CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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JCR

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 7, 1961

MEMORANDUM FOR T. A. SNEDDEN

MISSION EXPLORATION
Banner - Asarco
Joint Drilling

I have reviewed the results of recent drill holes C-1 through C-4, in accordance with instructions from Kenyon Richard prior to his departure for South America.

The attached map shows the location of these four diamond drill holes, and a rather generalized picture of ore distribution. Bob Gale and Ray Stauffer of Mission logged the holes.

Holes C-2 and C-4 demonstrate that the area of weak mineralization in the east end of Banner's Eisenhower group extends all along the west flank of the Mission "northeast" ore zone (see sketch). From the standpoint of future pit plans this shows that the "northeast" ore zone will stand or fall largely on its own merits, for its probable pit limits will strip waste to the west of the high angle fault shown on the attached sketch. Mr. Richard has, I believe, pointed out that this area consists of inclined b odies of moderately high-grade ore separated by waste, and that some interspaced drilling will be necessary before a firm ore calculation can be made.

A deep high-grade ore lens in C-2 begins at 650 feet; being 40 feet which averages 4.28% Cu. Under special conditions (for example, if the "northeast" ore body is mined and strips considerable waste above this deep lens) this might become available to pit operations, but is likely not open pit "ore" by itself. And of course the assays represented by this single penetration may not be representative.

Hole C-1 was a blank. Coupled with weak mineralization in Banner DDH 82, it adds to the southerly extent of the weakly mineralized area discussed above.

Hole C-3 was an exceptionally good hole which penetrated 345 feet of sulphide ore which averaged 1.21% Cu. Values begin near bedrock. The bottom 35 feet average 4.76% Cu, and contain 10 feet of 10% Cu. From the standpoint of pit expansion into the central portion of Banner claims this hole may be significant. No other holes are sufficiently close to demonstrate the size of this well mineralized area, although its possible maximum dimensions may be seen from the attachment. Additional drilling in this area to complete the grid pattern is clearly warranted.

Memo for T. A. Snedden
Banner - Asarco Joint Drilling

July 7, 1961

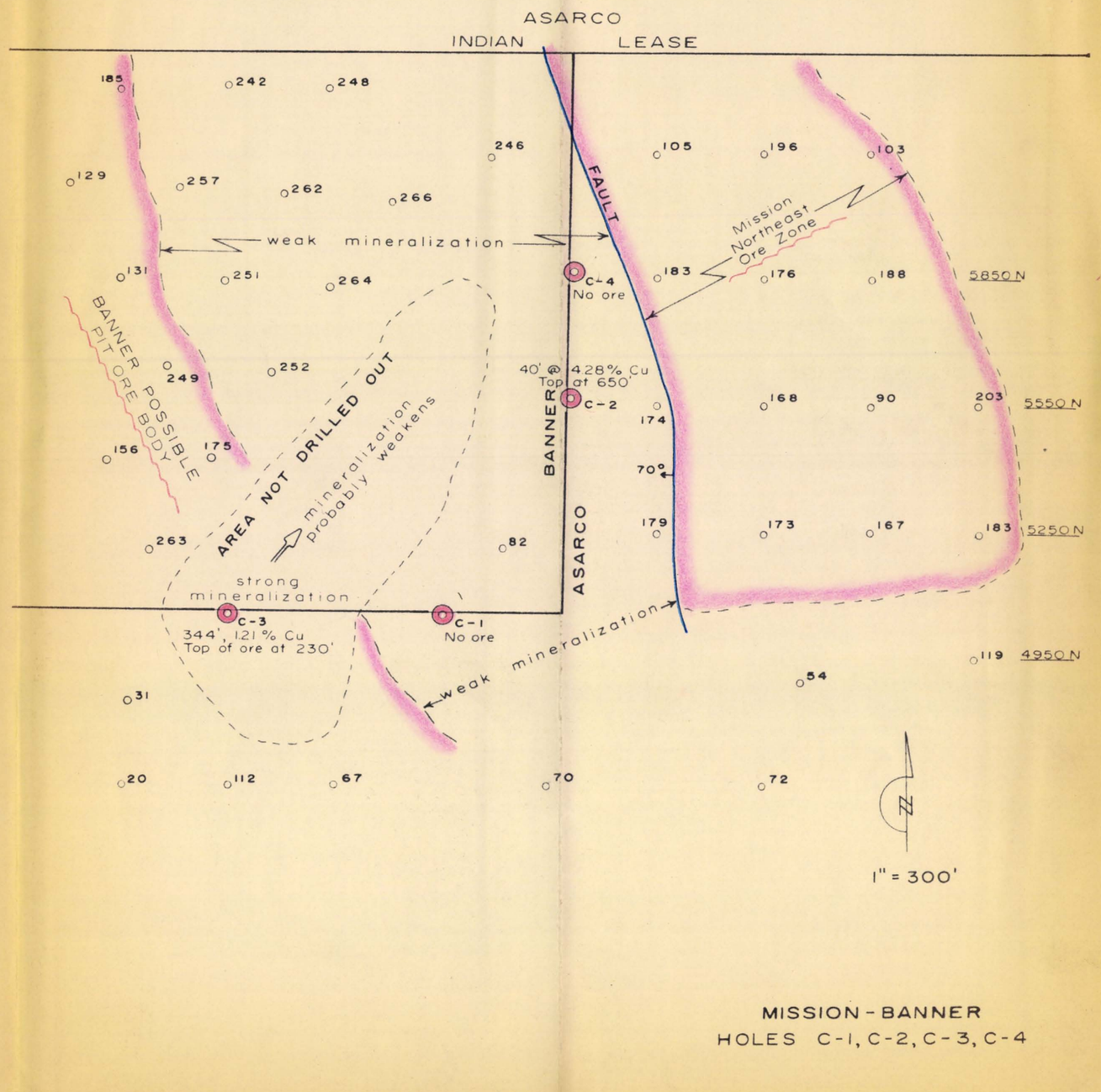
Underground exploration by Banner may be encouraged by the deep layer of high-grade in C-3. C-2 also penetrated a deep layer of possible underground ore (40 feet of 4.28% Cu, 10 feet of which is 10% Cu) below the weakly mineralized argillite. Banner geologists may infer that the deep layers in these holes are continuous, and so may be encouraged to do additional drilling on that basis. This deep high-grade lies along a tactite-marble contact, and the two drill penetrations show remarkably similar thicknesses and grades. Nevertheless, I am reluctant to suggest direct continuity of values over this distance (1000 ft.), because our experience at Mission demonstrates the erratic habit of ore distribution.

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/z
cc: KERichard
JHCourtright
JEKinnison

TO ACCOMPANY Memo
DATED July 7, 1961
BY J.E. Kinnison



MISSION - BANNER
HOLES C-1, C-2, C-3, C-4

SUMMARY - DIAMOND DRILL HOLE NO. C-2

364,189.48 N 764,749.71 E Ground Elevation 3198.0'

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	210.0	210.0			Drilled with rock bit. Overburden. Gravel and caliche conglomerate. Bedrock contact apparently drilled through with rock bit. Bedrock approximately 200.0'. This is argillite.
210.0	225.0	15.0	39	.21	Argillite. Iron oxides to the base of oxidation at ℄ 215.0. Minor chalcocite occurs coating fractures from 215.0 to 216.0. Strong 30° fracturing extends from 220.0 to 225.0. Copper mineralization weak.
225.0	232.0	7.0	74	.16	Argillite and Sandy Argillite. Similar to above to 226.5, where there is a change in texture. This rock consists of quartz grains set in a fine matrix. Copper mineralization sparse.
232.0	240.0	8.0	88	.20	Sandy Argillite. Similar to above, with some white clay on fractures, and pink feldspar development at 235.0. Copper mineralization sparse.
240.0	250.0	10.0	72	.25	Sandy Argillite. Similar to above, exhibiting color variation from light to dark grey, and pink feldspar in segregated bands. 35° fractures occur throughout. Chalcopyrite is found in veinlets from 243.5 to 250.0. Copper mineralization weak.
250.0	260.0	10.0	76	.19	Sandy Argillite. Similar to above with a 35° quartz-feldspar vein at 257.6. Chalcopyrite veinlets occur from 253.0 to 255.0. Copper mineralization weak.
260.0	270.0	10.0	93	.33	Sandy Argillite. Similar to above. Minor hematite is associated with a 25° quartz vein at 264.8. Chalcopyrite veinlets occur from 262.0 to 264.0, and from 269.5 to 270.0. Copper mineralization weak.
270.0	280.0	10.0	35	.11	Sandy Argillite and Felsite Porphyry. Similar to above to a contact at ℄ 272.0 with felsite porphyry (?). This rock appears to have an igneous texture, with altered feldspar phenocrysts set in a bleached ground mass. Copper mineralization sparse.
280.0	290.0	10.0	63	.09	Felsite Porphyry. Similar to above. Copper mineralization rare.
290.0	300.0	10.0	44	.31	Felsite Porphyry and Sandy Argillite. Similar to above to ℄ 291.0, where a 30° pyrite vein marks the contact with grey sandy argillite. The contact is bounded on both sides by a foot of breccia and gouge. Copper mineralization sparse.
300.0	310.0	10.0	41	.22	Sandy Argillite. Similar to argillite of previous run. Recemented breccia occurs at 306.0. Entire run shows 30° fracturing. Copper mineralization weak.

SUMMARY - DIAMOND DRILL HOLE NO. C-2 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
310.0	319.5	9.5	93	.18	Sandy Argillite. Similar to above, with a zone of pink feldspar development and strong alteration from 311.5 to 312.0. Chalcopyrite veinlets occur from 311.0 to 315.0. Copper mineralization weak.
319.5	330.0	10.5	50	.30	Sandy Argillite. Similar to above, although displaying bands of dark, dense argillite. Chalcopyrite veining is encountered at 321.0. Copper mineralization weak.
330.0	340.0	10.0	65	.17	Sandy Argillite. Similar to above. Copper mineralization sparse.
0.0	340.0	340.0	64		Total for month
0.0	210.0	210.0			Drilled with rock bit.

C-2 - Con't. April, 1961

348	340.0	350.0	10.0	53	.10	Sandy Argillite. Similar to above with some white clay on fractures. Trace of molybdenite at 343.5. Sulfides sparse.
	350.0	358.0	8.0	43	.10	Sandy Argillite. Similar to above. Sulfides rare.
	358.0	360.0	2.0	100	.10	Sandy Argillite. Similar to above, with numerous bands of dark argillite. Trace of copper mineralization.
	360.0	370.0	10.0	80	.13	Sandy Argillite. Similar to above, with some dark brown arkosic zones. Numerous pyrite veins which carry traces of chalcopyrite. Copper mineralization sparse.
	370.0	380.0	10.0	80	.13	Sandy Argillite. Similar to above. Copper mineralization sparse.
	380.0	381.5	1.5	67	.10	Sandy Argillite. Similar to above. Copper mineralization sparse.
388	281.5	390.0	8.5	89	.18	Sandy Argillite. Similar to above, with minor pink feldspar development and traces of chalcopyrite. Copper mineralization weak.
	390.0	400.0	10.0	46	.11	Sandy Argillite. Similar to above, with minor chalcopyrite and molybdenite. Sulfides sparse.
	400.0	410.0	10.0	68	.08	Sandy Argillite. Similar to above, with intercepts of buff-colored coarser argillite. Copper mineralization rare.

SUMMARY - DIAMOND DRILL HOLE NO.-G-2 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
410.0	420.0	10.0	77	.10	Argillite. Grades at beginning of run to dense, brown rock with an intercept of calcareous argillite from 410.5 to 413.0. 45° banding occurs at 412.5. Copper mineralization sparse.
420.0	421.5	1.5	40	.10	Argillite. Generally pink and light grey, with patches of epidote and pyrite. Copper mineralization sparse.
428 421.5	430.0	8.5	82	.10	Argillite. Similar to above, with 45° to vertical fracturing. Copper mineralization sparse.
430.0	440.0	10.0	94	.15	Argillite. Buff to pink color. An intercept of recemented gouge containing chalcopyrite and pink feldspar extends from 430.5 to 431.0. Copper mineralization sparse.
440.0	443.0	3.0	100	.08	Argillite. Similar to above. 55° to 60° slickensides at 441.0 initiate a two-foot zone showing incipient felsite porphyry(?). Copper mineralization sparse.
443.0	450.0	7.0	100	.13	Argillite. Patches of sandy argillite recur throughout run. Copper mineralization sparse.
450.0	460.0	10.0	100	.10	Sandy Argillite. Near beginning of run, rock becomes pink and red mottled sandy argillite. This continues, along with vertical fracturing, to 459.0. Copper mineralization sparse.
460.0	463.0	3.0	80	.08	Sandy Argillite. Similar to above. Copper mineralization sparse.
468 463.0	470.0	7.0	91	.08	Argillite. Dense variety containing strong pink feldspar from 465.5 to 470.0. Vertical and 30° slickensides occur from 463 to 467.0. Copper mineralization sparse.
470.0	480.0	10.0	80	.06	Argillite. Similar to above. Possible chert pebbles at 470.0. Copper mineralization rare.
480.0	481.0	1.0	100	.05	Argillite. Becomes buff-colored near beginning of run. Vertical fractures are encountered at 481.0. Copper mineralization rare.
481.0	490.0	9.0	100	.05	Argillite. Similar to above, with vertical fractures found throughout run. Copper mineralization rare.
490.0	500.0	10.0	100	.08	Argillite. Portions of run grade to sandy argillite, with vertical fractures throughout. Copper mineralization rare.

SUMMARY - DIAMOND DRILL HOLE NO. C-2 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
508 500.0	510.0	10.0	90	.05	Argillite. Buff-colored as in previous runs. Copper mineralization rare.
510.0	520.0	10.0	98	.05	Argillite. Similar to above with 80° fractures throughout.
520.0	525.0	5.0	98	.10	Argillite. Similar to above.
525.0	530.0	5.0	68	.10	Argillite. Similar to above, with 80° fracturing throughout.
530.0	540.0	10.0	98	.13	Argillite. Similar to above to a gradational contact with grey arkose at 539.0. Sulfides rare.
548 540.0	550.0	10.0	100	.08	Arkose. Pebbles range up to 2 mm. in size. Traces of scattered epidote. Sulfides rare.
550.0	553.0	3.0	100	.09	Arkose. Similar to above. Sulfides rare.
553.0	560.0	7.0	100	.10	Arkose. Similar to above, with feldspar development at 559.0. Vertical fractures are coated with hematite and sericite. Sulfides rare.
560.0	570.0	10.0	85	.11	Arkose and Argillite. Similar to above to 566.0 where strong fracturing and brecciation mark a transition to pink and grey argillite. 30° - 40° pyrite veins occur throughout run. Copper mineralization sparse.
570.0	580.0	10.0	100	.11	Argillite. Similar to above, with zones of sandy argillite. Strong vertical fracturing throughout. Traces of molybdenum, copper mineralization sparse.
580.0	582.0	2.0	95	.05	Sandy Argillite. Grey color. Copper mineralization rare.
588 582.0	590.0	8.0	100	.13	Sandy Argillite. Similar to above excepting an intercept of pink argillite from 588.0' to 590.0'. At 588.0, 10° gypsum veins occur in a narrow breccia zone. Copper mineralization sparse.
590.0	600.0	10.0	100	.10	Sandy Argillite. Color grades at start of run to light brown. Copper mineralization sparse.
600.0	610.0	10.0	96	.06	Sandy Argillite. Similar to above to 606.0. A zone of breccia, gouge, and strong alteration extends to 609.0, and includes some buff-colored argillite. Copper mineralization sparse.

SUMMARY - DIAMOND DRILL HOLE NO. C-2 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
610.0	619.0	9.0	97	.03	Sandy Argillite and Arkose. Similar to above excepting an intercept of brown arkose extending from 612.0 to 618.0. 50° fractures, with pyrite and traces of chalcopyrite, occur throughout the run. Copper mineralization rare.
619.0	629.0	10.0	97	.08	Sandy Argillite. Brown, with a zone of strong fracturing encountered from 630.0 to 636.0. Copper mineralization rare.
629.0	640.0	11.0	95	.10	Sandy Argillite. Similar to above, excepting narrow intercepts of dense argillite. Copper mineralization sparse.
640.0	650.0	10.0	100	.32	Sandy Argillite and Tactite. At 641.0 there is a 45° contact with tactite. The latter includes black banded white marble from 644.0 to 645.0. 40o-50° slips lined with hematite extend from 646.0 to 647.0 in massive garnet. Veinlet and disseminated chalcopyrite occur from 648.0 to 650.0. Copper mineralization weak.
650.0	660.0	10.0	18	.55	Tactite. Rock is soft, gougy, and broken, and carries disseminated chalcopyrite. Copper mineralization moderate.
660.0	670.0	10.0	35	3.67	Tactite. Similar to above. Strong disseminated and 30° to 45° veinlet chalcopyrite throughout. Copper mineralization strong.
670.0	680.0	10.0	77	10.04	Tactite. Rock is more competent than in previous runs. Vertical and 30° chalcopyrite veins throughout, with near-massive chalcopyrite and sphalerite from 670.0 to 674.0. Copper mineralization very strong.
680.0	690.0	10.0	77	2.86	Tactite. Similar to above, with scattered intercepts of massive garnet. 20°-30° gypsum veinlets occur from 686.0 to 690.0. Disseminated and vein chalcopyrite distributed along entire run. Copper mineralization strong.
690.0	701.0	11.0	86	0.65	Marble and Hornfels. From run beginning to 691.5 there is an intercept of massive pink tremolite which carries strong sphalerite and chalcopyrite. This grades to a black-banded white marble at 692.0, which in turn grades to a hornfels with minor garnet at 696.0. Copper mineralization moderate.
701.0	705.0	4.0	40	.13	Hornfels. This rock assumes a white, earthy character at run beginning. There is minor disseminated chalcopyrite at 701.0. Talc occurs on 50° slips throughout. Copper mineralization sparse.
705.0	710.0	5.0	100	.03	Hornfels. Similar to above in all respects.

SUMMARY - DIAMOND DRILL HOLE NO. C-2 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
710.0	720.0	10.0	98	.03	Tactite and Argillite. The run begins in a bleached tactite which exhibits patches of pink feldspar to 715.0. 60° hematite veinlets and strong chlorite occur from 717.0 to 719.0. Contact is made at 719.0 with a dense buff argillite. Copper mineralization rare.
720.0	725.5	5.5	76	No Assay	Argillite and Sandy Argillite. Similar to above to ℄ 724.0 where there is a gradual change to a brown sandy argillite. Sulfide mineralization rare.
725.5	730.0	4.5	100	No Assay	Sandy Argillite. Similar to above, with some variation in color. Intensely fractured throughout. Sulfide mineralization rare.
730.0	740.0	10.0	93	No Assay	Sandy Argillite. Similar to above, becoming arkosic near end of run. Sulfide mineralization rare.
748 740.0	750.0	10.0	98	No Assay	Arkose and Argillite. Arkose as above to a 40° contact at 742.0 with a pink and green argillite. The latter is composed of pink feldspar and oval patches and stringers of epidote and serpentine. 30° - 50° fractures occur throughout. Sulfide mineralization rare.
750.0	754.0	4.0	100	No Assay	Argillite. Similar to above, with some black banding and increasing epidote and serpentine. Sulfide mineralization rare.
754.0	756.0	2.0	100	No Assay	Argillite. Similar to above in all respects.
756.0	760.0	4.0	80	No Assay	Argillite. Similar to above, with massive pink feldspar and hornfelsic material from 758.0 to 760.0. Sulfide mineralization weak.
760.0	770.0	10.0	100	No Assay	Argillite. Hornfelsic character persists to ℄ 765.0. Last half of run argillite as before. A zone of brecciation extends from 761.0 to 763.0. Sulfide mineralization weak.
770.0	780.0	10.0	100	No Assay	Argillite. Similar to above, with scattered patches of pink feldspar and hornfelsic material. Sulfide mineralization weak.
780.0	784.0	4.0	100	No Assay	Argillite. Similar to above in all respects.
788 784.0	790.0	6.0	93	No Assay	Argillite. Similar to above to a contact at ℄ 785.0 with grey argillite. The zone of contact exhibits brecciation and 20° lamination. Sulfide mineralization rare.
790.0	800.0	10.0	89	No Assay	Argillite. Similar in all respects to latter portion of previous run.

SUMMARY - DIAMOND DRILL HOLE NO. C-2 - Continued

From	To	Interval	Core Rec.%	
0.0	340.0	340.0	64	Total for March
340.0	800.0	460.0	86	Total for April
0.0	800.0	800.0	82	Total for Hole
0.0	210.0	210.0		Drilled with rock bit

ASSAY DATA - DIAMOND DRILL HOLE C-2

364,189.48 N 764,749.71 E

Footage			Percent Recovery		Percent Copper			Accepted Value
From	To	Interval	Core	Sludge	Core	Sludge	Ns Cu	
		18'						
210.0	225.0	.20 15.0	39	*	.25	.20	Nil	.21
2970 225.0	232.0	3/4 7.0	74		.16	.20		.16
228 232.0	240.0	8.0	88		.20	.20		.20
240.0	250.0	10.0	72		.25	.25		.25
250.0	260.0	.23 10.0	76		.19	.25		.19
2930 260.0	270.0	8/2 10.0	93		.33	.25		.33
268 270.0	280.0	10.0	35		.18	.10		.11
280.0	290.0	.19 10.0	63		.06	.10		.09
290.0	300.0	10.0	44		.33	.30		.31
2890 300.0	310.0	8/2 10.0	41		.18	.23		.22
308 310.0	319.5	9.5	93		.18	.20		.18
319.5	330.0	10.5	50		.30	.30		.30
330.0	340.0	.20 10.0	65		.15	.18		.17
50 340.0	350.0	8/2 10.0	53		.08	.11		.10
48 350.0	358.0	8.0	43		.10	.10		.10
358.0	360.0	2.0	100		.10	.10		.10
360.0	370.0	10.0	80		.13	.13		.13
370.0	380.0	.13 10.0	80		.13	.13		.13
380.0	381.5	1.5	67		.10	.19		.10
2810 381.5	390.0	6.5/2.0 8.5	89		.18	.19		.18
388 390.0	400.0	10.0	46		.13	.11		.11
400.0	410.0	10.0	68		.06	.08		.08
410.0	420.0	.10 10.0	77		.10	.08		.10
420.0	421.5	1.5	40	**	.10	**		.10
2770 421.5	430.0	6.5/2.0 8.5	82		.10			.10
428 430.0	440.0	10.0	94		.15			.15
440.0	443.0	3.0	100		.08			.08
443.0	450.0	7.0	100		.13			.13
450.0	460.0	.11 10.0	100		.10	.13		.10
460.0	463.0	3.0	80		.08	.08		.08
2730 463.0	470.0	5/2 7.0	91		.08	.08		.08
468 470.0	480.0	10.0	80		.06	.08		.06
480.0	481.0	1.0	100	**	.05	**		.05
481.0	490.0	.06 9.0	100		.05			.05
490.0	500.0	10.0	100		.08			.08
2690 500.0	510.0	8/2 10.0	90		.05			.05
508 510.0	520.0	10.0	98		.05			.05
520.0	525.0	5.0	98		.10			.10
525.0	530.0	.09 5.0	68		.10			.10
530.0	540.0	10.0	98		.13			.13
2650 540.0	550.0	8/2 10.0	100		.08			.08
548 550.0	553.0	3.0	100		.09			.09
553.0	560.0	7.0	100		.10			.10
560.0	570.0	.10 10.0	85		.11			.11
570.0	580.0	10.0	100		.11			.11
580.0	582.0	2.0	95		.05			.05
2610 582.0	590.0	6/2 8.0	100		.13			.13
588 590.0	600.0	10.0	100		.10	.08		.10

ASSAY DATA - DIAMOND DRILL HOLE C-2
(continued)

Footage From	To	Interval	Percent Recovery Core	Sludge	Percent Copper Core	Sludge	Ms	Cu	Accepted 1 Value
600.0	610.0	10.0	96		.06	.08			.06
610.0	619.0	9.0	97		.03	.05			.03
619.0	629.0	10.0	97		.08	.06			.08
629.0	640.0	11.0	95		.10	.10			.10
640.0	650.0	10.0	100		.32	.28			.32
650.0	660.0	10.0	18	36	.15	.58			.55
660.0	670.0	10.0	35	52	4.82	3.50			3.67
670.0	680.0	10.0	77	50	10.04	7.16			10.04
680.0	690.0	10.0	77	29	2.86	2.79			2.86
690.0	701.0	11.0	86	11	.65	1.24			.65
701.0	705.0	4.0	40		.13	.58			.13
705.0	710.0	5.0	100		.03	.58			.03
710.0	720.0	10.0	98		.03	.49			.03
720.0	725.5	5.5	76		-	.33			-
725.5	730.0	4.5	100		-	.33			-
730.0	740.0	10.0	93		-	.20			-
740.0	750.0	10.0	98		-	.23			-
750.0	754.0	4.0	100			Not Assayed			
754.0	756.0	2.0	100			"			
756.0	760.0	4.0	80			"			
760.0	770.0	10.0	100			"			
770.0	780.0	10.0	100			"			
780.0	784.0	4.0	100			"			
784.0	790.0	6.0	93			"			
790.0	800.0 Bottom	10.0	89			"			

* Specific gravity and sludge recovery not computed for runs assaying less than 0.4% Cu.

** Water circulation lost. No sludge 420.0 - 450.0'. and 480.0 - 590.0'.

1 Where core recovery is below 70 percent the Accepted Value is the result of the combined core and sludge assays, combined according to percent core recovery. (Longyear Tables)

6-9-61

March, 1961

SUMMARY - DIAMOND DRILL HOLE NO. C-3

363,674.18 N 763,959.77 E Ground Elevation 3217.0'

600.0

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	199.0	199.0	Drilled with rock bit.		Gravel and Caliche Conglomerate.
0.0	199.0	199.0	--	--	Total for March
0.0	109.0	199.0	--	--	Drilled with rock bit

April, 1961

199.0 210.0 11.0 90 Caliche Conglomerate and Sandy Argillite. Bedrock @ 203.0'. Oxidized, medium grained grey sandy argillite with traces green copper oxide 203.0 - 210.0'.

210.0 220.0 10.0 24 0.95 Sandy Argillite. Similar to above. Traces native copper at 219.0'. Base of oxidation @ 220.0'.

220.0 230.0 10.0 13 0.81 Sandy Argillite. Similar to above. Disseminated chalcopyrite pyrite and chalcocite throughout run. Base of chalcocite @ 230.0'.

230.0 236.0 6.0 86 2.13 Sandy Argillite. Similar to above. Strong disseminated chalcopyrite, traces fluorite throughout run, 1" chalcopyrite pyrite veinlet at 231.0'.

236.0 240.0 4.0 88 1.33 Sandy Argillite. Similar to above with strong disseminated chalcopyrite. Fractures at 50° from 237.0 - 238.0'.

240.0 250.0 10.0 60 0.97 Sandy Argillite and Conglomerate. Similar to above with zones of pebble conglomerate. Disseminated chalcopyrite. At 247' quartz-chalcopyrite-molybdenite veinlets.

250.0 260.0 10.0 71 0.94 Sandy Argillite and Conglomerate. Similar to above but somewhat coarser fragments. Disseminated chalcopyrite throughout run.

260.0 265.0 5.0 95 0.86 Sandy Argillite and Conglomerate. Similar to above in all respects. At 262.0' traces disseminated molybdenite.

265.0 270.0 5.0 61 1.26 Sandy Argillite and Conglomerate. Similar to above. Strong disseminated chalcopyrite. At 270.0' 75° gouge zone.

270.0 280.0 10.0 59 1.03 Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite throughout, some sulphide veinlets.

From	To	Interval	Core Rec.%	% Cu Core	Geology
280.0	290.0	10.0	77	0.86	Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite throughout, small 50° molybdenite veinlet at 285.0'. Some zones of quartz - feldspar rock.
290.0	300.0	10.0	78	1.09	Sandy Argillite and Conglomerate. Similar to above. Chalcopyrite and traces molybdenite in veinlets and disseminated grains. Some zones of pink feldspar and sericite alteration, 60° fractures throughout run.
300.0	310.0	10.0	66	1.15	Sandy Argillite and Conglomerate Similar to above in all respects. Breccia and gouge zone 307.0 to 309.0'.
310.0	320.0	10.0	61	0.73	Sandy Argillite and Conglomerate. Similar to above in all respects but weaker sulphide mineralization. At 311.0 to 315.0' 70° to vertical gouge seams. Traces fluorite 316.0'.
320.0	330.0	10.0	88	0.68	Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite, 50° chalcopyrite molybdenite fluorite veinlets at 324.0'.
330.0	340.0	10.0	95	0.30	Sandy Argillite and Conglomerate. Similar to above, stronger pink feldspar alteration. Disseminated chalcopyrite molybdenite in quartz feldspar zones. Sulfide gouge in 70° to vertical seams throughout run.
340.0	349.0	9.0	91	1.98	Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite in quartz feldspar zones. Sulfide gouge in 70° to vertical seams.
349.0	350.0	1.0	91	0.89	Sandy Argillite and Conglomerate. Similar to above in all respects but weaker sulfide mineralization.
350.0	360.0	10.0	81	0.66	Sandy Argillite and Conglomerate. Similar to above. 40°- 50° gouge and breccia zones throughout run.
360.0	370.0	10.0	92	0.45	Sandy Argillite and Conglomerate. Similar to above. Weak disseminated chalcopyrite. 30° gypsum veinlet at 364.0'. Quartz-molybdenite veinlet at 368.0'.
370.0	380.0	10.0	82	0.33	Sandy Argillite and Conglomerate. Similar to above but fewer bands conglomerate.
380.0	390.0	10.0	95	1.39	Sandy Argillite and Conglomerate. Similar to above but strong disseminated chalcopyrite, traces molybdenite. Numerous 30° - 45° gypsum veinlets and pink feldspar zones.

SUMMARY - DIAMOND DRILL HOLE NO. C-3 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
390.0	400.0	10.0	97	2.25	Sandy Argillite and Conglomerate. Similar to above with 80° to vertical clay and sulfide gouge seams throughout run.
400.0	410.0	10.0	90	0.58	Sandy Argillite and Conglomerate. Similar to above. Weak disseminated chalcopyrite. Strong quartz-feldspar alteration and numerous high angle gouge seams.
410.0	419.0	9.0	93	0.40	Sandy Argillite and Conglomerate. Similar to above with 40° - 50° gouge seams.
419.0	420.0	1.0	93	0.40	Sandy Argillite and Conglomerate. Similar to above in all respects.
420.0	430.0	10.0	80	0.61	Sandy Argillite and Conglomerate. Similar to above in all respects. Fault gouge 422.0 - 424.0'.
430.0	440.0	10.0	82	0.76	Sandy Argillite and Conglomerate. Similar to above. Veinlets and disseminated grains of chalcopyrite and molybdenite throughout run.
440.0	450.0	10.0	67	0.65	Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite and 45° - 50° slips throughout run.
450.0	460.0	10.0	92	1.24	Sandy Argillite and Conglomerate. Similar to above. Veinlets and disseminated grains of chalcopyrite. Strong quartz-feldspar atteration, 60° slips throughout run.
460.0	461.0	1.0	81	1.08	Sandy Argillite and Conglomerate. Similar to above. Disseminated chalcopyrite, molybdenite veinlets. At 461.0' 40° gypsum veinlet.
0.0	199.0	199.0	---	--	Total for March
199.0	461.0	262.0	78	--	Total for April
0.0	199.0	199.0	--	--	Drilled with rock bit

May, 1961

2754'

461.0	470.0	9.0	75	0.99	Sandy Argillite and Hornfels. Similar to above to 463.5'. Gradational contact with chlorite epidote hematite hornfels. Disseminated chalcopyrite throughout run. At 464.0' 40° gypsum veinlet.
470.0	480.0	10.0	100	0.68	Hornfels. Chlorite epidote hornfels similar to above. Disseminated chalcopyrite and traces of galena. Breccia zone and strong hematite 479.0 - 480.0'.

From	To	Interval	Core Rec.%	% Cu Core	Geology
480.0	490.0	10.0	89	0.21	Tactite. Reddish colored with strong hematite. Calcite in 75° breccia zone at 485.0'.
490.0	495.0	5.0	88	0.45	Tactite. Strong hematite. Calcite hematite in breccia 490.0-491.0'. Calcite chalcopyrite veinlets 491.0-492.0'.
495.0	500.0	5.0	86	0.20	Tactite. Weaker hematite.
500.0	510.0	10.0	89	0.15	Hornfels-Tactite. Strong hematite. Hornfels 500.0 - 504.0'. Tactite 504.0-510.0' strong calcite and hematite in breccia at 510.0'.
510.0	513.0	3.0	100	0.41	Tactite. Strong hematite. Disseminated chalcopyrite and traces molybdenite throughout run. Calcite hematite in breccia zone at 512.0'.
513.0	520.0	7.0	88	0.15	Tactite. Strong hematite and red color end at 513.0'.
520.0	530.0	10.0	92	0.33	Tactite. Light green color. Traces disseminated chalcopyrite throughout run.
530.0	540.0	10.0	81	0.49	Tactite - Dropside Hornfels. Tactite similar to above 530.0 - 539.0'. Numerous 70° slips at 531.0'. White to buff colored diopside hornfels with some calcite and garnet 539.0 - 540.0'.
540.0	543.0	3.0	77	11.73	Diopside Hornfels. Similar to end of previous run. At 540.0' 80° gouge zone and chalcopyrite calcite veinlet. Strong disseminated and veinlet chalcopyrite throughout run.
543.0	550.0	7.0	99	9.07	Diopside Hornfels - Tactite. Dropside Hornfels similar to above 543.0 - 546.0'. At 544.6'. 0.5' thick 10° veinlet chalcopyrite. Tactite 546.0 - 550.0'. Disseminated chalcopyrite throughout run.
550.0	560.0	10.0	85	2.20	Actinolite Hornfels - Diopside Hornfels. White fibrous actinolite hornfels 550.0-552.0'. Soft, white to buff diopside hornfels or talcose rock and silicified limestone 552.0 - 560.0'. Strong disseminated chalcopyrite 559.5 - 560.0'. Traces disseminated chalcopyrite throughout run.
560.0	570.0	10.0	38	2.68	Diopside Hornfels. Soft white rock, highly broken with numerous zones of gouge. Traces of magnetite, disseminated chalcopyrite throughout run. Poor core recovery.
570.0	574.5	4.5	100	3.70	Diopside Hornfels - Tactite - Marble. Hornfels to 570.8' contact with light green tactite. At 570.8' 50° gouge zone with hematite. Disseminated chalcopyrite

From	To	Interval	Core Rec.%	% Cu Core	Geology
and magnetite 570.0 - 570.8'. Tactite to 572.0'. Low dipping gouge seam at 572.0' with grey marble below. At 573.0' traces garnet with sphalerite and chalcopyrite. At 573.6' 30° breccia zone, at 574.5' 50° gouge seam. Massive chalcopyrite-pyrite with traces sphalerite 573.6 - 574.5'.					
574.5	584.0	9.5	95	0.08	Marble
584.0	590.0	6.0	100	Not Assayed	Marble
590.0	600.0	10.0	100	Not Assayed	Marble
0.0	199.0	199.0	--	--	Total for March
199.0	461.0	262.0	78	--	Total for April
461.0	600.0	139.0	88	--	Total for May
0.0	600.0	600.0	82	--	Total for hole
0.0	199.0	199.0	--	--	Drilled with rock bit

ASSAY DATA - DIAMOND DRILL HOLE C-3

364,189.48 N 764,749.71 E

Footage			Percent Recovery		Percent Copper			
From	To	Interval	Core	Sludge	Core [2]	Sludge	Ns Cu	Accepted Value
199.0	210.0	11.0	90			.73	.40	.33
210.0	220.0	10.0	24	21	1.30	.92	.82	.95
220.0	230.0	10.0	13	36	.61	.82	Nil	.81
230.0	236.0	6.0	86	30	2.13	1.60		2.13
236.0	240.0	4.0	88	30	1.33			1.33
240.0	250.0	10.0	60	42	.92	.98		.97
250.0	260.0	10.0	71	12	.94	.74		.94
260.0	265.0	5.0	95	42	.86	1.27		.86
265.0	270.0	5.0	61	42	1.24			1.26
270.0	280.0	10.0	59	24	.81	1.09		1.03
280.0	290.0	10.0	77	21	.86	.97		.86
290.0	300.0	10.0	78	24	1.09	.66		1.09
300.0	310.0	10.0	66	21	1.24	1.12		1.15
310.0	320.0	10.0	61	21	.71	.74		.73
320.0	330.0	10.0	88	30	.68	.65		.68
330.0	340.0	10.0	94	21	.30	.53		.30
340.0	349.0	9.0	91	36	1.98	1.62		1.98
349.0	350.0	1.0			.89			.89
350.0	360.0	10.0	81	15	.66	.86		.66
360.0	370.0	10.0	92	21	.45	.61		.45
370.0	380.0	10.0	82	15	.33	.50		.33
380.0	390.0	10.0	95	18	1.39	.88		1.39
390.0	400.0	10.0	97	12	2.25	2.51		2.25
400.0	410.0	10.0	90	12	.58	.86		.58
410.0	419.0	9.0	93	33	.40	.76		.40
419.0	420.0	1.0			.40			.40
420.0	430.0	10.0	80	9	.61	.78		.61
430.0	440.0	10.0	82	9	.76	.93		.76
440.0	450.0	10.0	67	42	.77	.61		.65
450.0	460.0	10.0	92	18	1.24	1.22		1.24
460.0	461.0	1.0	81	12	1.08			1.08
461.0	470.0	9.0	75	12	.99	.61		.99
470.0	480.0	10.0	100	12	.68	.76		.68
480.0	490.0	10.0	89	6	.21	.51		.21
490.0	495.0	5.0	88	30	.45	.76		.45
495.0	500.0	5.0	86	***	.20	***		.20
500.0	510.0	10.0	89		.15			.15
510.0	513.0	3.0	100		.41			.41
513.0	520.0	7.0	88		.15			.15
520.0	530.0	10.0	92		.33			.33
530.0	540.0	10.0	81		.49			.49
540.0	543.0	3.0	77		11.73			11.73
543.0	550.0	7.0	99		9.07			9.07
550.0	560.0	10.0	84		2.20			2.20
560.0	570.0	10.0	38		2.68			2.68
570.0	574.5	4.5	100		3.70			3.70

ASSAY DATA - DIAMOND DRILL HOLE C-3
(Continued)

Footage			Percent Recovery		Percent Copper			
From	To	Interval	Core	Sludge	Core	Sludge [2]	Ns	Cu	Accepted Value [1]
574.5	584.0	9.5	95		.08				.08
584.0	590.0	6.0	100		--	Not Assayed			-- .00
590.0	600.0 Bottom	10.0	100			"	"	.08	-- .00

1 Where core recovery is below 70 percent, the Accepted Value is the result of the combined core and sludge assays, combined according to percent core recovery. (Longyear tables)

2 Core assay for interval 199.0-210.0' not yet received from Banner Mining Company.

** Water circulation lost, no sludges taken from 495.0 to 600.0.

360' (9) 1.16

SUMMARY - DIAMOND DRILL HOLE NO. C-1 March, 1961

363,676.43 N 764,463.95 E Ground Elevation 3216.71

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	213.0	213.0	Drilled with rock bit.		Overburden. This consists of gravel and caliche conglomerate. Bedrock contact and oxidized zone apparently drilled through with rock bit. Core drilling started in solid rock.
213.0	221.0	8.0	73	1.32	Tactite. Rock is generally unbroken. Chalcopyrite veinlets from 215.5 to 216.0
221.0	231.0	10.0	95	.20	Tactite. Similar to above, with near vertical fracturing at 226.6. Copper mineralization weak.
231.0	241.0	10.0	98	.08	Tactite and Hornfels. Similar to above. A zone of diopside hornfels extends from 234.0 to 240.5. Copper mineralization sparse.
241.0	243.0	2.0	100	.10	Tactite. As before, with a 30° gypsum veinlet at 243.0. Copper mineralization sparse.
243.0	251.0	8.0	89	.40	Tactite. Similar to above, with a series of 60° to vertical gypsum veinlets at 248.9. Disseminated chalcopyrite from 246.7, and from 248.9 to sum end. Copper mineralization moderate.
251.0	264.0	13.0	97	.15	Tactite. Disseminated chalcopyrite to 252.7, and from 256.7 to 257.7. Hematite on vertical fractures at 254.3. Copper mineralization weak.
264.0	271.0	7.0	100	.15	Tactite. Similar to above, with increasing content of hematite. Contains fine disseminated chalcopyrite from 267.0 to 271.0. At 269.8 there is an intercept of recemented gouge and hematite. Copper mineralization weak.
271.0	281.0	10.0	95	.20	Tactite. Strong hematite continues to approximately 276.0. Fine disseminated and veinlet chalcopyrite and galena 272.7 to 276.5. Copper mineralization weak.
281.0	291.0	10.0	97	.13	Tactite. Generally unaffected. Copper mineralization sparse.
291.0	300.0	9.0	92	.83	Tactite. As above to 292.0, where disseminated and veinlet chalcopyrite are encountered down to 299.5. At 296.5, a 50° intercept of recemented gouge initiates a zone of silicification and pink feldspar development. This ends at a 60° intercept of silicified gouge at 298.0. From 299.3 to 299.5 there is a zone of hornfels. Copper mineralization moderate.
300.0	311.0	11.0	96	.10	Tactite. A series of gypsum veinlets extends from 300.0 to 301.0. Main vertical quartz-hematite veins continue from 309.5 to sum end. Copper mineralization sparse.

SUMMARY - D. D. HOLE NO. C-1 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
311.0	321.0	10.0	100	.13	Tactite. Similar to above down to 319.0 where there is a gradational change to hornfels. Recemented gouge is encountered from 320.0 to run end. Copper mineralization sparse.
321.0	327.5	6.5	100	.49	Hornfels. Beginning of run to 322.0 is recemented gouge. Remainder of run is hornfels as above. Disseminated chalcopyrite occurs from 323.0 to 327.0. Copper mineralization moderate.
327.5	331.0	3.5	71	.08	Limestone. At beginning of run the rock grades to a dark grey to black limestone. Trace of copper mineralization.
331.0	341.0	10.0	94	.15	Limestone and Hornfels. As above to 332.0 where a 45° gypsum veinlet iniates hornfels containing disseminated chalcopyrite. This extends to 337.2 feet where the rock changes to a white silicified limestone. Copper mineralization weak.
341.0	351.0	10.0	98	.10	Silicified Limestone. As above to 343.6. Hornfels continues from there through a band of shearing at 344.2 feet to silicified limestone again at 345.0. At run end there is a narrow intercept of strong garnet containing disseminated chalcopyrite and spalerite. Copper mineralization sparse.
351.0	356.0	5.0	96	.08	Marble. Garnet at previous run end forms Contact between silicified limestone and white marble. Latter continues throughout run. Copper mineralization sparse.
356.0	361.0	5.0	96	No Assay	Marble. Similar to above. Copper mineralization rare.
361.0	371.0	10.0	97	No Assay	Marble. Similar to above in all respects.
371.0	381.0	10.0	98	No Assay	Marble and Hornfels. As above to 376.5. Silicified limestone and wollastonite hornfels alternate to run end. No apparent mineralization.
381.0	384.8	3.8	89	No Assay	Silicified Limestone and Hornfels. Similar in all respects to lower portion of previous run.
384.8	391.0	6.2	100	No Assay	Marble. At 385.0, rock changes to a white marble which continues throughout run. No apparent mineralization.
391.0	396.0	5.0	100	No Assay	Marble. Similar to above in all respects.
396.0	405.3	9.3	95	No Assay	Marble. Similar to above.
405.3	416.0	10.7	96	No Assay	Marble. Similar to above.
416.0	425.0	9.0	93	No Assay	Marble. Similar to above.
425.0	426.0	1.0	100	No Assay	Marble. Similar to above.

SUMMARY - D. D. HOLE NO. C-1 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
426.0	436.0	10.0	90	No Assay	Marble. Similar to above.
436.0	445.0	9.0	70	No Assay	Marble. Beginning with a chalcopyrite-sphalerite veinlet at 436.0 feet, the color changes gradually to a dark grey at 444.5 feet. Sulfides rare.
0.0	445.0	445.0	94	-	Total for month and for hole.
0.0	213.0	213.0	-	-	Drilled with rock bit.

ASSAY DATA - DIAMOND DRILL HOLE C-1

363,676.43 N 764,463.95 E

Footage From	To	Interval	Percent Recovery Core	Sludge	Percent Copper Core	Sludge	Ns Cu	Accepted Value [1]
213.0	221.0	8.0	73	22	1.32	1.44	Nil	1.32
221.0	231.0	10.0	95	*	.20	.53		.20
231.0	241.0	10.0	98		.08	.25		.08
241.0	243.0	2.0	100		.10	.16		.16
243.0	251.0	8.0	89	**	.40	**		.40
251.0	264.0	13.0	97		.15			.15
264.0	271.0	7.0	100		.15			.15
271.0	281.0	10.0	95		.20			.20
281.0	291.0	10.0	97		.13			.13
291.0	300.0	9.0	92		.83			.83
300.0	311.0	11.0	96		.10			.10
311.0	321.0	10.0	100		.13			.13
321.0	327.5	6.5	100		.49			.49
327.5	331.0	3.5	71		.08			.08
331.0	341.0	10.0	94		.15			.15
341.0	351.0	10.0	98		.10			.10
351.0	356.0	5.0	96		.08			.08
356.0	361.0	5.0	96		--	Not Assayed		--
361.0	371.0	10.0	97			"		
371.0	381.0	10.0	98			"		
381.0	384.8	3.8	89			"		
384.8	391.0	6.2	100			"		
391.0	396.0	5.0	100			"		
396.0	405.3	9.3	95			"		
405.3	416.0	10.7	96			"		
416.0	425.0	9.0	93			"		
425.0	426.0	1.0	100			"		
426.0	436.0	10.0	90			"		
436.0	445.0 Bottom	9.0	70			"		

1 Where core recovery is below 70 percent the Accepted Value is the result of the combined core and sludge assays, combined according to percent core recovery. (Longyear Tables)

* Specific gravity and sludge recovery not computed for runs assaying less than 0.4% Cu.

** Water circulation lost at 243.0'. No sludges recovered 243.0 - 445.0'.

6-8-61

SUMMARY-DIAMOND DRILL HOLE NO. C-4

364,478.97 N 764,749.51 E Ground Elevation 3191.0

From	To	Interval	Core Rec.%	% Cu. Core	Geology
0.0	197.0	197.0	Drilled with rock bit		Gravel and Caliche Conglomerate
0.0	197.0	197.0	-	-	Total for March
0.0	197.0	197.0	-	-	Drilled with rock bit

May, 1961

197.0 210.0 13.0 83 - Argillite. Bedrock contact @ 195.0' drilled through with rock bit. Rock is strongly fractured at 60°-70°. Minor chrysocolla encountered 209.0 to 210.0, iron oxides throughout.

210.0 220.0 10.0 27 - Argillite. Similar to above, with alternate zones of strong and weak iron oxides. A 60° vein containing hematite, cuprite, and tenorite occurs at 213.0. Copper mineralization weak.

2970
221

220.0 230.0 10.0 46 - Argillite and Sandy Argillite. Dense grey argillite grades to sandy argillite at @ 229.0. The rock is fractured throughout at 45°-50°, and carries mixed sulfides and oxides. Copper mineralization weak.

230.0 234.0 4.0 50 - Sandy Argillite. Oxides continue to the base of oxidation at 231.0. Disseminated sulfides occur in the remainder of run. Copper mineralization weak.

234.0 240.0 6.0 50 .53 Sandy Argillite. As before, with occasional patches of fine grained garnet. Sooty chalcocite is found coating fractures from 239.0 to 240.0. Copper mineralization moderate.

240.0 250.0 10.0 44 .95 Sandy Argillite and Argillite. A strongly altered zone containing gouge and chlorite extends from a 40° contact at 240.5 to 246.0 where dense argillite is encountered. Copper mineralization moderate.

250.0 260.0 10.0 91 .51 Argillite and Tactite. Dense argillite continues to a gradational contact with tactite at @ 251.0. The zone of contact exhibits 40° lamination. Epidote and disseminated sulfides occur throughout. At 259.0 there is a quartz, pyrite, chalcopyrite, bornite vein. Copper mineralization moderate.

From	To	Interval	Core Rec.%	% Cu. Core.	Geology
260.0	268.0	8.0	100	.20	Tactite. Similar to above, with chlorite, calcite, and talc on vertical slips. Disseminated and veinlet sulfides throughout run. Copper mineralization weak.
268.0	270.0	2.0	100	.13	Tactite. Similar to above in all respects.
270.0	272.5	2.5	84	.10	Sandy Argillite. 40° contact at 270.0. Rock is tan to grey sandy argillite with feldspar and sericite patches. Pyrite and chalcopyrite veinlets occur throughout. Copper mineralization sparse.
272.5	280.0	7.5	100	.13	Sandy Argillite. Similar to above with 50° banding at 278.0. Copper mineralization sparse.
280.0	293.0	13.0	95	.08	Arkose. Rock grades at beginning of run to a brown, fine-grained arkose which exhibits 50° pink feldspar bands at 288.0. Copper mineralization rare.
293.0	300.0	7.0	93	.19	Arkose. Similar to above, with zones of argillitic character. 70° fracturing throughout. Copper mineralization sparse.
300.0	310.0	10.0	100	.15	Arkose and Argillite. Similar to above to 302.0, where 20° banding marks a change to brown argillite. Copper mineralization sparse.
310.0	314.0	4.0	100	.13	Argillite. Similar to above, with calcite-lined vertical fractures at 313.0. Copper mineralization sparse.
314.0	320.0	6.0	100	.10	Argillite. As before, with the exception of some minor intercepts of arkosic rock. 55° sulfide veinlets occur throughout run. Copper mineralization rare.
320.0	329.5	9.5	100	.13	Argillite. Similar to above, with arkosic zones and feldspar patches. 60° color banding appears at 322.0, and 0°-20° pink feldspar bands at 325.0. Copper mineralization sparse.
329.5	330.0	0.5	100	.08	Argillite. Similar to above, copper mineralization rare.
330.0	340.0	10.0	88	.10	Argillite. Similar to above, with 40°-45° fracturing throughout. Copper mineralization rare.
340.0	346.0	6.0	100	.10	Argillite and Arkose. Similar to above, excepting a 341.0 to 345.0 intercept of grey arkose containing numerous feldspar patches. Copper mineralization rare.

SUMMARY-DIAMOND DRILL HOLE NO. C-4 Continued

From	To	Interval	Core Rec.%	%Cu. Core.	Geology
346.0	350.0	4.0	93	.09	Argillite. As before, with strong sericite and black sulfide gouge developed on a 75° slip at 354.8. Sulfide veinlets from 347.0 to 348.0. Copper mineralization rare.
350.0	360.0	10.0	100	.08	Argillite. Similar to above. Copper mineralization rare.
360.0	361.0	1.0	100	.05	Argillite. Similar toabove in all respects.
361.0	370.0	9.0	100	.06	Argillite. Similar to above, with vertical calcite and pink feldspar veins from 362.0 to 366.0. Copper mineralization rare.
370.0	380.0	10.0	91	.08	Argillite. Similar to above, with local calcite and feldspar development. A zone of intense fracturing and crushing extends from 376.0 to 378.0. Copper mineralization rare.
380.0	384.0	4.0	80	.11	Argillite. Similar to above. 50°-60° fracturing throughout. Copper mineralization rare.
384.0	390.0	6.0	90	.10	Argillite. Pink feldspar bands alternate with zones of brown argillite. Gouge occurs on vertical slips from 384.0 to 386.0. Copper mineralization rare.
390.0	400.0	10.0	85	.09	Argillite. Similar to above to 398.0 with breccia and gouge at ∮ 60° continuing to run end. 50° gypsum veinlets occur at 399.0. Copper mineralization rare.
400.0	410.0	10.0	66	.23	Argillite. Breccia, gouge, and pink feldspar extend to 408.0 at a contact with a pink and grey calcareous argillite. Copper mineralization sparse. 2783
410.0	420.0	10.0	78	.23	Calcareous Argillite. Strongly altered, with a zone of breccia and gouge from 411.0 to 414.0. Strong epidote, chlorite, and hematite occur from 418.0 to run end. Copper mineralization weak.
420.0	430.0	10.0	81	.40	Calcareous Argillite. Strongly altered as before, with patches of feldspar, epidote, and garnet at 424.5. Traces of molybdenum occur in quartz veinlets throughout. Copper mineralization moderate.
430.0	440.0	10.0	96	.28	Calcareous Argillite and Tactite. Similar to above to a contact at 437.0 with tactite exhibiting strong hematite, chlorite, and epidote. Sulfides on 30°-40° fractures. Copper mineralization weak. 2754

SUMMARY-DIAMOND DRILL HOLE NO. C-4 Continued

From	To	Interval	Core Rec.%	% Cu. Core	Geology
440.0	442.0	2.0	95	.08	Tactite. This rock is mainly a garnet rock containing scattered calcite veins. Copper mineralization sparse.
442.0	449.0	7.0	100	.18	Tactite. Similar to above, with locally strong hematite and chlorite. 25° banding occurs at 442.5. Copper mineralization sparse.
449.0	460.0	11.0	100	.04	Tactite and Hornfels. Similar to above to an intercept of massive gypsum and calcite from 454.0 to 456.0. Hematite-chlorite gouge continues to a contact at 456.5 with dense grey-green hornfels. Copper mineralization rare.
460.0	470.0	10.0	93	.23	Hornfels. Similar to above, with minor amounts of garnet and hematite. Disseminated sulfides occur throughout. Copper mineralization weak.
470.0	478.0	8.0	96	.03	Hornfels. This rock has a bleached appearance, possibly due to increasing wollastonite content. Slightly calcareous. Copper mineralization rare.
478.0	480.0	2.0	60	.08	Hornfels. Similar to above in all respects.
480.0	490.0	10.0	54	.28	Hornfels. Similar to above, with clay and hematite from 489.0 to 490.0. Disseminated and veinlet sulfides occur throughout run. Copper mineralization weak.
490.0	500.0	10.0	89	.18	Hornfels. Similar to above, with an intercept of clay gouge and talc from 491.0 to 493.0. A 70° gypsum vein occurs at 498.0. Veinlet sulfides found throughout. Copper mineralization sparse.
500.0	510.0	10.0	69	.15	Hornfels and Tactite. Similar to above to a 40° contact with tactite at 501.5. A recemented pebble breccia occurs from 507.0 to 509.0. Disseminated sulfides occur throughout. Copper mineralization sparse.
510.0	520.0	10.0	69	.15	Tactite. Gypsum veinlets and small patches of epidote found throughout run. Sulfide occurs disseminated and in veinlets. Copper mineralization sparse.
520.0	525.5	5.5	76	.76	Tactite. Similar to above, with 45° banding and sulfide veinlets at 524.0. Copper mineralization moderate.

SUMMARY-DIAMOND DRILL HOLE NO. C-4 Continued

From	To	Interval	Core Rec.%	% Cu. Core	Geology
525.5	530.0	4.5	100	.21	Tactite. Similar to above. Copper mineralization weak.
530.0	540.0	10.0	93	.28	Tactite. Similar to above, with locally strong hematite, epidote, and gypsum. 40° veinlets of pyrite, chalcopyrite, and galena occur from 530.0 to 531.0. 20° to 30° parallel bands and sulfide veins continue throughout run. Copper mineralization weak.
540.0	550.0	10.0	100	.28	Tactite. Similar to above, with pyrite and galena veinlets at 545.0. Copper mineralization weak.
550.0	553.0	3.0	100	.28	Tactite. Similar to above. 40° sulfide veinlets occur throughout run. Copper mineralization weak.
553.0	560.0	7.0	93	.49	Tactite. Similar to above, with increasing amounts of hematite, pink feldspar, and epidote. A quartz-molybdenum vein occurs at 557.5. Copper mineralization moderate.
560.0	570.0	10.0	76	.44	Tactite. Similar to above, with gouge and strong alteration from 564.0 to 565.0. 45° sulfide veinlets occut from 562.0 to 564.0. Copper mineralization moderate.
570.0	586.0	16.0	47	.43	Tactite. As before, with an intercept of massive garnet from 576.0 to 580.0. Disseminated sulfides found throughout run. Copper mineralization moderate.
586.0	590.0	4.0	95	.34	Tactite and Marble. As before to a 35° contact with white marble at 588.0. An intercept of strong sphalerite with chalcopyrite occurs from 587.0 to 588.0. Copper mineralization weak.
590.0	600.0	10.0	74	.11	Marble and Tactite. As before to a contact at 591.0 marked by a 1-inch band of pink tremolite. Minor disseminated sulfides occur both in marble and in tactite. Copper mineralization sparse.
600.0	610.0	10.0	98	.18	Tactite and Marble. Similar to above to a 70° contact with grey and white marble at 609.5. 60° slickensides are found from 603.0 to 604.5. Strong sphalerite and chalcopyrite occur along the contact. Copper mineralization sparse.
610.0	617.0	7.0	100	.03	Marble. Similar to above, with scattered intercepts of pink alteration. Copper mineralization rare.

From	To	Interval	Core Rec.%	% Cu. Core	Geology
617.0	620.0	3.0	70	.03	Marble. Similar to above. Copper mineralization rare.
620.0	630.0	10.0	93	.06	Marble. Minor garnet occurs in first foot of run. Zones of pink and green clay or hornfels occur throughout. From 627.0 to 629.0 there are alternating layers of grey and white marble at 20°. Graphite occurs on slips. Copper mineralization rare.
630.0	631.0	1.0	100	.05	Marble similar to above, with talc on 45° slips at the beginning of run. Black stylolites in white marble occur at intervals. Copper mineralization rare.
631.0	640.0	9.0	96	No Assay	Marble. Similar to above, with talc on 65° slips. Copper mineralization rare.
640.0	650.0	10.0	98	No Assay	Marble. Similar to above. Copper mineralization rare.
0.0	197.0	197.0	-	-	Total for March
197.0	650.0	453.0	86	-	Total for May
0.0	650.0	650.0	86	-	Total for hole
0.0	197.0	197.0	-	-	Drilled with rock bit

ASSAY DATA - DIAMOND DRILL HOLE C-4

364,478.97 N 764,749.51 E

3191.0

Footage			Percent Recovery		Percent Copper			
From	To	Interval	Core	Sludge	Core [2]	Sludge	Ns Cu	Accepted Value [1]
197.0	210.0	24' Mix 13.0	83			.18	Mixed Oxide and Sulfide	
210.0	220.0	.25 10.0	27			.33		
2970 220	230.0	1/9 10.0	46			.33		.16 .53
230.0	234.0	4.0	50			.53	Nil	.53
234.0	240.0	✓ 6.0	50		.51		Nil	.53
240.0	250.0	.54 10.0	44	33	.92	.96	26' .68	.95
250.0	260.0	10.0	91	13	.51	.33		.51
2930 261	260.0	1/7 8.0	100	*	.20	.30		.20
268.0	270.0	2.0	100		.13			.13
270.0	272.5	2.5	84		.10	.20		.10
272.5	280.0	7.5	100		.13			.13
280.0	293.0	.14 13.0	95		.08	.13		.08
293.0	300.0	7.0	93		.19	.15		.19
2890 301	300.0	1/9 10.0	100		.15	.15		.15
310.0	314.0	4.0	100		.13	.13		.13
314.0	320.0	6.0	100		.10			.10
320.0	329.5	9.5	100		.13	.10		.13
329.5	330.0	.12 0.5	100		.08			.08
330.0	340.0	10.0	88		.10	.11		.10
2850 341	340.0	1/5 6.0	100		.10	.08		.10
346.0	350.0	4.0	93		.09			.09
350.0	360.0	10.0	100		.08	.06		.08
360.0	361.0	1.0	100		.05	.06		.05
361.0	370.0	.06 9.0	100		.06			.06
370.0	380.0	10.0	91		.08	.08		.08
2810 381	380.0	1/3 4.0	80		.11	.09		.11
384.0	390.0	6.0	90		.10			.10
390.0	400.0	10.0	85		.09	.08		.09
400.0	410.0	.17 10.0	66		.18	.25		.23
410.0	420.0	10.0	78		.23	.23		.23
2770 421	420.0	1/9 10.0	81	29	.40	.37		.40
430.0	440.0	10.0	96		.28	.30		.28
440.0	442.0	2.0	95	**	.08	**		.08
442.0	449.0	.21 7.0	100		.18			.18
449.0	460.0	11.0	100		.04			.04
2730 461	460.0	1/9 10.0	93		.23			.23
470.0	478.0	8.0	96		.03			.03
478.0	480.0	2.0	60		.08			.08
480.0	490.0	.18 10.0	54		.28			.28
490.0	500.0	10.0	89		.18			.18
2690 501	500.0	1/9 10.0	69		.15			.15
510.0	520.0	10.0	69		.15			.15
520.0	525.5	5.5	76		.76			.76
525.5	530.0	.28 4.5	100		.21			.21
2650 541	530.0	10.0	93		.28			.28
540.0	550.0	1/9 10.0	100		.28			.28
550.0	553.0	3.0	100		.28			.28
553.0	560.0	7.0	93		.49			.49

ASSAY DATE - DIAMOND DRILL HOLE C-4
(cont'd)

Footage			Percent Recovery		Percent Copper				
From	To	Interval	Core	Sludge	Core	Sludge	Ni	Cu	Accepted Value
560.0	570.0	10.0	76		.44				.44
570.0	586.0	16.0	47		.43				.43
586.0	590.0	4.0	95		.34				.34
590.0	600.0	10.0	74		.11				.11
600.0	610.0	10.0	98		.18				.18
610.0	617.0	7.0	100		.03				.03
617.0	620.0	3.0	70		.03				.03
620.0	630.0	10.0	93		.06				.06
630.0	631.0	1.0	100		.05				.05
631.0	640.0	9.0	96		- Not Assayed -				
640.0	650.0 Bottom	10.0	98		"	"			

* Specific gravity and sludge recovery not computed for runs assaying less than 0.4% copper.

** Lost water circulation at 440.0'. No sludge samples 440.0 - 650.0'.

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1 Where core recovery is below percent the Accepted Value is the result of the combined core and sludge assays, combined according to percent core recovery (Longyear Tables).

2 Core assays for interval 197.0 - 234.0' have not yet been received from Banner Mining Co.