ten (10) days after such termination, furnish Optionor with the details of the work done sufficient for Optionor to prepare an affidavit of labor performed and improvements made, provided that if the option is terminated on or before June 1 in any assessment year, Bear Creek shall have no obligation to perform or complete any work for such assessment year. During the continuance of the option, Optionor shall, from the information furnished it by Bear Creek hereunder, promptly prepare and record affidavits of assessment work and furnish copies thereof to Bear Creek, provided that Bear Creek does not undertake that the work to be performed hereunder by it will be proper or sufficient to meet the requirements for annual assessment work on the unpatented mining claims listed as Parcel 1 of Exhibit "A" and Bear Creek shall not be liable to Optionor for any claims that may arise as a result of any determination that the work done by it hereunder does not constitute proper or adequate assessment work for the purpose of preserving title to the unpatented mining claims listed as Parcel 1 of Exhibit "A", provided that the work done by Bear Creek be of the character and in the amount specified in this paragraph.

8. Optionor warrants that the properties listed in Exhibit "A" hereto are free and clear of any incum-

brances made or suffered by it and in the event the title to any of the patented or unpatented mining claims listed in Exhibit "A" is contested by any governmental agency or by any other person upon grounds other than those arising from failure of Bear Creek to perform the covenants and agreements herein undertaken by it, Optionor may at its election defend such contest before any administrative body or any court of competent jurisdiction or may request Bear Creek so to do, and if Bear Creek shall elect to defend any such contest, the ordinary cost of such defense incurred by it shall be a credit against the purchase price in the event of the exercise of the option. However, in the event that title to any of the area covered by patented lands containing the mineral rights or the unpatented claims be lost, whether or not Optionor or Bear Creek may have elected to defend any such contest of title, the purchase price shall nevertheless be reduced in proportion to the acreage of such land lost, as compared to the total acreage patented and unpatented containing the mineral rights; but in no event shall the total reduction in the purchase price, both by reason of cost of defense incurred by Bear Creek, if any, and pro-rata reduction for title to lands lost, be more than Seventy Five Thousand Dollars ($75,000.00).

9. Bear Creek may during the continuance of

this option, at its own expense, initiate and prosecute in the name of Optionor, proceedings to patent any of the unpatented claims listed in Parcel 1 of Exhibit "A", and in such case Optionor shall at Bear Creek's request execute any and all documents required in connection with the proceedings for such patenting. If Bear Creek shall commence such patent proceedings with respect to any such unpatented claims, but this option shall be terminated before such patent shall issue, Bear Creek shall have no further obligation with respect thereto other than to pay with respect to such patenting proceedings, any charges accrued prior to such termination, (but ← omit

omit → unpatented.)

10. This option may be surrendered and terminated by Bear Creek at any time after the date of its execution by giving notice of such termination to Optionor, thirty days in advance via registered mail accompanied by a disclaimer of any interest of Bear Creek in and to the properties listed in Exhibit "A" hereto at the date of such notice of termination.

11. Upon termination of the option agreement by notice or by expiration of time, Bear Creek shall, within a reasonable time thereafter, furnish Optionors with copies of all drill logs, portions of drill cores not used for testing, maps, and other technical data which it has prepared or obtained from its operations on the property

covered in Exhibit "A" hereto. Optionors shall not be entitled to receive any drill or exploration results or other technical data while the option is still in force and effect.

12. Bear Creek shall pay all wages, expenses or other obligations which it may incur in connection with its operations on the property listed in Exhibit "A" hereto, pursuant to this agreement and shall not permit any such charges to become a lien or encumbrance on said property listed in Exhibit "A". Bear Creek shall further save Optionors harmless from any and all damages, claims, costs and expenses arising from or growing out of any or all injuries to persons or property in connection with its operations on the properties covered by Exhibit "A" hereto during the life of this option, except as provided in Paragraph 6 hereof.

Eliminate

13. In the event that Bear Creek shall be in default in making any payment required to be made by it or in performing any obligation which it has assumed hereunder, it shall not lose its right to acquire the said claims hereunder, unless within thirty (30) days after notice of said default given in writing by Optionors to Bear Creek, Bear Creek shall fail to cure such default.

Eliminate

14. Bear Creek shall be excused from the performance of its obligations of every kind under this agreement during such period or periods as performance

may be made impossible by "force majeure". By this it is intended to mean that from the beginning of stoppage of performance by Bear Creek on account of force majeure until it is again possible to resume it, performance under this contract shall be suspended and the period of this agreement shall be extended by the time elapsed during which such performance was suspended by force majeure. Nothing herein contained will excuse Bear Creek from the timely commencement and good faith efforts to complete its annual assessment work obligations under this agreement ~~and to furnish optioner~~ with the details of the work done sufficient for Optioner to prepare an affidavit of labor performed & improvements made

15. Any notice herein provided to be given to Optioner shall be deemed so given if sent by registered mail to _____ at _____. Any notice to be given to Bear Creek hereunder shall be so given if sent by registered mail to Bear Creek Mining Company, Surety Life Building, 1535 South Main Street, Salt Lake City, Utah. Any notice given by the parties hereunder shall be deemed to have been given on the date of deposit of such notice in the United States mail as evidenced by the date and time imprinted on the envelope ← omit or on the registry receipts by or in accordance with the regulations of the United States Post Office, or may be delivered personally to the person to whom such notice is given.

omit →

16. This agreement and the terms and conditions hereof shall inure to the benefit of and be binding upon the heirs, legal representatives, successors and

assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have executed this instrument the day and year first above written.

MINERALS EXPLORATION COMPANY,
a corporation,

By_____

ATTEST:

_____

OPTIONOR

BEAR CREEK MINING COMPANY,
a corporation,

By_____
Its Vice President

ATTEST:

_____
Its Secretary

BEAR CREEK

(Attach appropriate acknowledgements)

DRAFT RMF:ks 9-26-60

Recd: 9/28/60

OPTION AGREEMENT

DATE: 1 September, 1960

PARTIES: MINERALS EXPLORATION COMPANY,
a California corporation,

hereinafter called "Optionor",
and

BEAR CREEK MINING COMPANY,
a Delaware corporation,

hereinafter called "Bear Creek".

PROPERTY: All those certain unpatented mining claims situate in the Turquoise Mining District, Cochise County, Arizona, more particularly described as Parcel 1 in Exhibit "A" attached hereto, and the rights of Lessor and Optionor under those certain agreements more particularly described in Parcels 2, 3 and 4 in Exhibit "A" hereto attached, and the Key patented mining claim, more particularly described as Parcel 5 in Exhibit "A" hereto attached.

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1. Optionor represents that it is the owner of record of the properties or property interests described in Exhibit "A" attached hereto, and that the property or property interests are free and clear of any encumbrances made by it. Optionor further represents that the unpatented mining claims of Parcel 1 have been located in accordance with the applicable statutes, but does not warrant a discovery of mineral on each and every claim.

2. Bear Creek is desirous of entering into an agreement with Optionor for the purchase at Bear Creek's option of the property interests above described, as set forth in Exhibit "A" and for the exploration of the properties covered thereby and included therein upon the terms and conditions hereinafter set forth.

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in form satisfactory to Bear Creek of its interest in the leases and option agreements set forth as Parcels 2, 3 and 4 of Exhibit "A" hereto, and concurrently with delivery of such deed and assignments, Bear Creek shall pay to Optioner the purchase price.

4. While this option shall remain in effect, Bear Creek will, on behalf of Optioner, perform the obligations imposed upon it by the terms of the leases and options set forth as Parcels 2, 3 and 4 of Exhibit "A" hereto, and will in addition pay all taxes which may be assessed against any of the properties listed in Exhibit "A" hereto attached, provided that Optioner will pay all taxes which may be levied and assessed against said properties for the year 1969, and Bear Creek shall promptly, upon submission of bill therefor, pay to Optioner the prorata of such taxes from the date of this agreement to December 31, 1969, it being understood that Optioner will not pay the second half of said taxes until after said date and provided further that should Bear Creek terminate this option during any calendar year thereafter, it will at the time of such termination pay to Optioner an amount equal to the prorata of taxes levied and assessed against said properties to the date of such termination and such payment shall relieve it of any obligation with respect to taxes for the calendar year in which termination occurs.