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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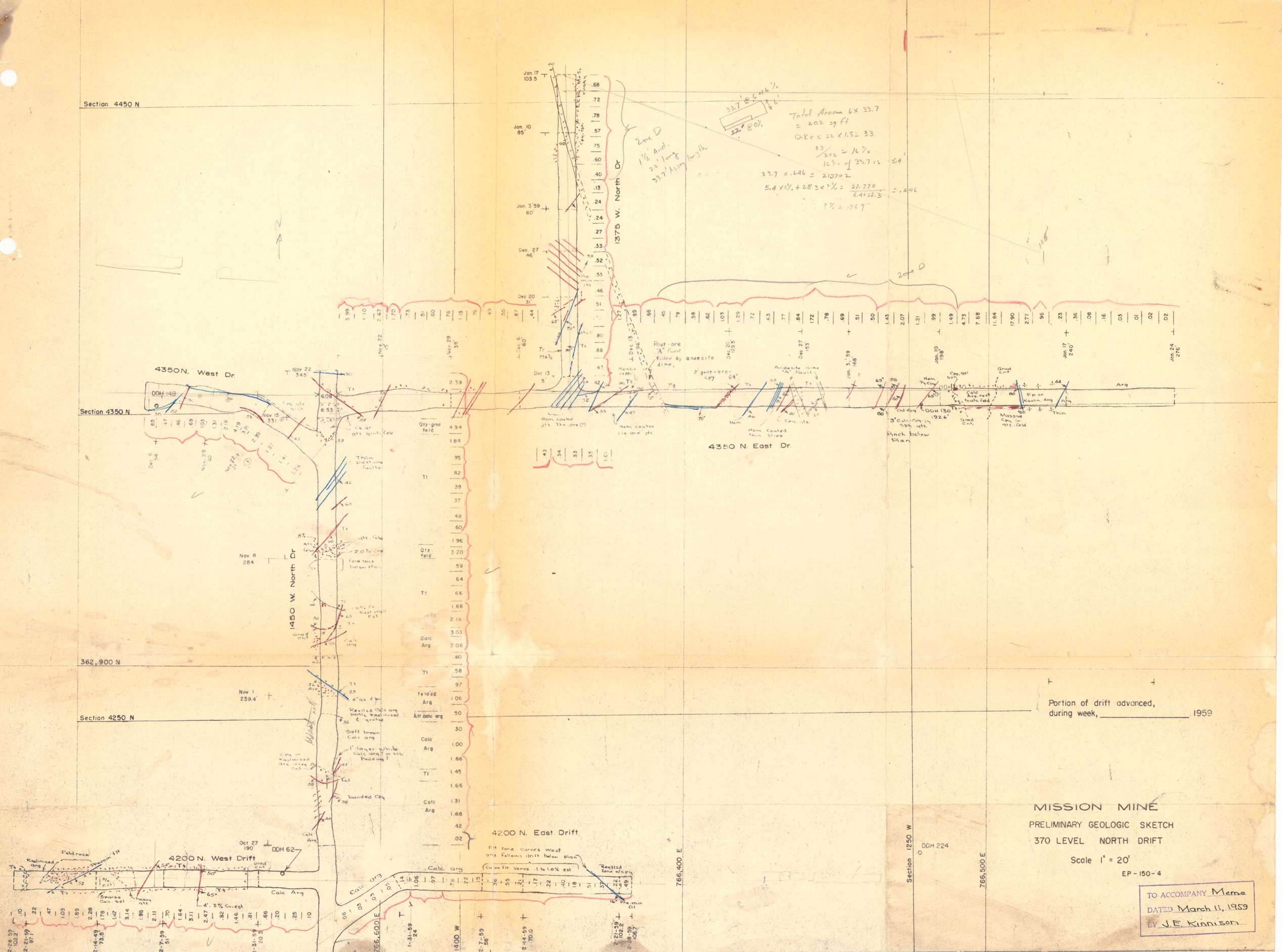

Section 4450 N
Section 4350 N
Section 4250 N
362,900 N
4350N. West Dr.
4350 N. East Dr.
1375 W. North Dr
1450 W. North Dr
4200 N. West Drift
4200 N. East Drift
Zone D
Total Area 6 X 33.7 = 202 sq ft
Dike = 22 X 1.5 = 33
33/202 = 16%
16% of 33.7 is 5.4
33.7 X .646 = 21.770
5.4 X 0% + 28.3 X ?% = 21.770 / 5.4+28.3 = .646
?% = .769
Portion of drift advanced, during week, _____ 1959
766,400 E
766,500 E
766,600 E
Section 1250 W
DDH 224
MISSION MINE
PRELIMINARY GEOLOGIC SKETCH
370 LEVEL NORTH DRIFT
Scale 1" = 20'
EP-150-4
TO ACCOMPANY Memo
DATED March 11, 1959
BY J.E. Kinnison

is bent north to conform to DDH 125. Thus a minor amount of distortion is involved.

Nine principal ore zones, delineated on the basis of combined structural environment and assay range, and/or direct continuity, have been penetrated both by surface drill holes and by underground workings and/or drill holes. These are labeled A through I on the 50-scale revised sections.

Comparison of surface drill with underground drift and drill penetrations of these zones provides a means of evaluating continuity of grade between the surface holes, but only in a limited way. The underground workings penetrate only a small part of any one zone, and do not necessarily penetrate each zone symetrically. This aspect is discussed more fully by Richard (p. —) in an earlier section of this report. The muck grab samples are indicated to be about 4 % low on the average (Richard, p —, this report), but in the following tabulation these assays have <u>not</u> been up-graded.

In the following detailed comparison tables, several combinations of averages are computed for each zone. The most significant of these, in each zone, are placed in summary in Table —, p. —.

It has been pointed out by Richard (p. —) that an attempt to reduce the samples to two comparative figures is apt to be misleading. In a limited way however, the average of surface drill vs. underground exploration, derived from Table —, shows a relationship between the assays in all of the combined zones A-H, and the assays of the underground work in these same zones. close ups

Draft of comparisons

TABLE _____

SUMMARY

Significant assay comparisons by zone (weighted averages)

	Penetration		Assay	
Zone A				
DDH 151 (surface drill)	96 ft.	@	0.53	% Cu
Shaft (on 151)	89	@	0.54	
DDH U-2	23	@	0.42	
Zone B				
2 surface DDH's	93 ft	@	1.07	% Cu
Underground Exploration *	385	@	0.97	
Zone B, Extension				
2 surface DDH's	97 ft	@	1.09	% Cu
Underground Exploration	70	@	1.12	
Zone C, and other related high-grade zones				
5 surface DDH's	110 ft	@	3.27	% Cu
Underground Exploration	243	@	2.68	
Zone D and D-1				
Zone D: 3 surface DDH's	369 ft.	@	0.77	% Cu
Zone D: Underground Exploration	274 ft	@	0.96	
Zone D-1: Underground Exploration	202	@	0.58	
Average of D & D-1, Underground	476	@	0.80	
Zone E (No 2 thrust)				
DDH 151 (surface drill)	40 ft	@	0.74	% Cu
4015 N., Drift E.	106	@	0.80	
Zone F (Above No 1 thrust)				
2 surface DDH's	40 ft	@	8.76	% Cu (20' thick each)
DDH U-11	50	@	8.51	
Zone G				
DDH 148 (Surface drill)	63 ft	@	0.65	% Cu
Underground Exploration	113 ft	@	0.82	%
Zone H				
DDH 130 (surface drill) *	28 ft	@	5.57	* The only surface drill hole penetration of this zone.
Underground Exploration	186	4.29	~~154 ft~~	~~@ 4.36~~

For analogy, the underground exploration may be compared to a large number of chip samples taken without geometrical relationship to a vein, which has also been channeled at systematic intervals. These two figures are, at least, worthy of note:

Average of surface penetrations, Table ___, 936 ft @ 1.58% Cu
Average of underground penetrations, Table ___, ~~1686~~ 1718 ft @ ~~1.66~~ 1.70 % Cu.

The following comparison tables show details of ore variation within individual zones, and will be useful (1) to supplement the summary of Table ___, and (2) to demonstrate range in values in different parts of individual zones. The 50-scale revised sections should be studied in conjunction with these comparisons. It will be noted that the total footage of underground work is 3151 feet, of which 2270 feet are diggings, and 881 feet are drill holes. The total footage used in the detailed comparisons is 1729 feet (1350 diggings and drill holes). The fact that all of the footage of underground exploration is not utilized in no way effects the validity of the comparison. The footage not used consists mainly of large waste block penetrations, and to a lesser extent of penetrations which cannot be classified to a specific zone of correlation. The comparative method used here bases upon a comparison ore in surface drill holes, vs. ore penetrated underground, all segregated into naturally occuring zones of ore continuity. In this respect this method avoids some of the limitations imposed by comparison by operating pit benches and mathematical divisions.

ORE ZONES - DETAILED

ZONE A is a low-grade zone which extends from the shaft south through DDH 149, and lies between bedrock and about 100 below (Att.).

skip space between

	DDH 149	DDH 148	DDH 151	Shaft	DDH U-2**
Penetration, feet	90	106	96	89	23
Grade, % Cu*	0.60	0.76	0.53	0.54	0.42

Notes * All assay averages are weighted by length of penetration
** Underground DDH's designated by "U"

As may be noted, the shaft much grab samples in zone A agree very closely with the assay of the drill hole (151) on which it was sunk. The other assays serve only to show that zone A is uniformly low-grade.

ZONE B is a medium-grade zone separated from zone A above it by a band of waste. It has been penetrated by 2 surface DDH's and by several diggings and underground DDH's (Att.).

	DDH 46	DDH 151	Shaft (on 151)	1500W Drift S	4015N Drift E	1450W Drift N	DDH U-1	DDH U-2
Penetration, feet	74	19	28	122	75	81	32	47
Grade, % Cu	0.98	1.42	1.05	0.92	1.13	0.72	1.42	0.93

Summary, zone B:

Average of 2 surface DDH's:	1.07 % Cu*	- 93 ft.
Average of workings:	.093 % Cu	- 306 ft
Average of 2 underground DDH's:	1.13 % Cu	- 79 ft
Average of underground exploration:	0.97 % Cu	- 385 ft

* In this and following summaries, where several assay averages are shown, the one regarded as most significant and informative are underlined.

It is also of interest that the values shown in this zone correspond very closely with the average of the respective drill holes over the entire vertical range of the zone

Zone B, Extension is a zone of variable grade which extends north and east from the shaft (Att.). Because it occurs above zone C and the No. 2 thrust, as does zone B, and appears to be a direct extension of zone B, it is lettered to show this similarity. Zone B extension does occur in a slightly different geologic environment, however, and for this reason it is discussed individually. Although the grade of penetrations shows in B Extension a wide range than in B, the average grade of both zones is remarkably similar. Zone B extension is penetrated by 2 surface holes and by drifts, raises, and underground drill holes.

	DDH 62	DDH 148	Raise on 62	Raise on 148	4200N Drift W	DDH U-9	DDH U-10
Penetration, feet	60	37	34	22	16	4	14
Grade, % Cu	1.41	0.58	1.41	0.64	0.15	0.40	1.16

Summary, zone B Extension:

Average of 2 surface DDH's:	1.09 % Cu	- 97 ft
Average of 2 raises:	1.11 % Cu	- 56 ft
Average of underground exploration *	0.91 % Cu	- 90 ft
Average of raises and DDH U-10 **	1.12 % Cu	- 70 ft

* Includes the waste section 4200 D.W., and .4% U-9

* Thus excluding waste and .4% zones. This is the preferable assay average because this waste zone is as large as some that were so separated on the ore reserve 100-scale sections.

It is also interesting to note that the raises, driven along surface holes, yield averages in this zone which correspond very closely to the respective drill hole averages over the full vertical range of the zones.

DDH 62	1.41 % Cu	in zone B Extension
Raise on 62	1.41	
DDH 148	0.58	
Raise on 148	0.64	

ZONE C, and other pre-fixed with "C", are high-grade (plus 2 % Cu) ore zones which comprise a semi-continuous zone between the No. 2 thrust and zones B and B Extension. These zones are traced south, north, and east of the shaft (Att.).
Zone C was shown in the first geologic report of Nov, 1958, to extend north beyond DDH 148. A raise on 148 in Zone C disclosed that the high-grade surface hole intercept was confined to the south wall, and that the raise as a whole contained lower grade ore. I have interpreted this to mean that the north limit, at this point, of zone B is very near to the south edge of the raise, or about at hole 148. Since this raise penetrates along this boundary, it value for comparison is highly questionable, and so the raise is not used in the following tabulation. The high-grade drill hole intercept, however, is in the surface-hole average for zone C

	DDH 151 (C)	DDH 151 (C-1)	DDH 151 (C-2)	DDH 62 (C)	DDH 148 (C)
Penetration, feet	18	17	27	17	31
Grade, % Cu	4.02	4.08	2.16	4.53	2.68

	Shaft (C-1)	1450W Drift N (C)	4015N Drift E (C)	4200N Drift W (C)	Raise on 62 (C)	DDH U-9
Penetration, feet	19	46	30	48	19	10
Grade, % Cu	2.47	2.36	2.30	2.08	3.56	4.97

Average of 5 surface DDH's : 3.27 % Cu - 110 ft
Average of underground exploration : 2.57 % Cu - 172 ft

Near DDH 148, two zones of high-grade ore were encountered in the drifts. These probs are isolated, and were not anticipated. Their probably geologic occurance is shown on Att. __ and __ . These zones are most nearly related to zone C, and are marked C-R1 and C-R2 on the sections.

	1450W Drift N and 4350N Drift W	1450W Drift N
Penetration, feet	45	26
Grade, % Cu	3.32	2.31

Average of underground Exploration: 2.95 % Cu - 71 ft.

(cont)

Summary, All "C" zones

Average of 2 surface DDH's : 3.27 % Cu - 110 ft

Average of Underground Exploration: 2.68 % Cu - 243 ft.

ZONE D is a vaguely defined zone which lies east and northeast of the shafts (Att.). It is partly similar in its geologic location to zone B, but is treated separately due to its partial separation from zone B by the folded No 2 thrust, and the related "ridge of calcareous argillite. Zone D has been penetrated by 3 surface drillholes and dry diggings and an underground drillhole.

	DDH 125	DDH 130	DDH 224	4015N Drift E		4350N Drift E
Penetration, feet	95	144	130	101		100
Grade, % Cu	0.72	0.76	0.79	0.84	(0.99*)	0.97

	Raise on 130	1375W Drift N		DDH U-4	DDH-5
Penetration, feet	16	34		97' **	23'
Grade, % Cu	1.62	0.65	(0.77*)	1.21	0.64

* Assays up-graded to compensate for dilution by andesite dikes occupying a significant portion of the drift. Estimation by volume.

** Near East fault, contains slightly higher grade ore.

Summary, Zone D:

Average of 3 surface DDH's: 0.77 % Cu - 369 ft

Average of underground exploration, using 2 up-graded assays: 0.96 % Cu - 274 ft (Excluding U-4)

Average of underground exploration, all original assays: 0.89 % Cu - 274 ft

Average of U-E. up-gr. w/ U-4 1.03 - 371

Zone D-1 occupies a large area on section 4350 N (Att). This zone is more or less related to zone D, but is of generally lower grade. No surface holes penetrate it.

	1375 W DrA N	4350N Drift E	DDH U-11	DDH U-12
Penetration, feet	70	84	33	15
Grade, % Cu	0.45	0.67	0.74	0.36

Average of underground exploration: 0.58 % Cu - 202 ft

Summary, Zones D and D-1:

Average of 3 surface DDH's: 0.77 % Cu - 369 ft
Average of underground exploration: 0.80 % Cu - 476 ft

ZONE E is shown on Att ___, and lies east of the shaft in the No 2 thrust fault zone. The ore disseminated through this fault zone can be compared only in a general way due to uncertainties in structural interpretation. The penetrations in DDH 151 and in the 4015 Drift E are mineralogically similar and are compared below—

No 2 thrust zone:
DDH 151 : 0.74 % Cu - 40 ft
4015 Drift E : 0.80 % Cu - 106 ft.

Zone F is a high-grade zone above the No. 1 thrust on section 4350 N (Att.). This zone is traceable in other parts of the ore body, but can be compared to underground assays only in this assay..

	DDH 130	DDH 148	DDH U-11
Penetration, feet	20	20	50
Grade, % Cu	14.04	3.47	8.51

Average of 2 surface DDH's: 8.76 % Cu - 40 ft
DDH U-11: 8.51 % - 50 ft

Zone G is a small zone north of the shaft, which lies below the calcareous argillite and the No. 2 thrust. It is penetrated by one surface hole and by drifts and an underground hole.

	DDH 148	4350N Drift W	1450W Drift N	DDH U-7
Penetration, feet	63	44	42	27
Grade, % Cu	0.65	0.98 *	0.62	0.88

* Excludes a portion of this drift -- 19' @ 2.87 % Cu -- which drives along the contact between zone G and high-grade zone C-R1

Summary, zone G:

Surface DDH 148: 0.65 % Cu - 63 ft
Average of workings: 0.80 % Cu - 86 ft
Average of Underground exploration: 0.82 % Cu - 113 ft

Zone H is a vertical zone 20 to 40 feet wide which forms the east margin of the ore body. The ore in this zone is high-grade and forms as massive replacements and as breccia filling in the East fault. The west edge was penetrated by DDH 130, and may have been penetrated by DDH 121, south of the workings. The comparison to the intercept in DDH 130 has little meaning, other than that it substantiates the consistently high-grade nature of this zone.

	DDH 130	4015N Drift E	4350N Drift E	DDH U-4 *
Penetration, feet	28	28	25	101
Grade, % Cu	5.57	3.48	9.70	3.28

* Angle hole representing about 45 feet horizontal width; 16 feet next to east wall averages 7.60 % Cu

Average of Underground exploration: 4.36 % Cu - 154 ft.

Summary – Significant comparison

Calculation sheets

Zone A

DDH 151	96' @ 0.53 % Cu
shaft	89' @ 0.54
V-2	23' @ 0.42

Zone B

2 surface DDH's	93' @ 1.07 % Cu
Underground expl	385' @ 0.97

Zone B, extension

Average of 2 surface DDH's	97' @ 1.09 % Cu
Underground Exploration	70' @ 1.12 % Cu

Zone C, and related zones

5 surface DDH's	110' @ 3.27 % Cu
Underground Expl	243' @ 2.68 % Cu

Zone D

3 surface DDH's	369' @ 0.77 % Cu
Underground Expl.	274' @ 0.96

Zone D-1, possibly related to zone D

Underground Expl: 202' @ 0.58 % Cu

Combine D & D-1, Underground: 476' @ .80 % Cu

Zone E (No 2 thrust)

DDH 151 40' @ 0.74 % Cu
4050N, East Drift 106' @ 0.80 % Cu

Zone F (Along No 1 thrust)

2 Surface DDH's 40' @ 8.76 % Cu (20' thick each)
DDH U-11 50' @ 8.51 % Cu

Zone ~~#~~ G

DDH 148 63' @ 0.65 % Cu
Underground Cpl 113' @ 0.82 % Cu

Zone H East fault zone

DDH 130* 28' @ 5.57
Underground Cpl 154' @ 4.36
186 @ 4.29

* Only surface DDH which penetrated this zone

$$\frac{292526}{1718} = 1.703$$

Zone A

	DDH 149	DDH 46	DDH 151	Shaft	DDH U-2
Penetration, feet	90	106	96	89	23'
Grade, % Cu	0.60	0.76	0.53	0.54	0.42

Zone B

	DDH 46	DDH 151	Shaft	1500N South Drift	4050N East Drift	1450N North Drift	DDH U-1	DDH-U-2
Penetration, feet	74	19	28	122	75	81	32	47
Grade, % Cu	0.98	1.42	1.05	0.92	1.13	0.72	1.42	0.93

Zone B: Average grade of 2 surface DDH's: 1.07 % Cu
Average grade of workings: 0.93 % Cu
Average grade of 2 underground DDH's 1.13 % Cu
Average grade of all underground expl. 0.97 % Cu

$\frac{89.15}{79} = 1.128$
306' @ .93
+ 89.15
$\frac{373.73}{385} = .970$

Zone B, extension

	DDH 62	DDH 148	Raise on 62	Raise on 148	4200N West Drift	DDH U-10	DDH U-9
Penetration, feet	60	37	34	22	16	14	4
Grade, % Cu	1.41	0.58	1.41	.64	0.15	1.16	0.40

$\frac{106.060}{97} = 1.093$ $\quad \frac{16.24 + 62.02 + 78.26}{70} = 1.118$ $\quad \frac{82.26}{90} = .914$ $\quad \frac{62.02}{56} = 1.107$

Zone B Ex.
Average of 2 surface DDH's: 1.09 % Cu
Average of underground expl.*: 0.91 % Cu *Includes waste zone assay of 0.15 %, and 0.40 %.
Average of raises only: 1.10 % Cu
Average of Raises and U-10* 1.12 % Cu *Excludes waste zone

Zone C

	Zone C DDH 151	Zone C-1 DDH 151	Zone C-2 DDH 151	Zone C DDH 62	Zone C DDH 148
Penetration, feet	18	17	27	17	31
Grade, % Cu	4.02	4.08	2.16	4.53	2.68

	Zone C-1 Shaft	Zone C 1450 N. Drift	Zone C 4050 E. Drift	Zone C Raise on 62	Zone C Raise on 148	Zone C 4200 W. Drift	DDH U-9
Penetration, feet	19	46	30	19	*	48	10
Grade % Cu	2.47	2.36	2.30	3.56		2.08	4.97

* Cannot be compared. see text.

$\frac{441.670}{172.0} = 2.567$

High-grade zones (C, C-1, C-2)

Average Grade of 5 DDH's : 3.27 % Cu

Average Grade of Underground Expl : 2.57 % Cu

Zone C-R

Isolated zones of high-grade are not anticipated, and which are more or less in the same structural environment, and possibly related, to zone C

	1450 Drift N & 4350 Drift E. CR1	1450 Drift N CR2
Penetration, feet	45	26'
Grade, % Cu	3.32	2.31

$\frac{209.4160}{71.0} =$

Underground Expl. - Average grade of zones CR1, C-R2 : 2.95 % Cu

" " - Average grade of all zones "C" : 2.68 % Cu

$\frac{651130}{243} = 2.680$

Zone D

	DDH 125	DDH 224	DDH 130	4050 E.D.	4350 ED	Rs 4350N 1250W	DDH U-5	1375 N.D
Penetration, feet	95	130	145	101	100	16	23'	34
Grade, % Cu	.72	.79	.76	.84 (.99)	.97	1.62	.64	.77 * (.65

$\frac{28054}{369'} = .773$ $\frac{24458}{274} = .893$ $\frac{263.81}{274} = .963$

* up-graded 16% to allow for dilution of drift muck by barren andesite

Zone D

Average grade of 3 surface DDH's : 0.77 % Cu

Average grade of underground Expl : 0.89

Average grade of underground Expl, upgrading in 2 drifts for and dilution : 0.96

DDH U-4
97' @ 1.21

$\frac{38118}{371} = 1.027$ up-gr.

$\frac{36195}{371} = .976$ orig

Zone D-1

probably similar to zone D.

	1375 N.D.	4350 ED	DDH U-12	DDH U-11
Penetration feet	70	84	15	33
Grade % Cu	0.45	.67	.36	.74

$\frac{117.600}{202} = .582$

Average of underground expl : 0.58 % Cu

$\frac{238.1410}{476} = .801$

Combined underground Expl, zones D & D-1 : 80 % Cu

No 2 Thrust, zone E

DDH 151: 40' @ .74 % Cu

4050N. East Drift: 106' @ .80 % Cu

Zone F – Hi grade along the No 1 Thrust

	DDH 148	DDH 130	DDH U-11
Penetration, feet	20	20	50
Grade, % Cu	3.47	14.04	8.514

Average of DDH 148 & 130: 8.76

Zone G

	DDH 148	4350 W.D.	1450 W.N.D.	DDH U-7
Penetration, feet	63	44	42	27
Grade, % Cu	.65	.98*	.62	.88

$\frac{69.16}{86} = .804$

$\frac{92.92}{113} = .822$

* Excludes 19' @ 2.87, which comes from a portion of the drift driven along the contact of zone H and hi grade zone C-R1

Average of exploration workings: 0.80

Drill holes + workings: 0.82

H Area Near East fault

	DDH 130*	4350N E. Drift	4050 N. E. Drift	DDH U-4	DDH U-4 **	Raise on 130
Penetration, feet	28	25	28	101	(16)	32
Grade, % Cu	5.57	9.70	3.48	3.28	(7.60)	3.96

* Only drill hole known to have penetrated near or in the high grade zone adjacent to the East fault.

** Next to East wall

Average Underground Grade: 4.36

ex 130 Rs $\frac{67.22}{154} = 4.358$

incl 130 Rs $\frac{79794}{186} = 4.290$

DDH 149

Rs 3750 N - 1500W Rail 2829.02

0.0' @ Rail + 7.3'

			Sample plant		Grab
21R	0.0 - 9.0	9.0'	.57	% Cu	.54 % Cu
23R	9.0' - 13.9	4.9'	.13		.14
25R	13.9 - 18.7	4.8'	.09		.08
27R	18.7 - 24.6	5.9'	0.15	9.020 / 47.5 = 0.190	.13
29R	24.6 - 30.2	5.6'	0.17		.17
31R	30.2 - 35.4	5.2'	.22		.22
33R	35.4 - 40.9	5.5'	.26		.24
35R	40.9 - 45.1	4.2'	.22		.25
37R	45.1 - 50.9	5.8'	.20		.22
39R	50.9 - 56.5	5.6	.26		.28

RAISE DATA

DDH 148

Rs 4350N 1500 W Rail 2830.25

0.0' @ Rail + 7.3' = 2837.6'

			Sample Plant		Grab	
22R	0.0 - 9.0	9.0'	0.73	% Cu	0.67	% Cu 3.8
24R	9.0 - 13.7	4.7'	1.57		1.29	
26R	13.7 - 18.6	4.9'	1.51	33.392 / 20.7 = 1.613	1.16	
28R	18.6 - 24.5	5.9'	1.26		1.09	
30R	24.5 - 29.7	5.2'	2.15		2.49	52.936 / 54.6 = .970
32R	29.7 - 34.8	5.1'	.68		.72	
34R	34.8 - 39.2	4.4'	.86	16.004 / 24.9 = 0.643	.86	
36R	39.2 - 44.0	4.8'	.67		.57	
38R	44.0 - 49.2	5.2'	.67		.68	
	49.2 54.6	5.4'	.38		.43	

Aver. Total .905 % Cu .970 % Cu

49396 / 54.6

.905 / .970 = 93.3

Ave of two raises.
Grab 7% low

DDH 62

4200 1450 WRs — Track ~~2829.17~~ ~~2829.17~~

	Sample Plant			Grab
3.014	0.0 - 9.0	9.0	1.76	1.66
23.9	9.0 - 14.0	5.0	6.92	6.40
72055	14.0 - 18.6	4.6	3.42	3.05
	18.6 - 23.9	5.3	1.11	1.08
1.382	23.9 - 28.1	4.2	1.38	1.37
	28.1 - 32.6	4.5	1.00	0.91
19.0 / 26264	32.6 - 37.3	4.7	0.24	0.17
1.586	37.3 - 42.9	5.6	2.65	1.87
9.8 / 1555	42.9 - 48.8	5.9	1.73	1.64
	48.8 - 52.7	3.9	1.37	1.23

$\frac{66.172}{18.6} = 3.558$

$\frac{16.629}{14.0} = 1.188$

$= 0.24$

$\frac{30.390}{15.4} = 1.973$

Ave. $= \frac{113.869}{52.7} = 2.161$ — Ave. $= \frac{102.287}{52.7} = 1.941$

10% low

4350 N 1250 WRs — Track 2831.41

DDH 130

Sample Plant			Grab
0.0 - 8.5	8.5	2.47	2.46
8.5 - 13.5	5.0	2.97	2.71
13.5 - 17.7	4.2	3.23	2.97
17.7 - 21.5	3.8	3.97	~~1.41~~ out 3.53
21.5 - 26.9	5.4	5.46	5.41
26.9 - 31.5	4.6	6.68	6.38
31.5 - 35.9	4.4	0.74	0.88
35.9 - 40.9	5.0	0.41	0.57
40.9 - 47.2	6.3	2.09	2.07
47.2 - 51.8	4.6	2.29	1.94

$\frac{124.709}{31.5} = 3.959$

$\frac{5.306}{9.4} = 0.564$

$\frac{23.701}{10.9} = 2.174$

Ave $= \frac{153.716}{51.8} = 2.967$ — Ave. $= \frac{147.597}{51.8} = 2.849$

4% low

+ Total average

62- 130

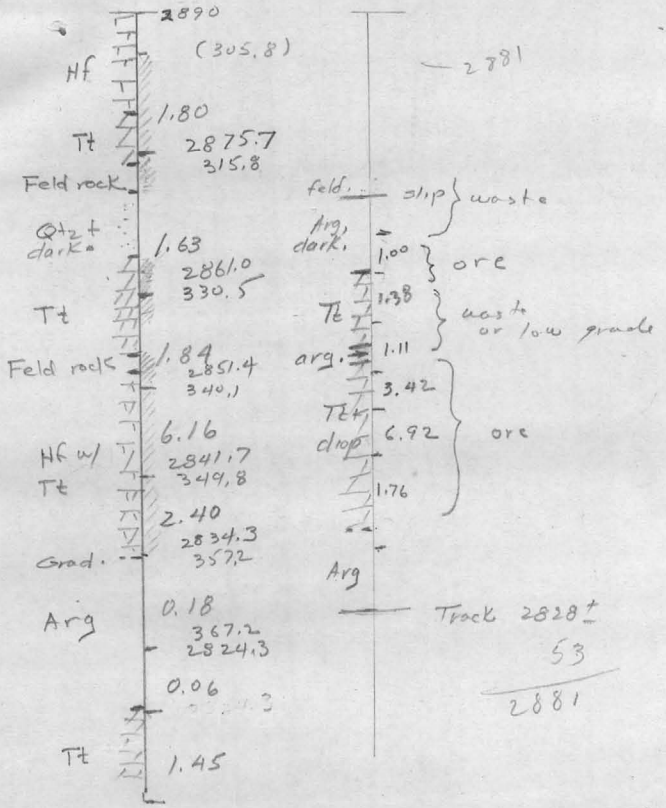
130 3187.9

293.8 -	303.9 -	.42	- 10.1
	314.0 -	.69	- 10.1
	324.0 -	1.48	- 10.0
	330.7 -	4.92	- 6.7
	334.7 -	3.74	- 4.0
	341.7 -	3.43	- 7.0
	351.7 -	8.24	- 10.0
	361.9 -	.97	- 10.2
	370.2 -	3.05	- 8.3
	380.3 -	1.34	10.1

DDH 62 3191.5

305.8 - 315.8	1.80	10.0
330.5	1.63	14.7
340.1	1.84	9.6
349.8	6.16	9.7
357.2	2.40	7.4
367.2	0.18	10.0
373.4	0.06	6.2
383.4	1.45	10.0

3191.5
305.8
3885.7



148 2830.25
130 2831.37
62 2829.17

Raise comparison
DDH 149

300.0

303.4

.10

310.4

.25

317.1

.44

326.8

.14

336.9

.08

347.1

.54

356.2

1.23

363.7

$\frac{9.213}{47.1} = 0.20$

$= .54$

$= \frac{10.872}{13.6} = 0.80$

2892.8 (303.4)
56.5
359.9

.26

.20

.22

.26

.22

.17

.15

.09

.13

.57

0.0 – 2836.2

$\frac{10.870}{16.3} =$

0.67

Raise comparison
DDH 130

293.8

297.5 — 2890.4

3.4 — 2890

use .42

Tt .42 — 2.29

303.9

$\frac{9.657}{16.5} = 0.59$

$1.62 = \frac{25.751}{15.9}$

Hf w/ feld — 2.09

.69 — 0.41

Tt

314.0 — 0.74

1.48 — 6.68

$\frac{169.134}{37.7} = 4.49$

Crad — 324 — 5.46

feld rock

4.92 — 3.97

$3.56 = \frac{127.965}{35.9}$

330.7

3.74 — 3.23

Tt w/feld — 334.7

3.43

285d — 2.97

3.43

Grad — 341.7

Tt

2.47

8.24

0.0' Raise — 2838.6 elev.

357.7

.97
361.9

$\frac{357.7}{293.8}$ / 31.9

$\frac{3187.9}{2838.6}$ / 349.3

Raise comparison
DDH 148

296.1

301.0

0.59

Hf w/ grnt,,

~~CPY, PY, poly~~

306.3

$\frac{15.523}{21.5} = 0.72$

0.91

312.3

0.68

322.5

2.41

330.7

brn, gray qtzt bx

332.2

332.7

2.55

Hf w/ grnt

$\frac{82.662}{30.6} = 2.70$

343.0

3.15

353.1

355.6

0.70

0.70

363.2

2892.2

0.38

0.67

0.643

0.67

0.86

0.68

2.15

1.26

1.613

1.51

1.57

0.73

00' Raise
2837.6' elev.

Raise comparison
DDH 62

3191.5
62

2941.3

1.14% 2' 1.14

2890 Bench

2895.7' 305.8'

1.39

50'

21.876 / 20.280 1.69 1.63

1.59
15.550 / 9.8

Hf 1.80 12.0 13.4

1.73

Tt 10.0

315.8

10'

2.65

feld rock

0.24

1.38
26.264 / 19.0

dark brown qtzt or Arg 1.63

1.63

1.00

38.7 / 63429

1.638

1.83 Bench. avale

Tt

330.5

1.38

1.11

1.84

Arg

3.42

340.1

3.564

2850 Bench

26.7 / 95176

Track 2829.2

17.1 / 7512

6.16

6.92

Hf ad Tt

3.558

3.01
12.055 / 23.9

A.53%

349.8

1.76

2.40

3.11
355.1
2836.4

Grada-tional

357.2

Arg

0.18

367.2

D. 149

MISSION PROJECT
Underground Samples

Raise 3750N - 1500W

Muck	Cu %	Interval	Bulk	Cu %
R 21 GS	0.54	0.0 - 9.0	R 21 SPA-1	0.57
R 23 GS	0.14	9.0 - 13.9	R 23 SPA-1	0.13
R 25 GS	0.08	13.9 - 18.7	R 25 SPA-1	0.09
R 27 GS	0.13	18.7 - 24.6	R 27 SPA-1	0.15
R 29 GS	0.17	24.6 - 30.2	R 29 SPA-1	0.17
R 31 GS	0.22	30.2 - 35.4	R 31 SPA-1	0.22
R 33 GS	0.24	35.4 - 40.9	R 33 SPA-1	0.26
R 35 GS	0.25	40.9 - 45.1	R 35 SPA-1	0.22
R 37 GS	0.22	45.1 - 50.9	R 37 SPA-1	0.20
R 39 GS	0.28	50.9 - 56.5	R 39 SPA-1	0.26

End

MISSION PROJECT
Underground Samples

D. 148

Raise 4350 - 1500W

Muck	Cu %	Interval		Bulk	Cu %
R 22 GS	0.67	0.0 - 9.0		R 22 SPA-1	0.73
R 24 GS	1.29	9.0 - 13.7		R 24 SPA-1	1.57
R 26 GS	1.16	13.7 - 18.6		R 26 SPA-1	1.51
R 28 GS	1.09	18.6 - 24.5		R 28 SPA-1	1.26
R 30 GS	2.49	24.5 - 29.7		R 30 SPA-1	2.15
R 32 GS	0.72	29.7 - 34.8	1.7	R 32 SPA-1	0.68
R 34 GS	0.86	34.8 - 39.2	4.4	R 34 SPA-1	0.86
R 36 GS	0.57	39.2 - 44.0	4.8	R 36 SPA-1	0.67
R 38 GS	0.68	44.0 - 49.2	5.2	R 38 SPA-1	0.67
R 40 GS	0.43	49.2 - 54.6	5.4	R 40 SPA-1	0.38

End

1.7

33.1'

13.692 / 21.5 = .637

Zone B ex

APR 17 1959

MISSION PROJECT
Underground Samples

D. 130

Raise 4350 - 1250W

Muck	Cu %	Interval	Bulk	Cu %	
R 2 GS	2.46	0.0 - 8.5	R 2 SPA-1	2.47	Zone H
R 4 GS	2.71	8.5 - 13.5	R 4 SPA-1	2.97	
R 6 GS	2.97	13.5 - 17.7	R 6 SPA-1	3.23	$\frac{124.709}{31.5} = 3.959$
R 8 GS	~~1.44~~	17.7 - 21.5	R 8 SPA-1	3.97	
C-91	3.53	Repeat	"	3.96	
R 10 GS	5.41	21.5 - 26.9	R 10 SPA-1	5.46	
R 12 GS	6.38	26.9 - 31.5	R 12 SPA-1	6.68	
R 14 GS	0.88	31.5 - 35.9	R 14 SPA-1 *	0.74	
R 16 GS	0.57	35.9 - 40.9	R 16 SPA-1 *	0.41	Zone D
R 18 GS	2.07	40.9 - 47.2	R 18 SPA-1	2.09	$\frac{25.751}{15.9} = 1.62$
R 20 GS	1.94	47.2 - 51.8	R 20 SPA-1	2.29	
Averages	2.849	0.0 - 51.8		2.967	

* Zone D broken at this point, for a more equal footage comparison to core from 130.

Zone H broken at this point, to show the actual assay within the limit of high-grade zone -- because an actual comparison to 130 is not being attempted.

APR 17 1959

Kinnison

MISSION PROJECT
Underground Samples

D. 62

Raise 4200 - 1450W

Muck	Cu %	Interval	Bulk	Cu %	
R 1 GS	1.66	0.0 - 9.0	R 1 SPA-1	1.76	66.172 / 18.6 = 3.558
R 3 GS	6.40	9.0 - 14.0	R 3 SPA-1	6.92	
R 5 GS	3.05	14.0 - 18.6	R 5 SPA-1	3.42	
R 7 GS	1.08	18.6 - 23.9	R 7 SPA-1	1.11	16.629 / 14.0 = 1.188
R 9 GS	1.37	23.9 - 28.1	R 9 SPA-1	1.38	
R 11 GS	0.91	28.1 - 32.6	R 11 SPA-1	1.00	
R 13 GS	0.17	32.6 - 37.3	R 13 SPA-1	0.24	4.7 @ .24
R 15 GS	1.87	37.3 - 42.9	R 15 SPA-1	2.65	30.390 / 15.4 = 1.973
R 17 GS	1.64	42.9 - 48.8	R 17 SPA-1	1.73	
R 19 GS	1.23	48.8 - 52.7	R 19 SPA-1	1.37	
Averages	1.941	0.0 - 52.7		2.161	

18.6' @ 3.57 zone C

Zone B EX 48.147 / 34.1 = 1.412

November, 1959

SUMMARY - DIAMOND DRILL HOLE U-1
76' South of Shaft Center Line, 370 South
Drift, 1500W Track 2825' Angle (-) 90°

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	4.0	4.0	7	0.35	Reaming. A few fragments were recovered. Tactite. Fairly hard, partly euhedral garnet, with minor qtz blebs. Sulphides are py and cpy. Cu content weak.
4.0	8.9	4.9	82	2.61	Hornfels. Very hard and fine-grained white diopside(?). Disseminated blebs of cpy, weak to heavy. Some qtz blebs. Cu content: strong.
8.9	11.3	2.4	100	1.87	Fault(?) 8.9-9.1', core broken; pieces of garnet, and gouge. Hornfels. Similar to 4.0-8.9' run. Thin vertical band blue to black actinolite(?) and chlorite, from 9.1-9.7'. Irregular blebs and streaks of garnet. Sulphides: cpy, minor py, heavily dissem. Cu content: strong.
11.3	17.8	6.5	71	1.73	Hornfels, similar to above, but harder and finer -grained. Cpy irregularly dissem. in large to small blebs. Steep vein, 1" thick qtz-cpy, at 14.4-14.7'. Cu content: weak to moderate.
17.8	22.1	4.3	68	1.18	Hornfels, similar to above. Soft diop 21.5-22.1'. Py-cpy banded, dip 30°±, at 22-22.2'. Py-cpy dissem. irregularly in rest of run. Cu content: weak to moderate.
22.1	27.1	5.0	75	1.66	Hornfels, similar to above, but slightly softer. Sulphides: cpy with some py, dissem. irregularly. Cpy slightly tarnished. Cu content: weak to moderate.
27.1	32.2	5.1	33	0.51	Hornfels and tactite. Hornfels, similar to above, to 27.6', with moderate Cu. Tactite with heavy diop for rest of run. Tactite core broken, with bad recovery. Sulphides: py-cpy, dissem in small grains. Cu content: weak.
32.2	38.1	5.9	66	0.04	Tactite, similar to above, but only slight diop. Qtz blebs common. Sulphides mainly py, cpy rarely visible. Fault gouge at 36.0'. Cu content weak.
38.1	45.0	6.9	61	0.15	Tactite and hornfels. Tactite, similar to above, to 40.7', approx center of 1.5' gradational zone to a white, very fine-grained, soft diopside hornfels. Hornfels to 43.7'. Tactite with abundant qtz blebs to 44.8'. Hornfels as above to 45.0'. Cpy dissem weakly in hornfels, and even less in the tactite. Cu content weak.
45.0	50.0	5.0	47	0.48	Hornfels. Similar to that in previous run. Soft, white "chalky-looking" diopside. Cpy and minor py dissem in small blebs. Cu content weak to moderate.

SUMMARY - D. D. HOLE U-1 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
50.0	55.0	5.0	82	0.87	Hornfels, similar to above. White soft, fine-grained granular diop. Some fine dissem. garnet, with heavy sulphides finely dissem, from 52.0-53.3'. Small blebs of cpy dissem weakly through rest of run. Cu content moderate.
55.0	60.9	5.9	78	0.75	Hornfels, similar to above, but coarser grained. First 0.3' with fine garnet and blebs cpy. Dark green to black chloritic rock (T(?) H on drift plan -370 level) at 57.9' and 60.3'. Both about 0.1' thick, latter has tight upper contact at 30°±. Same rock, 0.1' penetration at 60.9. Cpy heavy dissem in hornfels 57.3-57.9' and 60.3-60.6'. Cu content weak.
60.9	62.9	2.0	63	0.19	Hornfels, similar to above. Cu content weak.
62.9	67.3	4.4	92	0.04	Hornfels, similar to above. Sulphides, very fine pin-point grains, dissem throughout. Cu content weak.
67.3	71.9	4.6	86	0.10	Hornfels(?). White with very faint grey mottling. Hard and dense, slightly calcareous. Weakly dissem fine grains of py and cpy. Cu content weak.
71.9	77.1	5.2	92	0.30	Hornfels(?), similar to above to 73.3' and 40° thin joint contact. Hornfels below, white, fairly hard and dense diop? becoming softer below 75.5'. Last foot very soft with poor recovery. Py and cpy dissem in small, but distinct, grains throughout harder portion of run. Cu content weak to moderate.
77.1	82.2	5.1	98	0.34	Hornfels, similar to bottom half of previous run. White, dense, fairly soft, diop(?) hornfels. Cpy dissem in medium-sized grains below 78'. Laminated color bands dip 40° at 79.6'. Cu content moderate.
82.2	86.3	4.1	86	0.67	Hornfels, similar to above. Cpy dissem moderately as in above run, to 83.7'. Sulphides weak below. Cu content weak to moderate.
4.0	86.3	82.3	74		Total core for hole.

check assay

MISSION SHAFT

ASSAY DATA - DIAMOND DRILL HOLE U-1

Date started: 11/18/58 Date completed: 11/24/58

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	4.0	4.0	7.4		0.35	0
4.0	8.9	4.9	82.0	92.8	2.61	2.18
8.9	11.3	2.4	99.7	99.5	1.87	1.61
11.3	17.8	6.5	70.7		1.73	-
17.8	22.1	4.3	67.8	88.5	1.18	1.45
22.1	27.1	5.0	75.3		1.66	-
27.1	32.2	5.1	33.2	94.1	0.51	0.66
32.2	38.1	5.9	65.8	112.2	0.04	0.09
38.1	45.0	6.9	61.2	92.8	0.15	0.17
45.0	50.0	5.0	46.8	94.8	0.48	0.58
50.0	55.0	5.0	82.4	90.3	0.87	0.95
55.0	60.9	5.9	78.0	81.2	0.75	0.75
60.9	62.9	2.0	63.2	71.5	0.19	0.18
62.9	67.3	4.4	91.9	99.1	0.04	0.04
67.3	71.9	4.6	86.0	73.4	0.10	0.22
71.9	77.1	5.2	91.7	65.5	0.30	0.25
77.1	82.2	5.1	98.4	85.3	0.34	0.35
82.2	86.3	4.1	83.4	81.8	0.67	0.39
	Bottom					
		Average	74.3	89.8		

45.897 / 32.2 = 1.425

4.0 / .35 = 4.9 - 2.61

18.2 / 27.107 = 1.60

12.8 / 12.71 = .10

15.9 / 11.175 = .70

11.175 / 15.9 = 0.703

4.310 / 21.3 = 0.202

21.3 / 4.310 = .20

Nov-Dec, 1959

SUMMARY - DIAMOND DRILL HOLE U-2
76' S. of Shaft Center Line S. Drift-1500W
Collar Elevation 12.9' above Track, Angle (+)90°

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.3	1.3	0	-	Drilled with rock bit, no core.
1.3	6.6	5.3	35	0.85	Tactite. Yellow-brown garnet with soft diop in moderate amounts. Sulphides py and cpy, in small dissem grains. Cu content weak. No sludge.
6.6	10.8	4.2	32	0.70	Tactite, similar to above. Slightly more cpy. Less diop. Cu content weak to moderate.
10.8	13.8	3.0	53	0.30	Tactite, similar to above. Core badly broken. Cu content: weak to moderate.
13.8	19.0	5.2	85	0.52	Tactite, similar to above. Sulphides py and cpy in about equal amounts. Small diss grains and rare stringers. Core broken. Cu content moderate to strong.
19.0	23.7	4.7	49	0.71	Tactite, similar to above, with slightly more soft diopside. Core broken, but recovery about 80% to 21.2'; below core broken to little pieces and only 20% recovery. Vuggy texture w/secondary calcite, and poor recovery, suggest fault zone 19.5 to 23.7'. Sulphides py in moderate sized cubes and cpy in small blebs; both diss and along veinlets. Cu content strong.
23.7	29.0	5.3	70	0.24	Tactite. Similar to above. Very pale brown garnet, w/heavy admixed diop. Small amount gypsum at 24'. Core broken. Sulphides py and cpy, diss in less quantity than previous run. Cu content weak to moderate.
29.0	32.0	3.0	60	0.34	Tactite, similar to above. Cpy with some py, dissem as elongate blebs and short stringers. Cu content moderate.
32.0	36.0	4.0	71	2.16	Tactite, mixed with hard dense diop(?) hornfels. The two types intergrown irregularly. Cpy and py dissem as above. At 34.0', 0.2' massive cpy. Core is more solid than previous runs. Trace sphalerite(?). Cu content strong.
36.0	39.3	3.3	30	0.20	Tactite. Pale yellow gran garnet w/admixed diop. More or less like previous runs. First foot core recovered, last 3 feet ground to a few tiny pieces. Appears to be heavier diop in that portion. Cpy and py dissem. Cu content moderate.
39.3	42.6	3.3	88	2.91	Tactite, mixed with hard dense hornfels as in 32.0-36.0' run above. Py and cpy in about equal amounts, dissem heavily in large blebs (cpy) and 1/8-1/4" cubes (py). Thin py-cpy vein dips 60° at 42.4'. Qtz accompanies cpy in local areas. Cu content very strong.

check assay

check assay

SUMMARY - DD HOLE U-2 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
42.6	45.9	3.3	58	0.89	Hornfels, white, moderately hard diopside, with some garnet. Rock is transitional to tactite. Cpy dissem in large blebs. Py in less quantity. Rock locally brecciated and veined with sulphides. Cu content strong.
45.9	48.0	2.1	82	2.33	Tactite, to 46.6', similar to transition rock above. Core badly broken, dissem cpy, py, in moderate to heavy amounts. Pre-mineral Bx zone from 46.6 to 48.0'. Brown garnet, brecciated, and filled with cpy-py-gypsum-calcite aggregate. Sulphides in large grams, very heavy dissem. Cu content very strong.
48.0	51.0	3.0	59	0.32	Tactite, pale yellow brown garnet with abundant diop. Py and cpy dissem in small grains. Several high-angle thin gougy slips, with ground-up sulphide(?). Cu content moderate.
51.0	53.5	2.5	95	0.57	Tactite. Similar to above. Local small patches of dense hornfels. Py and cpy in small grains and very fine stringers. A few streaks of garnet, and the thin sulphide stringers, dip about 25°. Cu content strong.
53.5	55.8	2.3	84	0.31	Tactite, similar to above. Py and cpy in small dissem grains and very fine stringers. Sulphides heavy at beginning and end of run, and less abundant in center. Cu content moderate to strong.
55.8	61.0	5.2	54	0.19	Tactite, similar to above. From 57-58' residual fragments of hornfels (dense, white, fairly soft -- oil immersion shows 100% very fine diopside) are surrounded by garnet. Has the appearance of being brecciated, then filled and replaced by garnet. Sulphides are py-cpy, not very abundant. Cu content weak.
61.0	65.6	4.6	60	0.47	Tactite, similar to above. A very few diop residual fragments, as above. Py-cpy in very fine dissem. A few larger py-cpy grains associated with quartz. Cu content moderate.
65.6	70.9	5.3	60	0.64	Tactite, similar to above, and with rounded patches of dense diop. hornfels surrounded by garnet. Core recovery about 65% to 66.7', but about 40% below. A few tiny fragments of 1/8" qtz-cpy vein at 68'±. Py and cpy are diss. Cu content moderate.
	Bottom				
3.7	70.9	67.2	62		Total core for hole.
0	3.7	3.7	-		Reaming total.

check assay

MISSION SHAFT

ASSAY DATA - DIAMOND DRILL HOLE U-2

Date started: 11/25/58 Date completed: 12/5/58

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.3	1.3	-	-	-	-
~~1.3~~	~~3.7~~	~~2.9~~	~~50.0~~	-	-	-
~~3.7~~ 1.3	6.6	5.3	34.8	-	0.85	-
6.6	10.8	4.2	31.8	50.3	0.70	0.43
10.8	13.8	3.0	52.5	83.4	0.30	0.25
13.8	19.0	5.2	84.8	70.8	0.52	0.54
19.0	23.7	4.7	48.8	61.6	0.71	0.55
23.7	29.0	5.3	69.8	58.1	0.24	0.22
29.0	32.0	3.0	60.0	81.6	0.34	0.31
32.0	36.0	4.0	70.8	66.1	2.16	1.22
36.0	39.3	3.3	29.5	73.4	0.20	0.38
39.3	42.6	3.3	87.8	77.1	2.91	2.30
42.6	45.9	3.3	57.8	69.8	0.89	0.48
45.9	48.0	2.1	82.1	71.3	2.33	1.10
48.0	51.0	3.0	58.6		0.32	-
51.0	53.5	2.5	95.3	72.7	0.57	0.46
53.5	55.8	2.3	84.5		0.31	
55.8	61.0	5.2	54.4	88.9	0.19	0.21
61.0	65.6	4.6	60.0	84.0	0.47	0.22
65.6	70.9 Bottom	5.3	60.0	53.6	0.64	0.55
		Average	62.2	70.1		

8.7
3.3
4.0
16.0

17.433
.66
8.64
26.733

JEKinnison
December, 1958

SUMMARY - DIAMOND DRILL HOLE U-3
Face of E.D. 4015N, 2.3' N. of Center Line. 4.5' above Track. Brg N 73° E
Angle (+) 3° at Collar

Ave entire hole excluding 0-1.4'

From	To	Interval	Core Rec.%	% Cu Core	Geology
0	1.4				Collaring - no core.
1.4	6.0	4.6	90	.07	Sandy argillite, light brown, hard, to 1.8'. Arkose, fine-grained, white, contains small rock fragments to 3.2'. Contacts of sandy argillite and arkose not recovered. At 2.2', aligned lenticular rock fragments and stratification make a 60° angle with core center line. Sandy argillite with pebbles up to 1/2" continues to end of run. Brown to light gray. Suggestion of 40° angle with core center line - pebble alignment. Sulphides diss in fine grains throughout run. Occasional thin mineralized slip, sulphides show post-mineral crushing. Cu content weak.
6.0	8.2	2.2	96	.02	Andesite. Dark grey to black, very fine grained, with a few calcite blebs. A thin veinlet of calcite contains fine-grained pyrite, and pyrite is very sparsely dissem near this more or less horizontal veinlet. West contact not recovered. East contact makes 40° angle with core center line. Cu content nil.
8.2	9.6	1.4	100	.05	Conglomerate. Light to dark brown. Maximum size of pebbles is 1/2", composed of igneous(?) rock in sandy argillite matrix. This rock contacts the next type at 9.6' with bedding contact, 45° angle with core center line. Py weakly diss. Cu content sparse.
9.6	14.4	4.8	97	.02	Arkose, cream to white, fine-grained, becoming brown toward end of run. Py weakly diss. Cu content sparse.
14.4	18.8	4.4	82	.06	Arkose, brown, similar to end of previous run. Has small pebbles and rock fragments, 2-3 mm., of light-colored igneous(?) types. Pebble zone at end of run makes 45° angle with core center line.
18.8	22.7	3.9	99	.03	Conglomerate, like pebble zone, previous run. About 45° angle of pebbles with core center line. Matrix is fine-grained arkose, brown color. Pebbles do not occur past 19.7', except in a 2" 45° angle zone at 22'. Matrix material similar for all of run. Sparse py diss. Cu content sparse to nil.
22.7	26.2	3.5	88	.03	Conglomerate, with cream-colored arkose matrix, to 24'. Then, conglomerate with brown arkose matrix, as in previous run. Py diss and occasional veinlet cpy-py. Cu content sparse.
26.2	29.2	3.0	98	.03	Arkose, fine-grained, light-brown to cream. Sulphide vein, 10° to core center line, at 27'. Post-sulphide crushing. Py sparsely diss. Cu content sparse to nil.

SUMMARY - D. D. HOLE U-3 CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
29.2	32.8	3.6	87	.05	Arkose, similar to above. Generally light gray, fine grained. Tends toward sandy argillite in grain size. Local stratification more or less 45° to core. Py and cpy locally diss, and a sulphide stringer parallel to core extends from 29.2-30.7'. Cu content weak.
32.8	36.1	3.3	87	.01	Argillite. Sandy argillite similar to and gradation from arkose in previous run. Occasional small pebble. Sulphides very sparse. Cu content nil.
36.1	39.4	3.3	91	.02	Conglomerate. Grades from previous rock at beginning of run. Small angular pebbles are set in sandy argillite matrix similar to previous run. Cu content nil or sparse.
39.4	43.4	4.0	99	.03	Conglomerate, similar to previous run. Stratification 35-40° angle with core center line. Locally, the argillite matrix has no pebbles. Cu content nil or sparse.
43.4	47.9	4.5	93	.01	Argillite, sandy, brown-colored, identical to matrix of conglomerate in previous run. A very few small pebbles. Cu content nil or sparse.
47.9	51.1	3.2	100	.03	Argillite, similar to above. A thin py veinlet at 50.1 makes 40° angle with core center line. Cu content nil or sparse.
51.1	54.2	3.1	94	.01	Conglomerate, similar to 39.4-43.4', to 51.7'. Beyond this, arkose, fine-grained, flesh to light-gray colored, continues to end of run. Several thin py-cpy veins at 45°± angle with core center line. Cu content sparse.
54.2	57.4	3.2	91	.01	Arkose, similar to previous run. Tiny diss grains of py. Cu content nil to sparse.
57.4	61.7	4.3	96	.02	Arkose, similar to above. Contains 2 interbedded pebble zones, about .3' thick, at 45° angle ± to core center line. Py in tiny diss grains and cpy on thin veinlets. Cu content sparse.
61.7	65.2	3.5	98	.03	Arkose, similar to previous run. Local py-cpy veinlets with bleached rims. Py weakly diss, cpy rare in diss grains. Cu content sparse to weak.
65.2	70.9	5.7	80	.05	Sandy argillite, similar to previous run except in grain size. Grades into arkose and then to conglomerate at about 68'. Conglomerate brown, with small pebbles and arkosic matrix. Py and cpy diss. Cu content weak.

SUMMARY - D. D. HOLE U-3 CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
70.9	74.9	4.0	91	.02	Conglomerate, similar to previous run. Darker brown in color, and appears to contain finely diss biotite in matrix. Py and cpy diss and in a few thin veins. Cu content weak.
74.9	80.7	5.8	73	.03	Conglomerate, similar to previous run, but matrix tends toward argillite and pebbles less abundant. At 77.8', sedimentary contact, about 1" gradational, with arkose, white, fine-grained, fairly soft and shows sparse vuggy texture. Cpy and py diss in both rock types. Cu content possibly weak to moderate.
80.7	83.7	3.0	60	.03	Arkose, similar to previous run. Clay alteration heavy, and vugs common. Py and cpy diss. Cu content moderate.
83.7	87.2	3.5	29	.03	Arkose, gradational from previous run, to brown, hard fine-grained arkose. Core recovery poor, but fragments of qtz-cpy veins at about 20° to core center line suggest that these veins may be prevalent in this intercept. In core fragments recovered there is weakly diss py and cpy. Cu content weak.
87.2	90.9	3.7	94	.02	Arkose, brown, fine-grained, approaching argillite. A few pebbles at 90'. Very tiny grains of py and cpy diss throughout. Cu content weak to moderate.
90.9	92.7	1.8	82	.02	Arkose, similar to previous run. Also a few pebbles. Py and cpy diss as tiny grains, and in a few larger clusters. A qtz vein with some cpy is nearly parallel to the core. Cu content possibly moderate.
92.7	95.9	3.2	87	.01	Arkose, similar to previous run, to 94' where it grades into conglomerate with brown arkosic matrix. Py and cpy diss in tiny grains, but not uniformly so. Cu content weak.
95.9	98.8	2.9	100	.02	Conglomerate, similar to previous run. Matrix is arkosic, locally bleached(?) white in areas of intersecting qtz-sulphide veins. Sulphides diss in pin-point grains. Cu content moderate(?).
98.8	100.9	2.1	82	.07	Conglomerate, grades into arkose at 99'. Conglomerate is similar to previous run, and arkose is brown, fine-grained (nearly a sandy argillite) and similar to the matrix of the conglomerate. Qtz-cpy-py veins, 1/16", occur at 99.3, 99.9, and 100.4', and make angles of 45-20°, 45° and 15° respectively, with core center line. A few blebs of cpy are diss. Cu content weak to moderate.

SUMMARY - D. D. HOLE U-3 CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
100.9	105.9	5.0	93	.01	Argillite, brown, similar to arkose of previous run. Slightly sandy. Sulphides very sparse in first part of run, but past 104.9 there are a few clusters of py with minor cpy, and thin sulphide veinlets at angles of 50 to 30° with core center line. Cu content sparse to weak.
105.9	109.9	4.0	91	.03	Argillite, similar to above, grading into a lighter brown towards middle of run. Thin sulphide-gypsum veinlets are prevalent past 106.8', and make 30° angles with core center line. Diss tiny sulphide grains also present. Cu content weak.
109.9	113.0	3.1	93	.04	Argillite, similar to last part of previous run, grades into light gray, fine-grained arkose at 112'. Gypsum veinlets are less frequent than in previous run. At 112.3' a 1/16" vein with crushed sulphide (py, cpy?) makes 50° angle with core center line. Some clay alteration along this vein. Sulphides sparsely diss through rest of run. Cu content weak.
113.0	115.9	2.9	80	.01	Argillite, sandy. Soft, white rock, strongly kaolinized. Diss sulphides, and sulphide veins make about 25° angle with core center line. Sulphide veins are brecciated and smeared out by post-mineral slippage, and diss grains are partly crushed. Cu content moderate(?).
115.9	117.9	2.0	91	.01	Argillite. Brown, slightly sandy, fairly hard. Bedding lamination at 52° to core center line. Sulphides virtually absent. Cu content nil.
117.9	120.9	3.0	99	.02	Argillite, similar to previous run. Cu content nil.
120.9	125.9	5.0	80	.02	Argillite, similar to previous run. Calcite vein, 1/2" thick, occurs at 123.0' and makes 40° angle with core center line. A 1/8" vein of py-cpy at 124.8' makes 45° angle. Diss py is sparse. Cu content nil to sparse.
125.9	130.9	5.0	91	.03	Argillite(?), gradational contact at beginning of run. Dark red brown, with a few angular small fragments of purple argillite(?), and rounded fragments of felsite porphyry and round, 2mm quartz grains. Rock may be a pyroclastic, or a tuffaceous argillite. Sulphides sparsely diss in tiny grains. At 127.6', an irregular tight contact, at more or less 45° with core center line, initiates a dark gray green medium grained arkose. This contains grain-size rock fragments; dark colored, some are porphyry. This contacts an intercept, similar to the argillite(?) at beginning of run, at 128.6'. At 130.0' this unit contacts a fine grained gray to yellow arkose. Along a thin calcite-filled slip. This unit contains numerous small kaolinized feldspars(?), slightly larger than the grains of the enclosing arkose-- possibly pyroclastic. Cu content of all rocks - nil to sparse.

SUMMARY - D. D. HOLE U-3 CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
130.9	134.9	4.0	93	Nil	Arkose, similar to last unit of previous run. At 132.3' this rock contacts brown to green-gray arkose or very sandy argillite. Contact tight and slightly gradational. Py and some cpy diss. Cu content sparse.
134.9	138.0	3.1	90	.01	Sandy argillite, similar to last unit of previous run. Gouge, 1/2", makes 45° angle with core center line, at 137.5'. Py diss. Cu content nil to sparse.
138.0	144.8	6.8	63	.03	Sandy argillite, similar to previous run, to 150.7'. At this point a gradational contact initiates a mottled purple to flesh-colored argillite. This rock is completely aphanitic and dense. Occasional laminated bedding makes 54° angle with core center line. Rounded bleached(?) spots are common. Cpy is sparsely diss, particularly along bedding laminations. Cu content sparse.
144.8	148.5	3.7	80	.06	Argillite, similar to last part of previous run. Bedding lamination makes 47° angle with core center line. Grades into brown massive argillite at about 147'. Py is weakly diss and occurs on a few thin veinlets. Cu content nil to sparse.
148.5	151.6	3.1	51	.03	Argillite, similar to previous run. Cu content nil to sparse.
151.6	152.4	0.8	78	.02	Argillite, similar to previous run. Calcite-filled Bx zone parallel to core center line. Cu content nil to sparse.
	Bottom				
1.4	152.4	151.0	86		Total core for hole
0	1.4	1.4	-		Total collar starting

MISSION SHAFT

ASSAY DATA - DIAMOND DRILL HOLE U-3

Date started: 12-8-58 Date completed: 12-29-58

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.4	1.4	-	-	-	-
1.4	6.0	4.6	90.0	-	0.07	-
6.0	8.2	2.2	96.4	68.5	0.02	0.07
8.2	9.6	1.4	100.0	-	0.05	-
9.6	14.4	4.8	96.6	70.4	0.02	0.02
14.4	18.8	4.4	81.8	51.6	0.06	0.07
18.8	22.7	3.9	98.6	65.8	0.03	0.08
22.7	26.2	3.5	88.2	66.7	0.03	0.04
26.2	29.2	3.0	98.3	70.1	0.03	0.18
29.2	32.8	3.6	87.0	76.8	0.05	0.04
32.8	36.1	3.3	88.6	58.9	0.01	0.02
36.1	39.4	3.3	91.4	48.5	0.02	0.01
39.4	43.4	4.0	98.9	52.6	0.03	0.05
43.4	47.9	4.5	93.2	45.0	0.01	0.02
47.9	51.1	3.2	99.5	78.6	0.03	0.03
51.1	54.2	3.1	94.1	52.5	0.01	0.03
54.2	57.4	3.2	90.9	49.2	0.01	0.04
57.4	61.7	4.3	97.5	57.9	0.02	0.03
61.7	65.2	3.5	98.5	47.1	0.03	0.03
65.2	70.9	5.7	80.5	59.0	0.05	Tr.
70.9	74.9	4.0	91.0	69.1	0.02	Tr.
74.9	80.7	5.8	72.8	65.6	0.03	0.04
80.7	83.7	3.0	59.4	67.6	0.03	0.03
83.7	87.2	3.5	29.4	57.2	0.03	0.02
87.2	90.9	3.7	93.5	86.5	0.02	0.02
90.9	92.7	1.8	81.7)	75.5	0.02	0.01
92.7	95.9	3.2	87.4)	-	0.01	-
95.9	98.8	2.9	100.5)	80.8	0.02	0.03
98.8	100.9	2.1	82.3)	-	0.07	-
100.9	105.9	5.0	92.7	72.0	0.01	Tr.
105.9	109.9	4.0	90.6	90.2	0.03	0.04
109.9	113.0	3.1	93.4	65.6	0.04	0.05
113.0	115.9	2.9	80.3)	79.2	0.01	0.05
115.9	117.9	2.0	90.8)	-	0.01	-
117.9	120.9	3.0	99.3	82.8	0.02	0.03
120.9	125.9	5.0	80.0	74.0	0.02	0.03
125.9	130.9	5.0	90.9	70.5	0.03	0.03
130.9	134.9	4.0	92.8	69.1	Nil	0.02
134.9	138.0	3.1	90.2	50.0	0.01	0.01
138.0	144.8	6.8	63.4	65.0	0.03	0.04
144.8	148.5	3.7	80.1	68.4	0.06	0.03
148.5	151.6	3.1	50.8	82.1	0.03	0.03
151.6	152.4	0.8	78.0	88.9	0.02	0.04
	Bottom					
		Average	86.1	67.0		

$\frac{4.075}{152.4} = 0.027$

JEKinnison

January, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-4
73' West of 4015 East Drift Face
Brg. Due East, Angle (-) 56° at Collar
Collar Elevation Track Level
(See Survey Memo, S.C.Fall, Jan., 1958)

From	To	Interval	Core Rec.%	% Cu Core	Geology
0	2.9	2.9	-	-	Reaming in. A few fragments recovered. These are brecciated tactite, the breccia fragments filled in by Py-cpy and chlorite. Cu content - strong in these few fragments.
2.9	6.5	3.6	67	.87	Tactite. Yellow-brown garnet with very little diop. Some chlorite in the first few inches. Py-cpy occur in disseminated grains and irregular stringers, associated with hematite, and occasionally with quartz. Core badly broken. Cu content - strong.
6.5	9.9	3.4	76	.76	Tactite. Similar to above. Broken core and gouge(?) at 7.2'. Py-cpy moderately diss. to 9.3', and 9.3-9.9' py-cpy occurs as large grains strongly diss. Cu content - strong.
9.9	14.3	4.4	76	4.40	Tactite, similar to above. From 11.4 to 12.6', is brecciated tactite, filled with chlorite-serpentine, and very heavy cpy-py. Cpy and py are diss. through rest of run. MoS2 is finely diss. Cu content - very strong.
14.3	18.1	3.8	98	.70	Tactite, similar to above. Core badly broken to 15', but fairly solid from there on. Cpy and py are diss. and also occur as stringers. Weak hematite and chlorite. Cu content - moderate.
18.1	21.8	3.7	83	1.60	Tactite, similar to above. At 18.7' an 1/8" thick quartz-calcite vein makes an angle of 16° with core center line. Cpy-py diss. in large blebs associated with quartz and hematite. Cu content - moderate.
21.8	25.7	3.9	83	1.13	Tactite, similar to above. Very little diop. Cpy and lesser py diss. in large blebs, associated with quartz and hematite. Cu content - moderate to strong.
25.7	28.7	3.0	90	.65	Tactite, similar to above. Sulphides diss. in same manner as above. Cu content - moderate to strong.
28.7	33.0	4.3	91	1.28	Tactite, similar to above. Cpy and py diss. in large and small grains, and as irregular short stringers. Quartz and hematite are associated with the sulphides. At 30.1' a quartz-hematite-cpy vein makes 35° angle with core center line.

SUMMARY - D.D. HOLE U-4 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
33.0	36.9	3.9	67	.96	Tactite, similar to above. Blebs of cpy-py-quartz diss. Quartz veins 1/8-1/4" thick occur at 34±, 35±, and 35.3 feet, and make angles of 24, 33, and 32° respectively with core center line. Hematite present and associated with sulphides. Cu content - moderate to strong.
36.9	39.9	3.0	79	2.06	Tactite, similar to above. Core badly broken. A calcite-cpy vein is nearly parallel to core and extends from 39±' to 39.9'. Cu content - strong.
39.9	45.0	5.1	94	1.73	Tactite, similar to above. Cpy-qtz very heavily diss. At 41.4' thin calcite vein with cpy core makes 25° angle with core center line. At 44.0' a 3/4-inch coarse-grained quartz-py-cpy vein makes a 45° angle ± with core center line. Cu content - strong to very strong.
45.0	46.0	1.0	92	.28	Tactite, similar to above, but less sulphide. One small area of diss. MoS2. Cu content - weak to moderate.
46.0	49.0	3.0	88	1.98	Tactite, similar to above. Contains large blebs of cpy diss with quartz. At 46.3' a 1/2" cpy-calcite vein makes 30° angle with core center line. At 49.0' a 1/2" cpy-calcite vein makes 50° angle. Cu content - very strong.
49.0	53.4	4.4	63	.19	Tactite, similar to above. Sulphides less strong. Core ground to gravel at 51.5' --fault? Between 51.5 and 53.4', core loss and caved fragments. Traces of finely diss. MoS2. Cu content - moderate.
53.4	56.0	2.6	90	1.54	Tactite, similar to above. Large diss blebs of cpy common. Coarse-grained qtz-cpy bleb at beginning of run. Calcite-hematite-sulphide veins: 54'-35° to core center line; 54.4--23°; 55.3'-35°; 55.5-38°. Cu content - strong.
56.0	58.2	2.2	14	2.45	Tactite, similar to above. Core loss-a few ground up fragments recovered. Heavy diss. cpy-qtz. Cu content - very strong.
58.2	62.9	4.7	59	.57	Tactite, similar to above. More admixed diop sulphides diss moderately in fine grains. 59.5± to 60.5', core is ground to gravel--fault? Hematite slip parallels core 61-61.5'. From 61.5' to 62.9', core ground to small fragments and gravel; the recovered fragments are tactite and black gouge. Cu content - moderate.
62.9	67.4	4.5	90	.93	Tactite, similar to above. Irregular long veinlets of hematite tend to parallel core. Cpy-py are diss and also occur along hematite veinlets. Cu content strong.

SUMMARY - D. D. HOLE U-4 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
67.4	72.4	5.0	82	5.50	Tactite, similar to above to 68.8', where a pre-mineral contact (50°± angle to core center line) initiates qtz-garnet tactite. This continues to about 71.5', where contact with normal tactite below is lost. Sulphides in normal tactite are moderately diss. In qtz-garnet tactite cpy is very heavy to massive, tending to replace qtz instead of garnet. Cu content - very strong.
72.4	77.2	4.8	82	.72	Tactite, similar to above. Light yellow brown, fine-grained garnet. Sulphides diss in small grains, but become coarsely diss in large grains near end of run. Cu content - moderate to strong.
77.2	82.1	4.9	41	.65	Tactite, similar to above. Sulphides weakly diss. At beginning an 1/8" vein compounded from hair-like veinlets of heamtite-sulphide(?) makes a 20° angle with core center line. Core loss below 78.7'. Recovered fragments show a quartz vein and coarse diss py-cpy. Last 6" of recovery are tactite like the beginning of run. Cu content - moderate.
82.1	87.9	5.8	67	.51	Tactite, similar to above, becoming softer with more diop toward end of run. Sulphides fine-grained and diss. Coarse-grained qtz-cpy at about 83.9'. At 85.0' is an inch of ground up core and gouge(?). Cu content - moderate.
87.9	91.2	3.3	99	1.05	Tactite, similar to above. From 89.0 to 90.0 are many parallel veinlets of qtz-hematite-chlorite(?)-cpy. These vary from hair-like to 1/8" thick, and make an angle of 18° with core center line. This zone, across strike of veins, is about 0.4' thick. An irregular system of veinlets branches and parallels core to end of run. Cu content - moderate.
91.2	93.2	2.0	94	.71	Tactite, similar to above, with admixed hard diop.(?) in moderate amount. The rock is fractured and veined by py with minor cpy from 91.2-92.2'. Beyond this point are thin veins of cpy-py, bordered by an alteration halo of blue-green actinolite(?). These veins vary from parallel to an angle of 25° to the core center line. Cu content - moderate.
93.2	96.0	2.8	86	.17	Tactite, similar to above. There are a few very thin sulphide veins with actinolite(?) borders. Cu content - weak to moderate.
96.0	97.8	1.8	87	1.15	Tactite, similar to above. Thin qtz-cpy veins with actinolite(?) halo's cross the core at about 20-25° to the center line. Actinolite(?) may to a small degree be diss through the rock. Some cpy is diss. Cu content - strong.
97.8	99.8	2.0	98	.89	Tactite, similar to above, heavily veined by parallel qtz-cpy veins with actinolite(?) borders, more or less 25° to core center line. Cu content - strong.

SUMMARY - D. D. HOLE U-4 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
99.8	102.3	2.5	20	1.39	Tactite, similar to above, cut by thick qtz veins with cpy. Thick actinolite borders surround the veins. Recovery poor, only small fragments of core. Cu content - very strong.
102.3	105.1	2.8	86	2.82	Tactite, similar to above, veined by qtz-cpy with actinolite alteration halos. Below 106.4' (4.6), qtz-cpy veining is very heavy, and fills brecciated tactite. Much actinolite in this zone. Veining parallels core. Cu content - very strong.
105.1	108.2	3.1	100	.04	Andesite. Dark gray to black, aphanitic. Trace of pyrite. Upper contact, tight -- 50° to core center line; lower contact, tight and wavy -- 35° average to core. Cu content - nil.
108.2	112.2	4.0	65	1.65	Tactite, fine-grained, light brown garnet. An actinolite vein, 1/2-3/4" thick, follows the core to about 110.1', where it plays out into 2 quartz veins. Py and cpy are heavy, and tend to form the core of the actinolite vein. High core loss beyond 110.4'. Rock is qtz, with actinolite, chlorite and cpy. Cu content - strong.
112.2	117.0	4.8	64	4.45	Quartz-actinolite rock, as above, to 114.7'. Below this point is pre-mineral breccia, which marks the beginning of the East Fault zone. Bx fragments are tactite, and sulphides are heavy in the matrix to 116'±. Cu content - strong.
117.0	122.0	5.0	87	3.55	Breccia, to 119.3', is tactite with only local breccia texture, cut by quartz-actinolite-sulphide veins. Below 119.3' is a breccia composed of small fragments of tactite with a chloritic gouge. The gougy matrix contains heavy sulphides. Between 119.3 and 119.8' is a penetration of sandy argillite, and for 1/2-foot below the breccia contains fragments of it. Cu content - very strong.
122.0	124.5	2.5	92	3.40	Breccia, similar to above. The bottom half of run contains numerous pink argillite(?) fragments. Matrix heavily chloritized and sulphidized. Cu content - very strong.
124.5	129.5	5.0	95	3.71	Calcareous argillite, pink, hard, recrystallized(?). A few sand grains visible. Some epidote, and/or actinolite is present. Py is heavy, with a lesser amount of cpy. These occur as diss grains and locally with qtz as large blebs. The sulphides tend to form clusters or strings elongated at about 45° to core center line. Cu content - strong.
129.5	131.4	1.9	100	1.93	Breccia(?). Upper one-foot is heavily sulphidized, and contains angular patches of actinolite-chlorite, with a quartzose matrix, Some fragments(?) are of argillite. Below 130.5 the rock is silicified argillite or felsite, and a 1" tabular slab of argillite within this zone makes a 35-40° angle with the core. Cpy-py is heavy in the silicified zone. Cu content - very strong.

SUMMARY - D. D. HOLE U-4 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
131.4	133.0	1.6	100	.11	Breccia. Fragments are large to small, very angular, argillite, set in a matrix of massive quartz. The matrix is equal or greater than, in volume, the fragments. Cpy occurs sparingly as very angular blebs in the qtz matrix. Calcite is present in the same manner. Cu content - weak or sparse.
133.0	136.2	3.2	88	.08	Breccia, identical to above. 135.2-136.1' is a continuous intercept of argillite -- fragment(?). Cu content - sparse.
136.2	138.2	2.0	95	.48	Breccia, identical to above. The last 0.3' of core initiates the rock described below. Cu content - sparse to nil.
138.2	143.0	4.8	100	2.38	Breccia or angular conglomerate. The majority of the rock is light brown to cream, and shows angular to rounded fragments with blurred or obscure outlines. The fragments are composed of argillite, sandy argillite or arkose, and felsite(?). The matrix is feldspathic or arkosic. Where this unit is penetrated by massive qtz, the contact shows clearly a breccia texture. The rest of the rock is either an unsilicified fault breccia, or angular conglomerate. Cu content - variable. Local massive cpy, elsewhere sparse to moderate diss. Average probably moderate.
143.0	148.0	5.0	91	2.72	Breccia, and breccia or angular conglomerate. The run shows 0.7' at the beginning and short segments elsewhere that are breccia of the argillite-quartz type described in previous run. Elsewhere the rock is of the type described in the preceding run, showing also local recrystallization(?) or feldspathization. Py and cpy are heavily diss in the recrystallized(?) areas. Cu content - moderate to strong.
148.0	152.0	4.0	93	.11	Breccia, and breccia or angular conglomerate. This runs hows the two rocks described above, but lacks any recrystallized areas. Sulphides are virtually absent except locally where cpy grains occur in angular shapes diss in the massive quartz portions. Cu content - sparse.
152.0	154.1	2.1	99	.05	Breccia or angular conglomerate, similar to that part of the preceding two runs described by that name. No areas can definitely be called fault breccia. Cu content - sparse.
154.1	157.0	2.9	96	3.63	Breccia, and breccia or angular conglomerate. Similar to run 148.0-152.0'. Some recrystallization is present. Cpy occurs in large blebs up to 1", and as clusters. These Cu bearing areas are separated by barren rock with little or no diss Cu. The Cu favors silicified areas. Cu content - moderate.

SUMMARY - D. D. HOLE U-4 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
157.0	162.0	5.0	93	.99	Breccia, and breccia or angular conglomerate. The first 0.4' is a quartz-matrix breccia similar to those described above. Below this is a breccia or angular conglomerate as above, locally recrystallized(?). Massive quartz from 159.6 to 160.3', with heavy cpy. Cpy moderate in recrystallized(?) areas. Cu content moderate.
162.0	165.1	3.1	96	1.74	Breccia or angular conglomerate, similar to above. Well recrystallized(?). Cpy, rare at beginning, increases to heavily diss below middle of run. Local epidote. Cu content - strong.
165.1	168.2	3.1	86	10.67	Feldspathic rock, similar to recrystallized(?) rock above. Local silicification. Cpy is very heavily diss to massive. Some garnet is present. Cu content - very strong.
168.2	173.0	4.8	99	4.40	Quartz-feldspar-garnet tactite. These minerals intermixed as if by mutual replacement. Slight suggestion of breccia texture. Cpy occurs in large masses throughout. The garnet is the dominant gangue mineral, and is brown to green brown. Cu content - very strong.
173.0	178.1	5.1	91	8.50	Quartz-garnet-feldspar tactite, similar to above with abundant epidote, and some actinolite. Cpy and lesser amounts of py occur as diss grains in moderate to very heavy amounts, and as short intercepts of massive cpy. Cu content - very strong.
178.1	180.8	2.7	100	8.05	Garnet-epidote-actinolite-feldspar tactite, similar to above. Quartz is sparse. Some fragments of garnet and epidote suggest a pre-mineral breccia origin, and the matrix here is actinolite-cpy. Some recrystallized argillite is present. Cpy occurs throughout in heavy diss clusters, and locally is massive. Cu - very strong.
180.8	183.1	2.3	91	.18	Arkose, light gray to white. Grades toward a sandy argillite, py and cpy are weakly diss in small grains. The contact between this rock and the previous type was not recovered. Cu content - weak.
183.1	186.4	3.3	82	.48	Arkose, similar to above. A few small angular pebbles of argillite are present. Py and cpy occur as small diss grains and coat a few thin fractures. Cu content - weak.
186.4	190.0	3.6	93	.14	Argillite and felsite porphyry. Argillite, gradational from run above, becomes conglomeratic towards base at 188.2±. Below this, a gray-white, nearly translucent aphanitic rock contains subhedral white feldspar grains, and is probably a felsite. Py and cpy are weakly diss. Cu content - sparse.
		Bottom			
2.9	190.0	187.1	83		Total for Hole

J E R Innison

ASSAY DATA - DIAMOND DRILL HOLE U-4

Started 1/6/59 Completed 1/22/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	2.9	2.9	-	-	-	-
2.9	6.5	3.6	67.1	73.4	0.87	0.52
6.5	9.9	3.4	76.4	100.1	0.76	1.43
9.9	14.3	4.4	75.6	100.2	4.40	3.69
14.3	18.1	3.8	98.2	100.9	0.70	0.90
18.1	21.8	3.7	83.4	77.0	1.60	1.65
21.8	25.7	3.9	83.0	73.4	1.13	1.34
25.7	28.7	3.0	90.1	80.0	0.65	0.87
28.7	33.0	4.3	91.0	88.9	1.28	1.26
33.0	36.9	3.9	66.8	62.6	0.96	0.86
36.9	39.9	3.0	79.4	57.2	2.06	2.02
39.9	45.0	5.1	93.9	67.2	1.73	1.91
45.0	46.0	1.0	92.1	81.5	0.28	2.29
46.0	49.0	3.0	87.6	-	1.98	-
49.0	53.4	4.4	63.0	58.4	0.19	0.66
53.4	56.0	2.6	90.0	72.7	1.54	1.29
56.0	58.2	2.2	13.9	-	2.45	-
58.2	62.9	4.7	58.6	99.3	0.57	0.35
62.9	67.4	4.5	89.6	54.9	0.93	1.02
67.4	72.4	5.0	81.9	62.0	5.50	4.43
72.4	77.2	4.8	82.1	55.9	0.72	1.16
77.2	82.1	4.9	41.2	74.1	0.65	0.96
82.1	87.9	5.8	67.1	61.5	0.51	0.65
87.9	91.2	3.3	99.4	61.5	1.05	1.18
91.2	93.2	2.0	93.9	81.5	0.71	0.74
93.2	96.0	2.8	86.2	-	0.17	-
96.0	97.8	1.8	86.9	-	1.15	-
97.8	99.8	2.0	97.5	68.8	0.89	1.19
99.8	102.3	2.5	20.4	-	1.39	-
102.3	105.1	2.8	86.5	57.1	2.82	1.63
105.1	108.2	3.1	100.2	-	0.04	-
108.2	112.2	4.0	65.0	54.1	1.65	2.26
112.2	117.0	4.8	63.9	75.0	4.45	2.95
117.0	122.0	5.0	87.0	64.5	3.55	3.30
122.0	124.5	2.5	92.3	60.8	3.40	3.84
124.5	129.5	5.0	95.3	-	3.71	-
129.5	131.4	1.9	100.0	62.5	1.93	1.75
131.4	133.0	1.6	100.0	-	0.11	-
133.0	136.2	3.2	88.0	53.4	0.08	0.64
136.2	138.2	2.0	95.0	89.8	0.48	2.45
138.2	143.0	4.8	104.8	-	2.38	-
143.0	148.0	5.0	91.4	51.4	2.72	3.32
148.0	152.0	4.0	93.3	60.8	0.11	0.35
152.0	154.1	2.1	99.4	50.0	0.05	1.80
154.1	157.0	2.9	96.1	-	3.63	-
157.0	162.0	5.0	92.8	48.0	0.99	1.16
162.0	165.1	3.1	95.6	50.7	1.74	8.01
165.1	168.2	3.1	86.5	-	10.67	-
168.2	173.0	4.8	99.3	54.4	4.40	4.59
173.0	178.1	5.1	91.4	52.5	8.50	12.48
178.1	180.8	2.7	99.6	45.7	8.05	4.83
180.8	183.1	2.3	90.8	-	0.18	-
183.1	186.4	3.3	82.1	58.0	0.48	1.23
186.4	190.0	3.6	93.4	45.1	0.14	0.45

Zone D — 116 959 / 96.9 = 1.207

331 249 / 101.1 = 3.28

319 878 / 95.8 = 3.34

95.8 / 5.3 / 101.1

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 28, 1959

FILE MEMORANDUM

MISSION PROJECT
Tropari Survey of
Diamond Drill Hole U-4

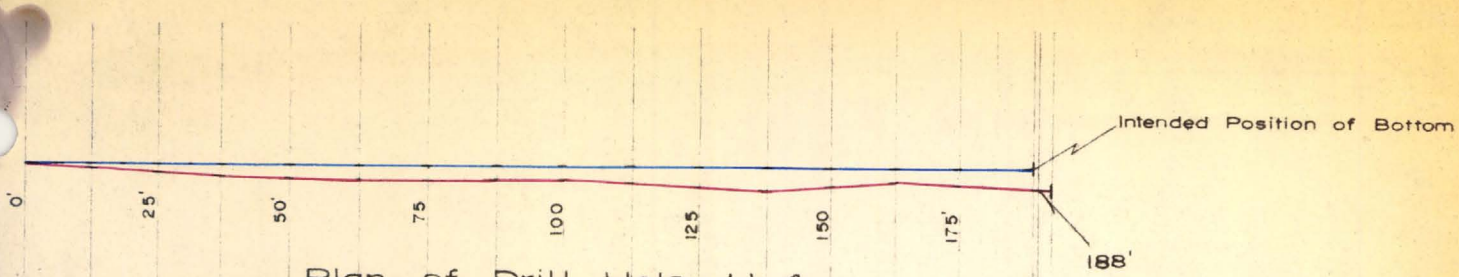
Diamond Drill Hole U-4 in the East Pima area was surveyed January 24, 1959 to determine its true position. The survey was made by Mr. Arthur Eklund and me using a Joy Manufacturing Company Tropari drill hole surveying instrument.

Data showing the dips and bearings of the hole were recorded at intervals of 25 feet. A plot of these data, disregarding one erratic bearing, shows the bottom of the drill hole (190.0 feet) to be 3.5 feet southeast of its intended position. The bearing noted at a depth of 100 feet has apparently been influenced by the magnetic effect of an andesite dike logged in the drill core at a depth of 105.1 feet.

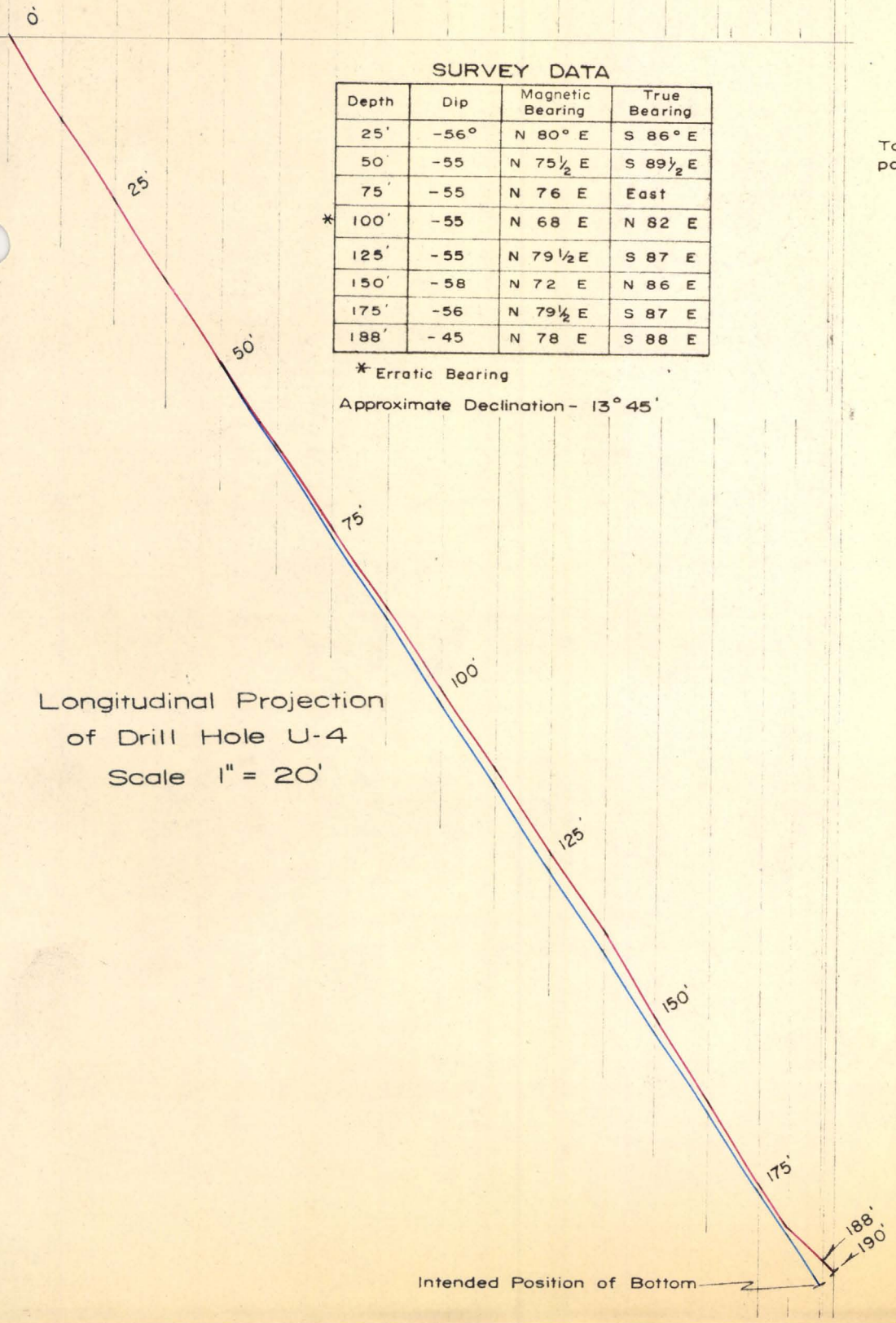
The attached sketch compares actual and intended positions of the hole in plan and longitudinal section.

SAMUEL C. FALL

Attachment
SCF/ds
cc - w/att:
TASnedden
KERichard
WCWaidler
JEKinnison



Plan of Drill Hole U-4
Scale 1" = 20'



Longitudinal Projection
of Drill Hole U-4
Scale 1" = 20'

SURVEY DATA

Depth	Dip	Magnetic Bearing	True Bearing
25'	-56°	N 80° E	S 86° E
50'	-55	N 75½ E	S 89½ E
75'	-55	N 76 E	East
* 100'	-55	N 68 E	N 82 E
125'	-55	N 79½ E	S 87 E
150'	-58	N 72 E	N 86 E
175'	-56	N 79½ E	S 87 E
188'	-45	N 78 E	S 88 E

* Erratic Bearing

Approximate Declination - 13° 45'

Total distance from intended position - 3.5'

February, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-5
370-1375W, No. Drift, 6.8' S. of Face
Angle: (-) 90° Collar Elevation Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	2.0	2.0	-	-	Reaming and set collar pipe. No core.
2.0	5.7	3.7	90	0.28	Tactite. Granular yellow garnet, very little diop. Quartz blebs are associated with sulphides and sparse hematite. Cu content - weak.
5.7	9.7	4.0	80	0.52	Tactite, similar to above. Hairline streaks of hematite, and some diss hematite. Py and cpy are weakly diss and associated with sulphides. At 8.3' ± occurs a 2" pod of epidote-cpy. Cu content - weak.
9.7	14.8	5.1	90	0.92	Tactite, similar to above. At 11.0' a 1/2" calcite-chlorite vein dips 40°. Py with lesser cpy becomes moderately diss, associated with qtz blebs, below 11.2'. Cu content - moderate.
14.8	18.7	3.9	86	0.38	Tactite, similar to above, but more distinctly fine-grained granular. Hematite is abundant as fine interstitial grains between garnet crystals, and also occurs in thin vein forms. Quartz locally forms round 1/8" pods. Sulphides occur with both qtz and hematite. Cu content - moderate.
18.7	21.2	2.5	92	0.23	Tactite, similar to above. Hematite is weakly distributed, as is py and cpy. Cu content - weak.
21.2	25.3	4.1	90	1.18	Tactite, yellow-green garnet, granular, with slight diop -- more or less similar to above. Chlorite (and actinolite?) - calcite blebs and vein-like masses are prominent. Py and cpy weak to 24.4'. Below (24.4-25.3') cpy is heavy, in veinlets and diss blebs. Cu content average - moderate.
25.3	26.0	0.7	98	9.02	Tactite, similar to above, but with high content of hard dense green diop(?) in large patches. Cpy heavy, and permeates entire run. Cu content - very strong.
26.0	28.3	2.3	96	0.15*	Andesite, black, non-porphyritic. Trace of py. Upper contact not recovered intact, but it appears to dip 50°. Lower contact-tight-dips 60° in a direction at right angles (approx) to the supposed upper contact. Cu content - nil. *A small fragment of high-grade ore was ground with the andesite sample.
28.3	28.7	0.4	78	6.86	Tactite. Brown granular garnet with diss cpy. A large pod cpy occurs at bottom of run. Cu content - strong.

SUMMARY - D. D. Hole No. U-5 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
28.7	31.6	2.9	100	9.10	Tactite, similar to above. Abundant calcite in large blebs. Cpy is heavily diss in irregular-shaped pods, and as a large mass in the middle of the run. Cu content - very strong.
31.6	33.7	2.1	96	1.96	Calcareous argillite; pink, dense, with a few large round pods of garnet. Contact with tactite occurs at beginning of run and dips about 60°. Contact is tight and slightly blurred by alteration. Cu (cpy) decreases toward end of run. Cu content - moderate(average).
33.7	36.3	2.6	86	1.22	Argillite, brown to black, and in places bleached light gray. Locally recrystallized to fine-grained pink feldspathic rock. Py and cpy are diss and locally veined. Sulphides decrease towards bottom. Cu content - weak to moderate.
36.3	40.7	4.4	93	0.25	Argillite, similar to above. A few areas of black argillite are apparently residual in the recrystallized(?) buff and pale greenish mass. Near the middle of run is a short zone of fine-grained feldspar with a trace of garnet and heavy cpy. Sulphides sparse in rest of run. Cu content - sparse.
40.7	43.9	3.2	68	0.03	Argillite, similar to above to 42.5'. Below is a conglomerate of angular small fragments in an arkosic or sandy argillite matrix. The matrix is brown to black. Py occurs in trace amounts. Cu content - sparse.
43.9	47.3	3.4	92	Tr.	Conglomerate, similar to above, and also bleached to buff color with epidote alteration. Cu content - sparse.
47.3	52.4	5.1	75	0.02	Argillite and arkose, similar to matrix of conglomerate above. Black color. Local pebbly areas near bottom. Cu content - sparse.
52.4	56.4	4.0	95	Tr.	Conglomerate, similar to those above. Black, arkosic matrix, subrounded pebbles. Bleached zone 53-54'. Very sparse pin-point sulphides. Cu content - nil.
56.4	61.2	4.8	88	Nil	Conglomerate. Similar to above. Very weak sulphides, diss principally in the matrix. Cu content - nil.
	Bottom				
0	2.0	2.0	-		Collaring Bit Total
2.0	61.2	59.2	88		Ax Core Total

ASSAY DATA - DIAMOND DRILL HOLE U-5

Started 2/23/59 Completed 2/27/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	2.0	2.0	-	-	- No core	-
2.0	5.7	3.7	89.6	50.5	0.28	0.31
5.7	9.7	4.0	79.7	36.7	0.52	0.40
9.7	14.8	5.1	89.7	48.5	0.92	0.79
14.8	18.7	3.9	86.4	31.7	0.38	0.44
18.7	21.2	2.5	92.5	42.6	0.23	1.06
21.2	25.3	4.1	90.3	-	1.18	-
25.3	26.0	0.7	98.3	22.6	9.02	5.57
26.0	28.3	2.3	96.3	-	0.15	-
28.3	28.7	0.4	78.0	-	6.86	-
28.7	31.6	2.9	101.3	31.1	9.10	6.91
31.6	33.7	2.1	95.6	-	1.96	-
33.7	36.3	2.6	85.9	40.3	1.22	2.13
36.3	40.7	4.4	92.8	-	0.25	-
40.7	43.9	3.2	67.5	43.9	0.03	0.29
43.9	47.3	3.4	91.8	35.8	Tr.	0.17
47.3	52.4	5.1	75.0	20.9	0.02	0.14
52.4	56.4	4.0	95.1	30.4	Tr.	0.15
56.4	61.2	4.8	88.4	23.8	Nil	0.10

March, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-6
370-1375W, No. Drift, 6.8' S. of Face
Angle (+) 90°, Collar Elev. Track + 12'

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.0	1.0	47	2.82	Tactite. Granular yellow-brown garnet. Py and cpy, and a small amount of bornite, are diss. Core broken. Cu content - strong.
1.0	6.2	5.2	98	0.03	Andesite. Black, aphanitic, with a few black mafic minerals as phenocrysts. One fracture is coated with marcasite(?). The lower contact was not recovered. The upper one dips 68°. Cu content - nil.
6.2	10.5	4.3	71	0.95	Tactite, similar to that below the andesite dike (0-1.0'). A zone 1-2" thick adjacent to the dike contains large blebs of cpy. Elsewhere the run has only weak diss sulphides. Cu content - weak.
10.5	13.7	3.2	84	10.13	Tactite, similar to above but with increased amounts of cpy. From 10.7 to 11.8 feet is a zone of nearly solid cpy. The edges contain a quartz matrix with 50%± cpy while the core of the zone (.3') is solid cpy. This zone would appear to be a vein which cuts the core at an oblique angle, but boundaries are indefinite. The rest of the run carries diss py-cpy in weak to moderate amounts. Cu content - average very strong.
	Bottom				
0.0	13.7	13.7	82		Total AX Core

ASSAY DATA - DIAMOND DRILL HOLE U-6

Started 3/2/59 Completed 3/3/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.0	1.0	46.9	-	2.82	-
1.0	6.2	5.2	98.2	-	0.03	-
6.2	10.5	4.3	71.3	-	0.95	-
10.5	13.7	3.2	84.0	-	10.13	-

36.501 / 7.5 = 4.867

Kinnison

March, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-7
370-4200N, East Drift, 5' W of Face
Angle (-) 90° Collar Elev. - Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0	1.0	1.0	0	-	Starting bit. No recovery.
1.0	4.1	3.1	89	0.49	Argillite. Locally calcareous. Mottled pinkish and pale green.

Garnet from 2.6-3.0'. Sulphides heavy from 2.0-3.0'. Core recovery nil from 1 to 1.4', nearly 100% below. Cu content - average is moderate.

4.1	6.4	2.3	72	0.03	Argillite. Similar to above. Sulphides essentially absent. Cu content - nil.
6.4	10.6	4.2	85	0.02	Argillite. Similar to above. Less pink in color -- mostly grey with pale

greens and pink-tan colors. Very sparse sulphide. Cu content - nil.

10.6	13.9	3.3	88	0.06	Argillite. Similar to above. Light gray, very hard, dense. Only traces

of calcareous material, on fractures. Trace of sulphide. Cu content - nil.

13.9	20.6	6.7	95	0.07	Argillite. Similar to above in all respects. Cu content - nil.
20.6	23.7	3.1	100	0.04	Argillite. Similar to above. Angular Bx. with siliceous (argillite gouge(?)

opaque filling occurs from 30.6-31.0'. Parallels core and forms one side of same. Cu content - nil.

23.7	26.2	2.5	95	0.05	Argillite. Similar to above. Cu content - nil.
26.2	28.5	2.3	100	0.09	Argillite. Similar to above. Qtz vein with py-cpy 1/4" thick, occurs at

27.5' and dips 65°. Sulphides essentially absent above vein, but are moderately diss. below. Cu content - sparse.

28.5	31.2	2.7	100	0.15	Hornfels. At beginning of run the above argillite grades abruptly into

a white, soft, very calcareous, diopside(?) rock. This unit is 0.5' thick, and grades into a very calcareous, dense green rock with finely diss. hematite and hematite veinlets. This rock is altered to dark green actinolite(?) on thin, criss-crossing veins which have a hematite-sulphide core. Shearing near bottom dips 60°. Cu content - moderate.

31.2	33.9	2.7	96	0.14	Hornfels. Similar to above to 32.0'. This grades abruptly into Tactite, con-

sisting of fine grained vitreous yellow-green garnet. The tactite contains tiny veinlets of hematite and weakly diss. sulphides. Cu content - weak to moderate.

SUMMARY D. D. HOLE NO. U-7 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
33.9	36.2	2.3	99	1.74	Hornfels. Dense greenish diopside(?) with scattered garnet. Calcite, hematite, and cpy are distributed throughout. This rock is initiated by a 50° calcite-hematite shear, and 50° shears occur throughout the unit. Local banded cpy in the shears shows they are pre-mineral. The last 0.3', below a calcite-cpy shear, is tactite. Cu content - strong.
36.2	38.5	2.3	91	0.94	Tactite. Yellow-brown garnet with traces of admixed diopside. A calcite-hematite shear occurs at 36.9', and dips 50°. Cpy is weakly diss; an occasional large bleb is present. Cu content - weak to moderate.
38.5	43.6	5.1	90	0.19	Tactite. Similar to above. Py with minor cpy is diss in elongate small blebs. 43.2 - 43.4' core is ground up -- fault? Cu content - weak.
43.6	46.8	3.2	96	0.66	Tactite. Similar to above, but with increased quantity of diss. py and cpy. Hematite is fairly abundant. Near bottom of run are 3 thin, low-angle py-cpy veins. Crushed core at bottom contains heavy cpy. Cu content - moderate.
46.8	49.2	2.4	70	0.95	Tactite. Similar to above. Hem.-sulphide-calcite veins occur at 48.2' and 49.2'; the former dips 60°. Cu content - moderate.
49.2	53.6	4.4	88	1.48	Tactite. Similar to above. Cpy-py diss. Sphalerite occurs locally. Cu content - strong.
53.6	57.5	3.9	93	0.29	Tactite. Similar to above. Cpy is weaker than above. Sphalerite occurs sparingly in thin veins. Cu content - moderate.
57.5	61.1	3.6	84	1.35	Tactite. Similar to above. Irregular hematite-sulphide veins are prevalent. Heavily diss. cpy occurs in the last foot. Cu content - strong.
	Bottom				
0.0	1.0	1.0	0		Starting bit - no recovery.
1.0	61.1	60.0	91		Total AX core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-7

Date Started: 3/4/59 Date Ended: 3/11/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge	
0.0'	1.0'	1.0'	No Recovery		No Recovery		
1.0	4.1	3.1	88.7	72.8	0.49	0.58	cpy 2'-3'
4.1	6.4	2.3	72.5	94.2	0.03	0.04	
6.4	10.6	4.2	84.8	44.4	0.02	0.04	
10.6	13.9	3.3	87.5	67.6	0.06	0.05	Arg
13.9	20.6	6.7	94.8	67.5	0.07	0.08	
20.6	23.7	3.1	99.8	67.8	0.04	0.04	28.5 grad out Diop-Act Hf
23.7	26.2	2.5	95.4	49.0	0.05	0.09	
26.2	28.5	2.3	100.0	66.6	0.09	0.21	32.0' Tactite
28.5	31.2	2.7	100.1	-	0.15	-	
31.2	33.9	2.7	95.6	67.3	0.14	1.08	33.9 d.Hf. 50° pre-min sh.
33.9	36.2	2.3	98.8	-	1.74	-	
36.2	38.5	2.3	90.8	74.4	0.94	0.57	35.9'
38.5	43.6	5.1	90.0	-	0.19	-	Tactite
43.6	46.8	3.2	96.2	86.5	0.66	0.69	43.2-43.4'
46.8	49.2	2.4	69.6	52.8	0.95	1.30	fault?
49.2	53.6	4.4	88.3	-	1.48	-	
53.6	57.5	3.9	93.0	81.6	0.29	0.33	
57.5	61.1	3.6	83.7	60.2	1.35	3.33	

Bottom

2.059 / 29.8 = .069

Hf. .028 / 27.2 = .883

March, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-8
370-4200N, East Drift, 5.8' W of Face
Angle (+) 90° Collar Elev.- 13.6' above Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.3	1.3	25	0.11	Starting bit. A few fragments of argillite recovered.
1.3	5.9	4.6	86	0.11	Argillite. Hard, dense, light brown to gray. Occasional trace of sulphides. Cu content - nil.
5.9	9.6	3.7	81	0.11	Argillite. Similar to previous run. Color tends to mottled pink and greens. Thin cpy vein at 9.0'. Cu content - sparse.
9.6	13.4	3.8	93	0.04	Argillite. Similar to previous run. Changes from greenish and pink colors to buff at 11.5'. Cu content - nil.
13.4	17.2	3.8	96	Nil	Argillite. Similar to previous run. Irregular thick greenish color bands cross core. Cu content - nil.
17.2	22.1	4.9	88	0.01	Argillite. Similar to previous run. Calcareous beyond 20'. Cu content - nil.
22.1	25.4	3.3	93	0.42	Argillite. Similar to previous run. Flesh-colored with local pink tinge. Cpy occurs in bleb-like aggregates of fine grains, from 22.8-23.2'. Quartz vein or silicified zone, with weak cpy, occurs from 23.2-23.7'. Cu content - nil except where noted above. Average - weak.
25.4	32.4	7.0	95	0.09	Argillite. Similar to previous run. From 27.0-27.5' is a rextillized zone with bands of garnet which dip 30°. A gouge zone occurs at 28.0'. Beyond 30.0' are seams with chlorite and py-cpy. Cu content - sparse.
32.4	37.2	4.8	99	0.74	Argillite. Similar to previous run. Hornfels and garnet, with cpy, from 33.7-34.0'. Local diss. dots of chlorite-sulphides are present throughout run. Cu content - weak.
37.2	44.0	6.8	99	0.04	Argillite. Similar to previous run. Light to dark grey. Trace of sulphides. Cu content - nil.
44.0	48.1	4.1	80	0.02	Argillite. Similar to previous run. A bright yellow-green mineral coats fractures. Cu content - nil.

SUMMARY - DIAMOND DRILL HOLE U-8 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
48.1	51.4	3.3	96	0.03	Argillite and Impure Quartzite. Similar to previous run. At 50.7' a 1/2" thick qtz vein with weak py-cpy dips 45°. Yellow-green mineral mentioned in previous runs is sparingly present. Cu content - nil.
51.4	54.4	3.0	83	0.01	Sandy argillite. Brown. Appears gradational with argillite of previous runs. Cu content - sparse.
54.4	60.1	5.7	78	0.28	Sandy argillite. As previous run, to 55.4'. At this point a gradational zone of rextillized pink argillite, 0.5' thick, leads to tactite of yellow-green garnet with heavy diopside. Much of this rock appears to be diopside hornfels which has been brecciated and replaced by garnet. Py is heavily diss. in fine grains, and is associated with pin-point grains of shiny grey sulphides -- not positively identified, but probably molybdenite. Cu content - weak.
60.1	65.1	5.0	99	0.43	Tactite. Similar to previous run. Epidote locally abundant. Py and cpy are finely diss. Molybdenite(?) is diss. throughout. In the last 0.2' of core a chloritic alteration zone initiates a pre-mineral fault zone cored in the next run. Cu content - moderate.
65.1	67.5	2.4	98	0.41	Fault zone. Mineralized and consisting of banded sulphides and chlorite alteration. Quartz is abundant near bottom. Veins and some hematite slips dip 50-30°. Sulphides are py, cpy, and sph. Cu content - strong. Mineralized zone ends at 66.8', but alteration (chlorite) effects rocks to the end of the run.
67.5	70.1	2.6	86	0.04	Hornfels. Gradational from chloritic alteration of previous run. The rock is dense, gray to flesh colored, and resembles the calcareous argillite. However, there are local zones which appear to be fine-grained garnet, and oil immersion shows the bulk of the rock to be an extremely fine-grained aggregate of diopside-hedenbergite. The rock is weakly calcareous. Note that the specific gravity is higher than that of argillite. Sulphides are weakly diss. Cu content - weak.
Bottom					
0.0	70.1	70.1	90		Total AX Core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-8

Date Started: 3/12/59 Date Ended: 3/24/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.3	1.3	24.8	-	0.11	-
1.3	5.9	4.6	85.6	17.0	0.11	0.08
5.9	9.6	3.7	80.6	41.0	0.11	0.06
9.6	13.4	3.8	93.4	32.0	0.04	0.03
13.4	17.2	3.8	95.8	43.3	Nil.	0.06
17.2	22.1	4.9	87.8	31.3	0.01	0.06
22.1	25.4	3.3	92.9	48.5	0.42	0.47
25.4	32.4	7.0	95.0	75.4	0.09	0.11
32.4	37.2	4.8	98.7	62.3	0.74	0.91
37.2	44.0	6.8	98.9	52.1	0.04	0.05
44.0	48.1	4.1	80.4	63.6	0.02	0.03
48.1	51.4	3.3	96.5	62.5	0.03	0.06
51.4	54.4	3.0	83.2	62.5	0.01	0.01
54.4	60.1	5.7	78.1	52.0	0.28	0.32
60.1	65.1	5.0	98.6	52.5	0.43	0.39
65.1	67.5	2.4	98.2	49.6	0.41	0.29
67.5	70.1	2.6	85.7	-	0.04	-

Bottom

8.904 / 60.1 = 0.148

3.139 / 7.4 = .424

March, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-9
370-4200N, W. Drift, 4.7' E. of Face
Angle (-) 90° Collar Elev. - Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.7	1.7	0	-	Collaring. No core.
1.7	5.5	3.8	68	0.40	Tactite. Partly a healed breccia. Tactite fragments healed with chlorite, cpy, and feldspathic and/or hornfelsic material. Cu content - moderate to strong.
5.5	9.8	4.3	88	3.33	Tactite. Similar to above, but not brecciated. Fine-grained, vitreous, green-brown garnet, possibly with a high content of dense, green hornfels. This continues to 7.3', where the contact with next unit begins. Contact not recovered. From 7.3' to end of run rock is a feldspathized tactite. The tactite is similar to above, but contains veins and large pods of a coarse-grained intergrowth of feldspar, quartz, and calcite. Cpy occurs in large round grains and as irregular shapes, throughout the feldspathic areas. In the tactite above 7.3', cpy is very heavily diss. Cu content - very strong.
9.8	15.7	5.9	82	6.16	Feldspathized tactite. Similar to above. Qtz-felds-calcite intergrown. Cpy occurs in large, irregular blebs. Qtz-feld content decreases sharply at about 15.5'. Cpy is moderately diss. in this lower interval. Cu content - very strong.
15.7	18.7	3.0	79	0.60	Tactite. With heavy diopside. Fine-grained, yellow garnet and colorless diop. mixed. Oil immersion shows abundant diopside, some garnet, some calcite, and moderate amount of Axinite (identification tentative. Index on cleavage surface 1.68±, Biref. like quartz, poor cleavage one direction, indexes apparently close-spaced.). Small areas have been feldspathized. Cpy occurs in grains and larger blebs. Cu content - moderate.
18.7	23.7	5.0	85	1.35	Tactite. Similar to above to 22.3±' where it grades into diopside hornfels -- dense white to cream. Cpy distributed throughout both rock types in diss. grains, aggregates, and stringers. Cu content - strong.
23.7	27.9	4.2	59	0.96	Diopside hornfels. White, soft, fine-grained. One short intercept of garnet. Cpy is diss. in small grains. Cu content - moderate.
27.9	31.2	3.3	50	0.65	Diopside hornfels. Similar to above. Cu content - strong.
31.2	35.7	4.5	71	0.23	Diopside hornfels. Similar to above. Below 33.5' becomes somewhat harder and compact. Cu content - moderate.

SUMMARY - D. D. HOLE U-9 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
35.7	38.7	3.0	84	0.55	Diopside hornfels. Similar to above. Garnet present in short intercepts. One band of garnet dips 50°±. Cu content - moderate.
38.7	42.9	4.2	82	1.02	Diopside hornfels. Similar to above. Garnet is present throughout, and the rock is locally transitional to tactite. Cpy and py are erratically distributed in blebs and stringers. Cu content - strong.
42.9	48.2	5.3	93	0.68	Diopside Hornfels. Grey white, hard, and compact. Slightly fibrous, granular silicates. Tactite from 45.6-46.6'. At 46.3' a 2" breccia filled by cpy dips 38°. Cpy diss. in grains and tiny stringers. Cu content - moderate.
48.2	49.8	1.6	84	0.35	Diopside hornfels. Similar to above, grading downward into a rock containing mottled hornfels(?) and fine-grained garnet layers. Sulphides largely py. Cu content - weak.
49.8	53.7	3.9	90	0.89	Tactite. Gradational from above. An olive green rock with very fine-grained garnet, mixed with other silicates. Cpy-py are diss. in grains and hairlike stringers of hematite-sulphide. At 51.2' is a vuggy, open fissure dipping 80°. Cpy occurs adjacently. Cu content moderate to strong.
53.7	55.1	1.4	98	0.14	Tactite. Similar to above. Cu content weak.
55.1	57.2	2.1	100	2.91	Breccia. Pre-mineral. A rock like previous run immediately grades into a breccia of garnet and diopside fragments, generally small, and filled with cpy and minor sphalerite. Calcite is abundant in the matrix, as is chlorite. Cpy occurs in large blebs with replacement texture on the edges, as well as in granular aggregates. Cu content - very strong.
57.2	59.4	2.2	97	8.58	Breccia. Similar to above. Heavy cpy. Last 0.4' of core is pinkish rextll(?) arg. with heavy diss. cpy-py. Contact of this rock and breccia is gradational. Cu content - very strong.
59.4	61.2	1.8	96	0.73	Feldspathic rock and tactite. The first - probably rextll. arg. - is dense and pinkish, and grades at 60.0' into tactite, with hematite and chlorite. Cu content - moderate.

Bottom

0.0	1.7	1.7	0	Collaring - No Core.
1.7	61.2	59.5	81	Total AX Core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-9

Date Started: 3/25/59 Date Ended: 4/1/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.7	1.7	No recovery		No recovery	
1.7	5.5	3.8	67.7	17.6	0.40	0.82
5.5	9.8	4.3	87.5	24.0	3.33	2.21
9.8	15.7	5.9	82.0	16.7	6.16	3.74
15.7	18.7	3.0	78.7	30.8	0.60	0.68
18.7	23.7	5.0	85.2	37.2	1.35	1.52
23.7	27.9	4.2	59.1	25.4	0.96	1.13
27.9	31.2	3.3	49.6	25.8	0.65	0.87
31.2	35.7	4.5	71.1	45.6	0.23	0.33
35.7	38.7	3.0	83.5	10.8	0.55	0.31
38.7	42.9	4.2	81.5	21.2	1.02	0.87
42.9	48.2	5.3	93.4	100.5	0.68	1.26
48.2	49.8	1.6	84.0	86.9	0.35	0.78
49.8	53.7	3.9	89.8	-	0.89	-
53.7	55.1	1.4	98.1	75.7	0.14	1.42
55.1	57.2	2.1	100.2	-	2.91	-
57.2	59.4	2.2	97.3	80.0	8.58	4.10
59.4	61.2	1.8	96.1	-	0.73	-

Bottom

April, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-10
370-4200N, W. Drift, 4.7' E. of Face
Angle (+) 90°, Collar Elev. 12.7± above Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	5.3	5.3	5.9	1.36	Diopside Hornfels. Soft, white, very fine grained, Cpy is diss. in grains up to 1/8", and is heaviest in the last foot. Some garnet occurs in the upper 2 feet. Cu content - strong to very strong.
5.3	10.3	5.0	58	1.43	Diopside hornfels. Similar to above. Very soft and pulverent. Cu content - strong to very strong.
10.3	14.5	4.2	63	0.58	Diopside hornfels. Similar to above. Grades into Tactite in the bottom foot. Cu content - strong.
	Bottom				
0.0	14.5	14.5	60		Total AX Core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-10

Date Started: 4/2/59 Date Ended: 4/2/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	5.3	5.3	59.4	-	1.36	No sludge
5.3	10.3	5.0	58.3	-	1.43	"
10.3	14.5	4.2	62.7	-	0.58	"

$\frac{16.794}{14.5} = 1.158$

Bottom

April, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-11
370-4350N, E. Drift, 5.0' W of Survey
Spad 308, Angle (-) 90° Col.Elev.- Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.6	1.6	0	-	Set collar -- no core.
1.6	2.5	0.9	60	0.50	Tactite. Medium-grained, yellow garnet with some admixed diopside. Cpy and py are diss. Cu content - moderate.
2.5	5.9	3.4	37	0.53	Tactite. Similar to above. Py and cpy are diss., in grains, and small blebs. Cu content - moderate or strong.
5.9	10.3	4.4	91	0.23	Tactite. Similar to above. Garnet is more compact and less granular. Cu content - weak.
10.3	15.7	5.4	69	0.29	Tactite. Similar to above. Last 0.4' ground up -- fault(?). Cu content - weak.
15.7	19.1	3.4	63	3.76	Tactite. Similar to above. At 18.1' to 18.5' is a vein of cpy, dipping 45°, cut by parallel hematite-calcite dips. From 18.5' to 19.1' heavily diss. cpy. Cpy above vein is weak. Cu content - strong.
19.1	23.5	4.4	95	0.42	Tactite. Similar to above. Cpy diss. Cu content - weak.
23.5	26.5	3.0	87	0.20	Tactite. Similar to above. Cu content - weak.
26.5	31.7	5.2	95	0.45	Tactite. Medium to fine-grained, yellow to gray-green garnet with small, ill defined blebs and stringers of quartz. Hematite in veinlets and scattered disseminations. Py and cpy diss. and in small blebs throughout. Cu content - weak to moderate.
31.7	34.2	2.5	96	0.72	Tactite. Similar to above. Exhibits some admixed diopside(?) and the same mineral assemblage. Cu content - weak.
34.2	35.8	1.6	97	2.07	Tactite. Similar to above. Traces of sphalerite associated with small blebs of qtz and calcite. Fine grained py, cpy and hematite disseminated throughout. Some hematite on slips. Cu content - moderate to strong.
35.8	39.0	3.2	78	1.50	Tactite. Similar to above in all respects excepting the lack of sphalerite. Cu content - strong.

SUMMARY - D. D. HOLE U-11 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
39.0	42.6	3.6	86	1.09	Tactite - Similar to above but exhibiting some zones and patches transitional to hornfels. Few hematite faced slips with a dip of 65-70°. Same mineral assemblage. Cu content moderate to strong.
42.6	45.9	3.3	86	3.06	Tactite - Similar to above. Lower 2' of run exhibit somewhat greater breakage and high angle to vertical, hematite and chlorite faced slips. Few veinlets of qtz and intergrown calcite. Py and cpy disseminated and in blebs and veinlets. Cu content moderate to strong.
45.9	47.7	1.8	93	4.63	Tactite - Similar to above but essentially unbroken. Py, cpy and hematite disseminated and in veinlets. Cu content strong.
47.7	51.9	4.2	87	23.78	Tactite - Similar to above but going immediately into nearly massive, gray qtz. and massive cpy. Xline structure in the qtz is not obvious but many of the boundaries with the cpy are modified by euhedral to subhedral crystal outlines. Some feldspathic development in upper portion. Traces of molybdenite. Some tarnish on cpy (post-coring oxidation?). Cu content very strong.
51.9	56.5	4.6	95	3.08	Tactite - Similar to that above previous run, but shot through with fine disseminations of chlorite. Small veins of qtz and calcite. Disseminations and veinlets of hematite. Traces of possible sphalerite. Cpy and some py disseminated and in blebs. Few zones of small vugs. Cu content moderate to strong.
56.5	59.8	3.3	94	6.64	Tactite - Similar to above. Somewhat more broken along planes dipping 50°±. Some highly siliceous, vuggy zones display fair concentrations of cpy. Chlorite, hematite, and calcite along slips. Few traces of molybdenite. Cu content very strong.
59.8	64.0	4.2	89	7.31	Tactite - Similar to above. Some siliceous zones and blebs. Scattered hematite and chlorite. Cpy in disseminated concentrations. Cu content very strong.
64.0	69.0	5.0	93	10.99	Tactite - Similar to above. Cpy and py uniformly distributed throughout. Scattered hematite and chlorite. Cu content very strong.
69.0	71.8	2.8	92	11.90	Tactite - Similar to above. Generally highly siliceous throughout, displaying a few vugs with calcite xls. Slips 60°±. Few traces of sphalerite. Cpy and py as above, with some of the py euhedral. End of run badly broken. Cu content very strong.
71.8	74.6	2.8	96	6.62	Tactite - Similar to above. Still siliceous and displaying scattered hematite and chlorite. Some cpy exhibits high degree of tarnish. Cu content strong to very strong.

SUMMARY - D. D. HOLE U-11 - CONTINUED

From	To	Interval	Core Rec.%	% Cu Core	Geology
74.6	76.5	1.9	100	4.86	Tactite - Similar to above. Appears to be an increase in py percentage. Still generally siliceous and bearing a similar mineral assemblage. Cu content very strong.
76.5	81.5	5.0	100	15.25	Tactite - Similar to above. Siliceous and somewhat chloritic and epidotized. Pyrite and cpy semi-massive in some zones. Few veinlets of hematite. Cu content very strong.
81.5	84.3	2.8	97	13.26	Tactite - Similar to above. Generally grey-green, fine-grained, and carrying semi massive py and cpy. Few calcite-hematite veinlets dipping 50°±. Cu content very strong.
	Bottom				
0.0	1.6	1.6	0		Set Collar - No Core.
1.6	84.3	82.7	87		Total AX Core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-11

Date Started: 4/3/59 Date Ended: 4/14/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.6	1.6	No Recovery		No Recovery	
1.6	2.5	0.9	60.0	-	0.50	
2.5	5.9	3.4	36.7	86.5	0.53	0.53
5.9	10.3	4.4	91.0	117.8	0.23	0.30
10.3	15.7	5.4	68.9	104.2	0.29	0.35
15.7	19.1	3.4	63.4	113.1	3.76	2.22
19.1	23.5	4.4	95.3	95.4	0.42	1.05
23.5	26.5	3.0	86.6	91.2	0.20	0.61
26.5	31.7	5.2	94.9	81.3	0.45	0.52
31.7	34.2	2.5	95.9	101.0	0.72	1.46
34.2	35.8	1.6	96.7	-	2.07	-
35.8	39.0	3.2	77.5	52.8	1.50	1.27
39.0	42.6	3.6	85.8	-	1.09	-
42.6	45.9	3.3	85.6	42.5	3.06	2.59
45.9	47.7	1.8	93.0	37.4	4.63	10.57
47.7	51.9	4.2	86.6	-	23.78	-
51.9	56.5	4.6	94.5	6.8	3.08	8.43
56.5	59.8	3.3	94.0	2.5	6.64	9.28
59.8	64.0	4.2	89.1	-	7.31	No sludge
64.0	69.0	5.0	93.0	-	10.99	"
69.0	71.8	2.8	92.1	-	11.90	"
71.8	74.6	2.8	95.8	-	6.62	"
74.6	76.5	1.9	100.6	-	4.86	"
76.5	81.5	5.0	100.4	-	15.25	"
81.5	84.3	2.8	96.8	-	13.26	"

Bottom

April, 1959

SUMMARY - DIAMOND DRILL HOLE NO. U-12
370-4350N, East Drift, 5' West of Survey
Spad 308, Collar Elevation 11.8' above Track

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	3.7	3.7	82	0.42	Tactite. Yellow to yellow-brown, granular garnet, with small amounts of admixed diop. At 2.4' a 1/2" silicified zone with cpy dips 55°. Cu content weak.
3.7	7.0	3.3	92	0.59	Tactite. Similar to above. At 5.7' and 6.2' qtz-cpy veins dip 50-60°. Cu content - weak to moderate.
7.0	11.6	4.6	92	0.08	Tactite. Similar to above. Cpy and py weakly diss. Hem sparsely diss. Cu content - weak to moderate.
11.6	15.0	3.4	100	0.43	Tactite. Similar to above. Slight increase in sulphides. Cu content weak to moderate.
Bottom					
0.0	15.0	15.0	93		Total AX Core.

ASSAY DATA - DIAMOND DRILL HOLE NO. U-12

Date Started: 4/14/59 Date Ended: 4/15/59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	3.7	3.7	81.9	-	0.42	No sludge
3.7	7.0	3.3	92.4	-	0.59	"
7.0	11.6	4.6	91.7	-	0.08	"
11.6	15.0	3.4	104.7	-	0.43	"

Bottom

$\frac{5.331}{15.0} = 0.355$

SUMMARY - DIAMOND DRILL HOLE NO. U-13
Angle (-20°)

From	To	Interval	Core Rec.%	% Cu Core	Geology
0.0	1.0	1.0	54	1.29	Tactite. Fine-grained, green to yellow brown garnet containing vuggy, siliceous patches with some calcite. These bear concentrations of cpy, and some sphalerite and py. Traces of bornite films, molybdenite, and fine granular turgite(?). Scattered chlorite and hematite throughout and on fractures. Breakage high, recovery low. Cu content strong to very strong.
1.0	4.5	3.5	42	0.23	Tactite. Similar to above. Transitional to a nearly hornfelsic texture in some zones. Displays small blebs of quartz throughout. Hematite in veinlets and on fractures, with traces of granular turgite. Py and some cpy disseminated throughout as is molybdenite and traces of sphalerite. Cu content moderate.
4.5	9.6	5.1	74	0.56	Tactite. Similar to above. Breakage common. Cpy, py and some fine grained molybdenite and sphalerite disseminated throughout. Cu content moderate.
9.6	14.2	4.6	59	0.49	Tactite. Similar to above but somewhat more friable, altered, and bleached toward base of run. Traces of epidote. Same ore mineral assemblage. Few siliceous veins. Cu content moderate to strong.
14.2	17.8	3.6	75	1.00	Tactite. Similar to above. Garnet is granular and euhedral. Cu is weakly diss. and occurs mainly as large to small blebs within or adjacent to qtz-hematite veins. These are irregular but generally form small angles to the core center line. Cu content - moderate to strong.
17.8	24.2	6.4	81	0.84	Tactite. More or less similar to above. Rock is more compact and hard, and much of the run is quite fine-grained. Cpy is weakly diss to 23.2'. Below this, the tactite contains a small amount of soft material (calcite and diopside?) and large blebs of cpy. Cu content - very strong in the last foot; weak to moderate in rest of run.
24.2	28.9	4.7	77	0.46	Tactite, similar to bottom part of run above. Granular yellow brown garnet with more or less admixed soft diopside. Cpy is heavy to 25.5'±, and occurs on thin stringers which parallel the core center line, and as blebs throughout the rest of the run. Cpy is weakly diss. Cu content moderate.
28.9	32.0	3.1	97	1.64	Tactite - similar to above. Hematite and molybdenite disseminated and in veinlets with some cpy. Faint, scattered chlorite throughout. Weak epidotization toward base of run where a localized siliceous zone exhibits a concentration of cpy and py. Some breakage. Cu content weak to moderate.

SUMMARY - DDH No. U-13 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
28.9	32.0	3.1	97	1.64	Tactite. Similar to above. Hematite and molybdenite disseminated and in veinlets with some cpy. Faint, scattered chlorite throughout. Weak epidotization toward base of run where a localized siliceous zone exhibits a concentration of cpy and py. Some breakage. Cu content weak to moderate.
32.0	35.3	3.3	92	0.45	Tactite. Similar to above, but exhibiting some increase in disseminations and veinlets of cpy, hematite, and molybdenite. Undertone of chlorite throughout. Cu content weak to moderate.
35.3	38.8	3.5	83	0.09	Argillite and Pebble Conglomerate. The contact between the above tactite and the former occurs at the beginning of the run. A few broken pieces prohibit further description. The argillite is light reddish brown to gray-green exhibiting a sheared and healed aspect in conjunction with an undertone of chlorite. Few traces of molybdenite, py, and cpy. Breakage common. At 37.7' a broken ct. initiates a gray, siliceous pebble conglomerate, the matrix of which resembles a graywacke. Traces of disseminated pyrite. Cu content of run rare to sparse.
38.8	40.4	1.6	82	0.01	Argillite or Sandy Argillite. Probably similar to above and gradational to the above pebble conglomerate. Occurs in a highly broken sequence with small concentrations of pebbles. Generally gray, with a few bleached, weakly epidotized and chloritic zones. A few patches exhibit very minute, anhedral to euhedral feldspars. Traces of disseminated, very fine grained py. Cu content rare.
40.4	44.2	3.8	87	0.03	Andesite. Contact at beginning of run is 45-50° with center line of core. Rk. is typical, very fine grained, dark gray green, magnetic, porphyritic andesite exhibiting a few scattered traces of fine grained py. Cu content rare.
44.2	48.0	3.8	94	0.02	Argillite and/or Sandy Argillite. Similar to that above precious run. Gray and siliceous to light gray-green and reddish tan. Exhibits a few bleached, limy and epidotized patches. Occasional zones of scattered, angular to subrounded pebble sized fragments. Traces of chlorite and fine grained py. Cu content rare.
48.0	52.5	4.5	81	0.01	Argillite and Pebble Conglomerate. Similar to above. Highly broken sequence of pale gray green, weakly epidotized, limy argillite and gray, siliceous pebble conglomerate. Healed shearing common. Traces of fine grained, scattered pyrite. Cu content rare.
52.5	56.0	3.5	68	0.01	Argillite and Pebble Conglomerate. Similar to above. Very highly broken throughout. Cu content rare.

SUMMARY - DDH No. U-13 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
56.0	60.9	4.9	45	0.03	Argillite and Pebble Conglomerate. Similar to above. Core broken. Cu content rare.
60.9	65.1	4.2	74	0.03	Argillite and Pebble Conglomerate. Similar to above. At one location is a vague suggestion of pebble-stratification which makes 30°± to core center line. A calcite-healed Bx occurs at 62.4'. Cu content rare.
65.1	68.5	3.4	54	0.03	Argillite and Pebble Conglomerate. Similar to above, to 66.0'±. Below this the dark colored conglomerate above grades through a broken zone into a pink (bleached?) argillite with a few pebbles or alteration blebs. The pebbly(?) areas are associated with a fine-gr arkose matrix. The argillite is hard and very dense. Epidote is sparsely present. Cu content rare.
68.5	72.8	4.3	83	0.03	Pebbly argillite. Similar to bottom unit of run above. Pale buff and pink colored argillite with scattered pebbles. Sparse epidote. On fresh fracture surfaces the argillite has a sub-transluscent quartzose appearance, and many fine clear qtz grains. Sulphides very weak. Cu content nil or sparse.
72.8	76.2	3.4	89	0.03	Conglomerate. Parts are bleached to the pale colors of run above, with sparse epidote. Other parts of the run are dark brown conglomerate similar to most of the run above. Cu content sparse.
76.2	80.5	4.3	88	0.02	Conglomerate and argillite. Conglomerate similar to above, locally bleached, gradational with areas of argillite and no visible pebbles. Cu content sparse.
80.5	84.0	3.5	85	0.02	Conglomerate and Argillite. The conglomerate, similar to above, extends to approximately82.0'. Below is dark to buff argillite. Cu content sparse.
84.0	88.1	4.1	84	0.03	Sandy Argillite, similar to above. Cu content sparse.
88.1	91.5	3.4	92	0.02	Sandy Argillite, similar to above. Below 91' slight increase in grain size brings the rock to arkose. Cu content sparse.
91.5	96.5	5.0	82	0.02	Arkose. Grades from above run, through two feet of bleached arkose, to a dark olive tan fine-grained arkose with a few small pebbles. Sulphides are practically absent. Cu content nil.
96.5	99.9	3.4	91	0.02	Arkose, similar to above, with some parts of run grading into sandy argillite. Slight increase in py. Cu content sparse.

SUMMARY - DDH No. U-13 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
99.9	103.3	3.4	86	0.02	Sandy Argillite, similar to arkose unit above. Some areas nearly quartzite in appearance and color. Cu content sparse.
103.3	106.6	3.3	93	0.01	Sandy argillite and conglomerate. The former, similar to above, grades through a 1' zone of arkose into conglomerate at 105.0'. The conglomerate is dark brown, and is composed of highly angular pebbles set in a matrix of sandy argillite. Py weakly diss. Cu content sparse.
106.6	110.8	4.2	86	0.01	Conglomerate, similar to above. Matrix is dark brown, arkose or graywacke. Weakly diss sulf. The frags are pebbles, and a few cobbles, of argillite. Cu content sparse.
110.8	114.2	3.4	83	0.01	Conglomerate, similar to above. Slight increase in sulphides. Some cpy present. Cu content sparse.
114.2	118.9	4.7	83	0.03	Conglomerate and Arkose. Similar to above. Matrix very fine-grained to fine grained, probably sericitic, and ranges in color from very light gray to dark grayish brown. The darker, coarser grained phases predominate. Included pebbles range in size from 1 mm to 30 mm but are generally 5-15 mm. They could be classified as very fine grained quartzites and/or arkoses ranging to siltstones. Elongated pebbles in a few short intercepts exhibit a slight tendency to lie in a plane which makes an angle of 50-60° with the center line of the core. Few traces of weak chlorite or serpentine and hematite. Very fine grained py disseminated. Cu content rare.
118.9	124.2	5.3	87	0.03	Conglomerate and arkose. Similar to above. Some intercepts highly distorted, exhibiting weak epidotization, diss. hm., and traces of molybdenite. Same diss. py. Cu content rare.
124.2	127.6	3.4	88	0.03	Conglomerate and Arkose. Similar to above. Somewhat more altered, epidotized and bleached. Slight increase in hm and py. Cu content rare.
127.6	131.1	3.5	78	0.01	Conglomerate and Arkose. Similar to above. Generally tan to brown altered, well broken, and exhibiting scattered hm. Percentage of arkose greater. Cu content rare.
131.1	135.3	4.2	75	0.01	Conglomerate and arkose. Similar to above in all respects. Cu content rare.
135.3	138.5	3.2	88	0.03	Conglomerate, similar to above. Argillite pebbles set in an arkosic matrix. Buff to light brown. One fragment is 2", but most are less than 3/8". Py occurs very sparsely. No cpy observed. Cu content nil.

SUMMARY - DDH NO. U-13 - Continued

From	To	Interval	Core Rec.%	% Cu Core	Geology
138.5	143.1	4.6	75	0.01	Conglomerate, similar to above, containing a few blebs of biotite(?) aggregates. This continues to 139.1 where it grades into sandy argillite. Olive to brown--locally tends towards arkose. This unit is in sedimentary contact at 140.8' with stratified conglomerate. The contact and stratification (aligned pebbles) makes 38° angle to core center line. At 141.6' this unit overlies conglomerate similar to that at beginning of run. Cu content nil.
143.1	147.0	3.9	90	0.03	Conglomerate and sandy argillite, interbedded. The last 2" of core is broken, and shows a few films of py and diss. py cubes. A few of the py cubes are converted pseudomorphously to limonite. Some cpy is doubtfully present. Cu content nil.
147.0	150.4	3.4	62	0.02	Conglomerate, similar to above. First foot contains diss py and weak clay alt. Cu content nil.
150.4	154.6	4.2	52	Tr.	Conglomerate, similar to above. Pebbles not so abundant. Below 152.0'± the matrix is a white, weakly kaolinized arkose. Cu content nil.
154.6	158.3	3.7	90	0.02	Arkose, gradational from above. Light brown to white, fine-grained -- on the boundary between argillite and arkose. Cu content nil.
158.3	163.1	4.8	92	0.02	Conglomerate. Light to dark brown, arkosic matrix with small pebbles, mostly well-rounded. Pebbles are not uniformly dispersed, and in some areas arkose predominates. Cu content nil.
163.1	165.0	1.9	70	0.02	Conglomerate, similar to above. The last 1" of core contains a very thin stringer of cpy, parallel to core. Cu content nil.

Bottom

ASSAY DATA - DIAMOND DRILL HOLE NO. U-13

Started: 4-20-59 Completed: 5-16-59

From	To	Interval	% Recovery Core	% Recovery Sludge	% Assay Core	% Assay Sludge
0.0	1.0	1.0	54.2	0.0	1.29	-
1.0	4.5	3.5	42.0	74.0	0.23	0.69
4.5	9.6	5.1	73.5	78.0	0.56	0.52
9.6	14.2	4.6	59.0	76.5	0.49	0.83
14.2	17.8	3.6	75.5	90.6	1.00	1.15
17.8	24.2	6.4	81.2	84.0	0.84	0.75
24.2	28.9	4.7	76.7	83.5	0.46	0.38
28.9	32.0	3.1	97.0	85.0	1.64	1.24
32.0	35.3	3.3	92.2	103.9	0.45	0.63
35.3	38.8	3.5	83.4	75.7	0.09	0.11
38.8	40.4	1.6	82.0	72.7	0.01	0.12
40.4	44.2	3.8	87.0	72.7	0.03	0.12
44.2	48.0	3.8	93.8	76.8	0.02	0.26
48.0	52.5	4.5	81.1	83.3	0.01	0.22
52.5	56.0	3.5	67.9	71.8	0.01	0.14
56.0	60.9	4.9	45.5	63.5	0.03	0.13
60.9	65.1	4.2	74.5	76.5	0.03	0.07
65.1	68.5	3.4	53.5	72.8	0.04	0.04
68.5	72.8	4.3	82.8	79.2	0.03	0.05
72.8	76.2	3.4	88.9	104.4	0.03	0.04
76.2	80.5	4.3	88.3	81.9	0.02	0.05
80.5	84.0	3.5	85.0	88.8	0.02	0.07
84.0	88.1	4.1	83.5	85.7	0.03	0.05
88.1	91.5	3.4	92.2	71.6	0.02	0.05
91.5	96.5	5.0	81.8	74.7	0.02	0.04
96.5	99.9	3.4	91.4	82.5	0.02	0.03
99.9	103.3	3.4	86.2	91.4	0.02	0.03
103.3	106.6	3.3	92.6	84.9	0.01	0.04
106.6	110.8	4.2	86.2	81.9	0.01	0.04
110.8	114.2	3.4	83.1	88.4	0.01	0.03
114.2	118.9	4.7	83.3	80.0	0.03	0.09
118.9	124.2	5.3	87.2	74.1	0.03	0.06
124.2	127.6	3.4	87.5	67.6	0.03	0.08
127.6	131.1	3.5	78.0	87.7	0.01	0.04
131.1	135.3	4.2	75.1	79.1	0.01	0.02
135.3	138.5	3.2	88.4	72.8	0.03	0.02
138.5	143.1	4.6	75.3	76.2	0.01	0.04
143.1	147.0	3.9	90.0	70.0	0.03	0.05
147.0	150.4	3.4	62.1	87.8	0.02	0.03
150.4	154.6	4.2	52.2	75.5	Tr.	0.04
154.6	158.3	3.7	89.8	87.6	0.02	0.06
158.3	163.1	4.8	91.9	81.6	0.02	0.07
163.1	165.0	1.9	69.8	91.0	0.02	0.06

Bottom

Kinnison

9-30-58

UNDERGROUND SAMPLES

East Drift

	Bulk	Cu	
6D	Slab Round	1.10	
9D	0 - 5.3	1.16	
11D	5.3 - 10.5	1.21	
14D	10.5 - 14.5	1.26	
16D	14.5 - 18.6	1.35	
18D	18.6 - 22.2	1.22	
20D	22.2 - 28.5	.90	
22D	28.5 - 33.3	1.19	
24D	33.3 - 37.3	1.54	
26D	37.3 - 41.8	1.67	
28D	41.8 - 47.0	2.04	1.13
30D	47.0 - 52.0	1.06	
32D	52.0 - 57.3	.81	
34D	57.3 - 62.5	.64	
36D	62.5 - 68.8	.75	
40D	68.8 - 73.3	.50	
42D	73.3 - 81.3	3.68	
* 46D	81.3 - 86.8	1.47	
52D	86.8 - 92.0	2.28	2.30
56D	92.0 - 97.0	1.91	
60D	97.0 -103.0	1.58	
64D	103.0 -108.4	.94	
68D	108.4 -114.0	1.30	
72D	114.0 -119.3	1.44	
76D	119.3 -124.0	1.34	
80D	124.0 -129.0	1.23	
84D	129.0 -134.5	.73	
86D	134.5 -140.3	1.09	
88D	140.3 -145.3	.47	
* Lot #7	81.3 - 86.8	1.39	
90D	145.3 -150.5	.80	
92D	150.5 -156.3	.87	
94D	156.3 -161.5	.94	
96D	161.5 -167.5	1.00	
98D	167.5 -172.0	.49	.795
100D	172.0 -176.3	.23	
102D	176.3 -181.3	.20	
104D	181.3 -186.0	.08	
106D	186.0 -191.7	.11	
108D	191.7 -195.5	.63	
110D	195.5 -199.5	.86	
112D	199.5 -204.7	.58	
114D	204.7 -209.5	1.15	
116D	209.5 -214.5	.43	
118D	214.5 -219.0	.49	
140D	219.0 - 224.0	.74	
144D	224.0 -228.5	.56	
145D	228.5 -234.3	.74	

		Cu	
146D	234.3 - 239.3	1.35	
147D	239.3 - 244.3	.37	
149D	244.3 - 249.4	.32	
151D	249.4 - 254.0	.61	
152D	254.0 - 258.3	1.30	.813
153D	258.3 - 262.3	.63	
154D	262.3 - 265.8	.92	
155D	265.8 - 272.0	.53	
156D	272.0 - 276.5	.36	
157D	276.5 - 281.5	.54	
158D	281.5 - 285.3	.72	
159D	285.3 - 290.7	.56	
160D	290.7 - 295.3	1.17	
161D	295.3 - 300.7	2.06	
162D	300.7 - 305.3	1.77	
163D	305.3 - 310.3	1.52	
164D	310.3 - 314.4	2.30	
165D	314.4 - 318.5	6.78	3.48
166D	318.5 - 323.0	5.11	
167D	323.0 - 328.0	2.42	
168D	328.0 - 332.5	2.74	
		2.08	

UNDERGROUND SAMPLES

East Drift

	Channel	Cu
71DC	0 - 5	.76
72DC	5 - 10	.71
73DC	10 - 15	.50
74DC	15 - 20	.41
75DC	20 - 25	.95
76DC	25 - 30	1.00
77DC	30 - 35	1.69
78DC	35 - 40	.63
79DC	40 - 45	2.33
80DC	45 - 50	.92
81DC	50 - 55	.81
82DC	55 - 60	.68
83DC	60 - 65	.86
84DC	65 - 70	.62
85DC	70 - 75	.43
86DC	75 - 80	.70
87DC	80 - 85	.74
88DC	85 - 90	1.49
89DC	90 - 95	4.92
90DC	95 - 100	2.23
91DC	100 - 105	2.21
92DC	105 - 110	.31
93DC	110 - 115	.74
94DC	115 - 120	1.60
95DC	120 - 125	.60

$\frac{14.74}{17} = .867$

$\frac{10.85}{4} = 2.712$

shift to No. wall

UNDERGROUND SAMPLES

North Drift

	Bulk	Cu
38D	Slab Round	2.13
43D	0.0 - 6.0	1.39
44D	6.0 - 11.6	.85
48D	11.6 - 17.3	.98
50D	17.3 - 22.3	1.05
Lot #5	Slab Round	1.44
54D	22.3 - 27.0	.72
58D	27.0 - 32.5	.71
62D	32.5 - 38.5	.79
66D	38.5 - 43.8	.65
70D	43.8 - 49.3	.19
74D	49.3 - 54.5	.18
78D	54.5 - 59.0	.23
82D	59.0 - 64.0	.25
85D	64.0 - 68.0	.56
87D	68.0 - 72.0	.57
89D	72.0 - 76.6	1.08
91D	76.6 - 81.3	.98
93D	81.3 - 85.5	1.70
95D	85.5 - 89.5	2.41
97D	89.5 - 95.0	1.64
99D	95.0 - 100.0	2.37
101D	100.0 - 104.0	2.49
103D	104.0 - 108.3	2.61
105D	108.3 - 113.0	2.45
109D	113.0 - 117.3	3.02
111D	117.3 - 122.7	3.22
115D	122.7 - 127.3	1.71
119D	127.3 - 131.4	.86
120D	131.4 - 135.5	1.09
122D	135.5 - 141.0	.65
124D	141.0 - 146.0	.14
126D	146.0 - 151.0	.24
128D	151.0 - 15610	.23
130D	156.0 - 160.3	.24
132D	160.3 - 163.5	.15
134D	163.5 - 167.3	.10
136D	167.3 - 171.0	.04
138D	171.0 - 176.3	.08
142D	176.3 - 180.3	.08
148D	180.3 - 186.0	.04
150D	186.0 - 190.0	.03

.72

	Channel	Cu
151DC	0 - 5	.53
152DC	5 - 10	.46
153DC	10 - 15	1.01
154DC	15 - 20	.71
155DC	20 - 25	.62
156DC	25 - 30	.59
157DC	30 - 35	1.50
158DC	355 - 40	.85
159DC	40 - 45	.18
160DC	45 - 50	.18
161DC	50 - 55	.16
162DC	55 - 60	.31
163DC	60 - 65	.26
164DC	65 - 70	.43
165DC	70 - 75	.43
166DC	75 - 80	.85
167DC	80 - 85	.87
168DC	85 - 90	1.58
169DC	90 - 95	3.15
170DC	95 - 100	2.00
171DC	100 - 105	1.71
172DC	105 - 110	1.76
173DC	110 - 115	3.32
174DC	115 - 120	3.37
175DC	120 - 125	1.13
176DC	125 - 130	.41
177DC	130 - 135	.18
178DC	135 - 140	.34
179DC	140 - 145	.34
180DC	145 - 150	.47
181DC	150 - 155	.40
182DC	155 - 160	.55
183DC	160 - 165	.02
184DC	165 - 170	.01
185DC	170 - 175	.03
186DC	175 - 180	.02
187DC	180 - 188	.02

$\frac{9.94}{17} = .585$

$\frac{18.02}{8} = 2.25$

2.36

UNDERGROUND SAMPLES

South Drift

Bulk		Cu
35-Sta 370	0.0 - 16	1.31
1D-1500W	16.0 - 21.1	1.08
2D	21.2 - 26.4	1.36
3D	26.4 - 30.7	1.32
4D	30.7 - 35.6	.99
5D	35.6 - 41.0	.87
7D	41.0 - 46.3	.76
8D	46.3 - 51.0	.62
10D	51.0 - 56.2	.75
12D	56.2 - 60.2	.91
13D	60.2 - 64.2	1.13
15D	64.2 - 69.3	.69
17D	69.3 - 74.1	.61
19D	74.1 - 78.9	.50
21D	78.9 - 83.9	.80
23D	83.9 - 88.8	.57
25D	88.8 - 95.5	.93
*27D	95.5 -101.5	1.05
29D	101.5 -106.8	.90
31D	106.8 -112.0	1.17
33D	112.0 -116.5	.64
35D	116.5 -121.5	.45
37D	121.5 -126.5	.28
39D	126.5 -131.6	.34
41D	131.6 -136.7	.33
45D	136.7 -140.5	.30
47D	140.5 -144.8	.20
49D	144.5 -149.1	.21
51D	149.1 -154.3	.16
53D	154.3 -158.8	.10
55D	158.8 -163.5	.10
57D	163.5 -168.5	.20
59D	168.5 -174.3	.14
61D	174.3 -178.5	.27
63D	178.5 -183.0	.30
65D	183.0 -187.5	.19
67D	187.5 -193.3	.14
69D	193.3 -198.0	.18
71D	198.0 -202.3	.18
73D	202.3 -207.7	.22
75D	207.7 -212.5	.17
77D	212.5 -217.0	.20
79D	217.0 -222.5	.48
81D	222.5 -227.5	.83
83D	227.5 -232.0	.60
107D	232.0 -237.8	.51
113D	237.8 -243.7	.39
117D	243.7 -248.0	.24
121D	248.0 -253.0	.33
123D	253.0 -258.0	.44
125D	258.0 -263.6	.35
127D	263.6 -268.5	.45
129D	268.5 -273.7	.65

.922

.60

		Cu
*Lot No. 6 - 96 - 100		1.17
131D	273.7 - 278.5	.68
133D	278.5 - 282.7	.34
135D	282.7 - 287.0	.46
137D	287.0 - 292.7	.44
139D	292.7 - 296.8	.22
141D	296.8 - 302.0	.23
143D	302.0 - 306.3	.80

Channel

1DC	0 - 5	1.67
2DC	5 - 10	.91
3DC	10 - 15	.20
4DC	15 - 20	.72
5DC	20 - 25	.93
6DC	25 - 30	2.03
7DC	30 - 35	.94
8DC	35 - 40	.97
9DC	40 - 45	.42
10DC	45 - 50	.29
11DC	50 - 55	1.28
12DC	55 - 60	.98
13DC	60 - 65	.95
14DC	65 - 70	.33
15DC	70 - 75	.71
16DC	75 - 80	.39
17DC	80 - 85	.62
18DC	85 - 90	1.13
19DC	90 - 95	1.15
20DC	95 - 100	2.17
21DC	100 - 105	3.14
22DC	105 - 110	3.54
23DC	110 - 115	1.08
24DC	115 - 120	.93
25DC	120 - 125	.19
26DC	125 - 130	.31
27DC	130 - 135	.30
28DC	135 - 140	.45 >
29DC	140 - 145	.26
30DC	145 - 150	.17
31DC	150 - 155	.20
32DC	155 - 160	.22
33DC	160 - 165	.32
34DC	165 - 170	.08
35DC	170 - 175	.14
36DC	175 - 180	.21
37DC	180 - 185	.16
38DC	185 - 190	.22
39DC	190 - 195	.12
40DC	195 - 200	.16
41DC	200 - 205	.13
42DC	205 - 210	.15

$\frac{2748}{24} =$ 1.145

UNDERGROUND SAMPLES

South Drift

	Channel	Cu
43DC	210 - 215	.30
44DC	215 - 220	.31
45DC	220 - 225	.75
46DC	225 - 230	.66
47DC	230 - 235	.82
48DC	235 - 240	.40
49DC	240 - 245	.18
50DC	245 - 250	.26
51DC	250 - 255	.14
52DC	255 - 260	.11
53DC	260 - 265	.12
55DC	270 - 275	.98
56DC	275 - 280	.19
57DC	280 - 285	.25
58DC	285 - 290	.43
59DC	290 - 295	.23
60DC	295 - 300	.09
61DC	300 - 306.3	.56

$\frac{263}{4} = .657$

DDH U-13

From	To	Inter.	Core % Cu
0.0	1.0	1.0	1.29
1.0	4.5	3.5	.23
4.5	9.6	5.1	.56
9.6	14.2	4.6	.49
14.2	17.8	3.6	1.00
17.8	24.2	6.4	.84
24.2	28.9	4.7	.46
28.9	32.0	3.1	1.64
32.0	35.3	3.3	.45
35.3	38.8	3.5	.09
38.8	40.4	1.6	.01

24.9/35.3 = .706

0 - .39 - white
.40 - .69 - yellow
.70 - .99 - orange
1.00 - 2.99 - red
2.00 + - purple

UNDERGROUND BULK SAMPLES

South Drift

				Cu	
16.0	35-Sta 370	0.0 - 16		1.31	30.7' / 1.28
5.1	1D-1500W	16.0 - 21.1		1.08	
5.3	2D	21.1 - 26.4		1.36	
4.3	3D	26.4 - 30.7		1.32	
4.9	4D	30.7 - 35.6		.99	29.5' / 0.81
5.4	5D	35.6 - 41.0		.87	
5.3	7D	41.0 - 46.3		.76	
4.7	8D	46.3 - 51.0		.62	
5.2	10D	51.0 - 56.2		.75	
4.0	12D	56.2 - 60.2		.91	
4.0	13D	60.2 - 64.2		1.13	4.0' @ 1.13
5.1	15D	64.2 - 69.3		.69	
4.8	17D	69.3 - 74.1		.61	24.6' / 0.64
4.8	19D	74.1 - 78.9		.50	
5.0	21D	78.9 - 83.9		.80	
4.9	23D	83.9 - 88.8		.57	
6.7	25D	88.8 - 95.5		.93	
6.0	27D	95.5 - 101.5		1.05	23.2' / 1.01
5.3	29D	101.5 - 106.8		.90	
5.2	31D	106.8 - 112.0		1.17	
4.5	33D	112.0 - 116.5		.64	9.5' / 0.54
5.0	35D	116.5 - 121.5		.45	
5.0	37D	121.5 - 126.5		.28	
5.1	39D	126.5 - 131.6		.34	
5.1	41D	131.6 - 136.7		.33	
3.8	45D	136.7 - 140.5		.30	
4.3	47D	140.5 - 144.8		.20	
4.3	49D	144.8 - 149.1		.21	
5.2	51D	149.1 - 154.3		.16	
4.5	53D	154.3 - 158.8		.10	
4.7	55D	158.8 - 163.5		.10	95.5' / 0.21
5.0	57D	163.5 - 168.5		.20	
5.8	59D	168.5 - 174.3		.14	
4.2	61D	174.3 - 178.5		.27	
4.5	63D	178.5 - 183.0		.30	
4.5	65D	183.0 - 187.5		.19	
5.8	67D	187.5 - 193.3		.14	
4.7	69D	193.3 - 198.0		.18	
4.3	71D	198.0 - 202.3		.18	
5.4	73D	202.3 - 207.7		.22	
4.8	75D	207.7 - 212.5		.17	
4.5	77D	212.5 - 217.0		.20	
5.5	79D	217.0 - 222.5		.48	20.8' / 0.60
5.0	81D	222.5 - 227.5		.83	
4.5	83D	227.5 - 232.0	10.3 / 0.54	.60	
5.8	107D	232.0 - 237.8		.51	
5.9	113D	237.8 - 243.7		.39	15.2' / 0.33
4.3	117D	243.7 - 248.0		.24	
5.0	121D	248.0 - 253.0		.33	
5.0	123D	253.0 - 258.0		.44	15.5' / 0.41
5.6	125D	258.0 - 263.6		.35	
4.9	127D	263.6 - 268.5		.45	
5.2	129D	268.5 - 273.7		.65	10.0' / 0.66
4.8	131D	273.7 - 278.5		.68	
4.2	133D	278.5 - 282.7		.34	4.2' @ 0.34

112017 / 121.5 = .922

24378 / 53.3 = 0.46

Metallurgical Samples

	Cu
Lot No. 6 - 96 - 100 Slab round, west side	1.17
Lot No 5 - 100 - 104 Slab round, west side	1.44

add 5' of .64% - slab U-2

115217 / 126.5 = .911

4.3	135D	282.7 - 287.0	.46	10.0' / 0.45
5.7	137D	287.0 - 292.7	.44	
4.1	139D	292.7 - 296.8	.22	9.3 / 0.23
5.2	141D	296.8 - 302.0	.23	
4.3	143D	302.0 - 306.3	.80	4.3 @ .80

FACE

ok on sheets

errors on program sheets

UNDERGROUND BULK SAMPLES

Metallurgical Samples

East Drift

		Slab Round	Cu	
Use 2.0'	6D			
5.3	9D	0 - 5.3	1.10	
5.2	11D	5.3 - 10.5	1.16	
4.0	14D	10.5 - 14.5	1.21	
4.1	16D	14.5 - 18.6	1.26	43.8' / 1.25
3.6	18D	18.6 - 22.2	1.35	
6.3	20D	22.2 - 28.5	1.22	
4.8	22D	28.5 - 33.3	.90	
4.0	24D	33.3 - 37.3	1.19	
4.5	26D	37.3 - 41.8	1.54	
5.2	28D	41.8 - 47.0	1.67	
6.0	30D	47.0 - 52.0	2.04	5.2' @ 2.04
5.3	32D	52.0 - 57.3	1.06	5.0' @ 1.06
5.2	34D	57.3 - 62.5	.81	
6.3	36D	62.5 - 68.8	.64	21.3' / 0.68
4.5	40D	68.8 - 73.3	.75	
8.0	42D	73.3 - 81.3	.50	
5.5*	46D	81.3 - 86.8	3.68	
5.2	52D	86.8 - 92.0	1.47	29.7' / 2.30
5.0	56D	92.0 - 97.0	2.28	
6.0	60D	97.0 - 103.0	1.91	
5.4	64D	103.0 - 108.4	1.58	
5.6	68D	108.4 - 114.0	.94	
5.3	72D	114.0 - 119.3	1.30	26.0' / 1.25
4.7	76D	119.3 - 124.0	1.44	
5.0	80D	124.0 - 129.0	1.34	
5.5	84D	129.0 - 134.5	1.23	
5.8	86D	134.5 - 140.3	.73	11.3' / 0.91
5.0	88D	140.3 - 145.3	1.09	5.0 @ .47
	* Lot #7	81.3 - 86.8	.47	
5.2	90D	145.3 - 150.5	1.39	
5.8	92D	150.5 - 156.3	.80	
5.2	94D	156.3 - 161.5	.87	22.2' / 0.90
6.0	96D	161.5 - 167.5	.94	
4.5	98D	167.5 - 172.0	1.00	4.5' @ 0.49
4.3	100D	172.0 - 176.3	.49	
5.0	102D	176.3 - 181.3	.23	
4.7	104D	181.3 - 186.0	.20	19.7' / 0.15
5.7	106D	186.0 - 191.7	.08	
3.8	108D	191.7 - 195.5	.11	
4.0	110D	195.5 - 199.5	.63	13.0' / 0.68
5.2	112D	199.5 - 204.7	.86	
4.8	114D	204.7 - 209.5	.58	
5.0	116D	209.5 - 214.5	1.15	4.8 @ 1.15
4.5	118D	214.5 - 219.0	.43	9.5' @ 0.46
5.0	140D	219.0 - 224.0	.49	
4.5	144D	224.0 - 228.5	.74	15.3' / .69
5.8	145D	228.5 - 234.3	.56	
5.0	146D	234.3 - 239.3	.74	
5.0	147D	239.3 - 244.3	1.35	5.0' @ 1.35
5.1	149D	244.3 - 249.4	.37	10.1' / 0.34
4.6	151D	249.4 - 254.0	.32	
4.3	152D	254.0 - 258.3	.61	
4.0	153D	258.3 - 262.3	1.30	16.4' / 0.86
			.63	

But use 41.8 linear ft

85142 / 75.3 = 1.13

84633 / 106.5 = .795

85001 / 100.8 = .843

10.00551 / 100.8 = .99

Lot No. 7 - 46D - 81.3 - 86.8 - 1.39

3.5	154D	262.3 - 265.8	.92	
6.2	155D	265.8 - 272.0	.53	
4.5	156D	272.0 - 276.5	.36	24.9'
5.0	157D	276.5 - 281.5	.54	.54
3.8	158D	281.5 - 285.3	.72	
5.4	159D	285.3 - 290.7	.56	
4.6	160D	290.7 - 295.3	1.17	
5.4	161D	295.3 - 300.7	2.06	19.6
4.6	162D	300.7 - 305.3	1.77	1.65
5.0	163D	305.3 - 310.3	1.52	
4.1	164D	310.3 - 314.4	2.30	
4.1	165D	314.4 - 318.5	6.78	27.5'
4.5	166D	318.5 - 323.0	5.11	
5.0	167D	323.0 - 328.0	2.42	3.48
4.5	168D	328.0 - 332.5	2.74	
5.3	169D	332.5 - 337.8	2.08	
6.2	170D	337.8 - 344.0	1.31	6.2 @ 1.31
5.0	171D	344.0 - 349.0	0.27	
6.3	172D	349.0 - 355.3	0.13	
5.9	173D	355.3 - 361.2	0.22	33.3
6.8	174D	361.2 - 368.0	0.35	0.21
4.0	175D	368.0 - 372.0	0.18	
5.3	176D	372.0 - 377.3	0.07	

FACE

3349.5

Special sample - vein - channel 235.0 - 238.5 - 0.29

** 2nd Mission Report. Up grouted to allow for 52' and 1½' thick at 0% Cu and 23% Cu. See back of page

52' - 258.3 - 310.3'

51354 / 52 = .988 - 23% of grade = 1.28

**

JEKinnison

UNDERGROUND BULK SAMPLES

North Drift

Cu

Use 2.0	38D	Slab Round		2.13	8' — Bad use 6' linear ft
6.0	43D	0.0 -	6.0	1.39	1.57
5.6	44D	6.0 -	11.6	.85	11.6 .92
5.7	48D	11.6 -	17.3	.98	
5.0	50D	17.3 -	22.3	1.05	5.0' @ 1.05
	Lot #5	Slab Round		1.44	Not in N.D.
4.7	54D	22.3 -	27.0	.72	
5.5	58D	27.0 -	32.5	.71	21.5' 0.72
6.0	62D	32.5 -	38.5	.79	
5.3	66D	38.5 -	43.8	.65	
5.5	70D	43.8 -	49.3	.19	
5.2	74D	49.3 -	54.5	.18	20.2'
4.5	78D	54.5 -	59.0	.23	0.21
5.0	82D	59.0 -	64.0	.25	
4.0	85D	64.0 -	68.0	.56	8.0'
4.0	87D	68.0 -	72.0	.57	0.56
4.6	89D	72.0 -	76.6	1.08	9.3'
4.7	91D	76.6 -	81.3	.98	1.03
4.2	93D	81.3 -	85.5	1.70	
4.0	95D	85.5 -	89.5	2.41	
5.5	97D	89.5 -	95.0	1.64	46.0'
5.0	99D	95.0 -	100.0	2.37	2.36
4.0	101D	100.0 -	104.0	2.49	
4.3	103D	104.0 -	108.3	2.61	
4.7	105D	108.3 -	113.0	2.45	
4.3	109D	113.0 -	117.3	3.02	
5.4	111D	117.3 -	122.7	3.22	
4.6	115D	122.7 -	127.3	1.71	
4.1	119D	127.3 -	131.4	.86	8.2' 0.98
4.1	120D	131.4 -	135.5	1.09	
5.5	122D	135.5 -	141.0	.65	5.5' @ 0.65
5.0	124D	141.0 -	146.0	.14	
5.0	126D	146.0 -	151.0	.24	26.3
5.0	128D	151.0 -	156.0	.23	0.19
4.3	130D	156.0 -	160.3	.24	
3.2	132D	160.3 -	163.5	.15	
3.8	134D	163.5 -	167.3	.10	
3.7	136D	167.3 -	171.0	.04	
5.3	138D	171.0 -	176.3	.08	26.7'
4.0	142D	176.3 -	180.3	.08	0.049
5.7	148D	180.3 -	186.0	.04	
4.0	150D	186.0 -	190.0	.03	
		FACE			
4.0		190.0 -	194	.02	

$\frac{58847}{81.3} = .724$

$\frac{11611}{13.7} = .848$

MAR 12 1959

1153.0

MISSION PROJECT
UNDERGROUND SAMPLES
370N-1450W Crosscut North

	Muck	Cu
38D	Slab Round	2.13
43D	0.0 - 6.0	1.39
44D	6.0 - 11.6	.85
48D	11.6 - 17.3	.98
50D	17.3 - 22.3	1.05
Lot #5	Slab Round	1.44
54D	22.3 - 27.0	.72
58D	27.0 - 32.5	.71
62D	32.5 - 38.5	.79
66D	38.5 - 43.8	.65
70D	43.8 - 49.3	.19
74D	49.3 - 54.5	.18
78D	54.5 - 59.0	.23
82D	59.0 - 64.0	.25
85D	64.0 - 68.0	.56
87D	68.0 - 72.0	.57
89D	72.0 - 76.6	1.08
91D	76.6 - 81.3	.98
93D	81.3 - 85.5	1.70
95D	85.5 - 89.5	2.41
97D	89.5 - 95.0	1.64
99D	95.0 - 100.0	2.37
101D	100.0 - 104.0	2.49
103D	104.0 - 108.3	2.61
105D	108.3 - 113.0	2.45
109D	113.0 - 117.3	3.02
111D	117.3 - 122.7	3.22
115D	122.7 - 127.3	1.71
119D	127.3 - 131.4	.86
120D	131.4 - 135.5	1.09
122D	135.5 - 141.0	.65
124D	141.0 - 146.0	.14
126D	146.0 - 151.0	.24
128D	151.0 - 15610	.23
130D	156.0 - 160.3	.24
132D	160.3 - 163.5	.15
134D	163.5 - 167.3	.10
136D	167.3 - 171.0	.04
138D	171.0 - 176.3	.08
142D	176.3 - 180.3	.08
148D	180.3 - 186.0	.04
150D	186.0 - 190.0	.03

		Muck	Cu
	177D	190.0 - 194.0	.02
4 6	178D	194.0 - 198.6	.42
3 4	179D	198.6 - 202.0	1.68
5 0	180D	202.0 - 207.0	1.31
4 8	181D	207.0 - 211.8	1.66
4 2	182D	211.8 - 216.0	1.45
4 3	183D	216.0 - 220.3	1.86
5 0	184D	220.3 - 225.3	1.00
4 4	185D	225.3 - 229.7	.30
5 7	186D	229.7 - 235.4	.50
4 1	187D	235.4 - 239.5	1.06
4 8	188D	239.5 - 244.3	.97
4 1	189D	244.3 - 248.4	.58
4 6	190D	248.4 - 253.0	.60
5 5	191D	253.0 - 258.5	2.06
3 0	192D	258.5 - 261.5	3.03
5 3	193D	261.5 - 266.8	2.19
3 5	194D	266.8 - 270.3	1.66
5 0	195D	270.3 - 275.3	.66
4 6	196D	275.3 - 279.9	.64
4 1	197D	279.9 - 284.0	.59
4 0	198D	284.0 - 288.0	3.20
4 5	199D	288.0 - 292.5	1.96
4 0	200D	292.5 - 296.5	.60
4 5	201D	296.5 - 301.0	.48
4 7	202D	301.0 - 305.7	.37
4 9	203D	305.7 - 310.6	.39
4 2	204D	310.6 - 314.8	.82
5 9	205D	314.8 - 320.7	.95
4 6	206D	320.7 - 325.3	1.84
5 0	207D	325.3 - 330.3	4.94
4 2	208D	330.3 - 334.5	6.53
5 2	209D	334.5 - 339.7	6.08
5 3	210D	339.7 - 345.0	2.39
2 0	211D	Slab Round	2.05
			End

$= \frac{36.250}{26.3} = 1.378$

$= \frac{9.170}{15.1} = 0.607$

$= \frac{9.002}{8.9} = 1.011$

$= \frac{5.138}{8.7} = 0.591$

$= \frac{37.837}{17.3} = 2.187$

CR2

$= \frac{8.663}{13.7} = 0.632$

$= \frac{21.620}{8.5} = 2.544$

$= \frac{8.210}{18.1} = 0.454$

$= \frac{9.049}{10.1} = 0.896$

$= \frac{104.873}{24.3} = 4.316$

combine with 4350 D.E.

$\frac{155.253}{46.8} = 3.317$

2.0' s/ob.

Use 44.8' linear.

CR-2 $\frac{59.457}{25.8} = 2.304$

$\frac{25.922}{41.9} = .619$

CR-2

22.5
24.3
46.8

change 17.3
8.5
25.8

MAR 12 1959

MISSION PROJECT
UNDERGROUND SAMPLES

370-4200N Drift East

		Muck	Cu
5.4	306D	0.6 - 6.0	.06
6.0	308D	6.0 - 12.0	.03
6.3	310D	12.0 - 18.3	.03
5.7	312D	18.3 - 24.0	.05
4.8	314D	24.0 - 28.8	.14
5.7	316D	28.8 - 34.5	1.06
6.2	318D	34.5 - 40.7	.97
5.1	320D	40.7 - 45.8	.38
4.9	322D	45.8 - 50.7	.22
5.0	324D	50.7 - 55.7	.15
4.5	326D	55.7 - 60.2	.36
5.0	328D	60.2 - 65.2	.55
4.5	330D	65.2 - 69.7	.21
3.8	332D	69.7 - 73.5	.17
4.9	334D	73.5 - 78.4	.22
4.6	336D	78.4 - 83.0	.40
4.2	338D	83.0 - 87.2	.18
5.3	340D	87.2 - 92.5	.51
4.8	342D	92.5 - 97.3	.37
4.7	344D	97.3 - 102.0	.22
4.7	346D	102.0 - 106.7	.49

$\frac{1.650}{28.2'} = 0.059$ ✓

$\frac{12.056}{11.9'} = 1.013$ ✓

$\frac{21.217}{66.0} = 0.321$ ✓

77.9

MAR 12 1959

MISSION PROJECT
UNDERGROUND SAMPLES

370-4200N Drift West

		Muck			Cu	
5	5	307D	0.0 -	5.5	.10	2.785 / 15.3 = 0.182
5	5	309D	5.5 -	11.0	.25	
4	3	311D	11.0 -	15.3	.20	
5	0	313D	15.3 -	20.3	.66	18.379 / 19.7 = 0.933
4	7	315D	20.3 -	25.0	.81	
4	8	317D	25.0 -	29.8	1.46	
5	2	319D	29.8 -	35.0	.82	
4	5	321D	35.0 -	39.5	2.47	30.737 / 12.7 = 2.420
4	2	323D	39.5 -	43.7	3.11	
4	0	325D	43.7 -	47.7	1.64	
3	6	327D	47.7 -	51.3	.70	
4	7	329D	51.3 -	56.0	2.11	34.377 / 14.3 = 2.404
4	9	331D	56.0 -	60.9	1.98	
4	7	333D	60.9 -	65.6	3.14	
4	4	335D	65.6 -	70.0	1.47	13.054 / 8.1 = 1.612
3	7	337D	70.0 -	73.7	1.78	
4	4	339D	73.7 -	78.1	2.28	18.726 / 9.0 = 2.081
4	6	341D	78.1 -	82.7	1.89	
4	5	343D	82.7 -	87.2	1.03	6.891 / 9.3 = 0.741
4	8	345D	87.2 -	92.0	.47	
5	0	347D	92.0 -	97.0	.22	1.600 / 10.0 = 0.160
5	0	349D	97.0 -	102.0	.10	

slab for DDHs .4'-6'

	Channel	
351DC	0 - 5	.35
352DC	5 - 10	.09
353DC	10 - 15	.20
354DC	15 - 20	.20
355DC	20 - 25	1.68
356DC	25 - 30	.87
357DC	30 - 35	.95
358DC	35 - 40	2.10
359DC	40 - 45	2.86
360DC	45 - 50	.70
361DC	50 - 55	1.11
362DC	55 - 60	1.44

99.919 / 47.7 = 2.08

2.44 / 16 = .152

MAR 12 1959

MISSION PROJECT
UNDERGROUND SAMPLES

370-4350N East Drift

use

Combine of 14150 D.N.

			Muck		Cu
2.0'		211D	slab		2.05
5	0	212D	0.0 -	5.0	3.99
6	5	214D	5.0 -	11.5	1.10
4	0	216D	11.5 -	15.5	2.67
5	0	218D	15.5 -	20.5	1.70
4	5	220D	20.5 -	25.0	.73
4	0	222D	25.0 -	29.0	.51
4	5	224D	29.0 -	33.5	.60
4	2	226D	33.5 -	37.7	.76
4	6	228D	37.7 -	42.3	1.13
4	2	230D	42.3 -	46.5	.76
5	5	232D	46.5 -	52.0	.49
4	0	234D	52.0 -	56.0	.55
4	8	236D	56.0 -	60.8	.87
5	2	237D	60.8 -	66.0	.44
4	8	238D	66.0 -	70.8	.43
4	8	239D	70.8 -	75.6	.34
5	4	240D	75.6 -	81.0	.33
5	0	241D	81.0 -	86.0	.35
4	3	242D	86.0 -	90.3	1.01
5	2	244D	90.3 -	95.5	1.27
4	5	246D	95.5 -	100.0	.99
4	4	248D	100.0 -	104.4	.66
5	0	250D	104.4 -	109.4	.45
5	0	252D	109.4 -	114.4	.79
4	7	254D	114.4 -	119.1	.59
4	7	256D	119.1 -	123.8	.62
4	7	258D	123.8 -	128.5	1.03
5	2	260D	128.5 -	133.7	1.29
5	1	262D	133.7 -	138.8	.72
4	7	264D	138.8 -	143.5	.63
5	1	266D	143.5 -	148.6	.77
4	6	268D	148.6 -	153.2	.84
5	1	270D	153.2 -	158.3	1.72
5	0	272D	158.3 -	163.3	.78
5	0	274D	163.3 -	168.3	.69
4	5	276D	168.3 -	172.8	.51
5	3	278D	172.8 -	178.1	.50
5	2	280D	178.1 -	183.3	1.43
5	0	282D	183.3 -	188.3	2.07
5	3	284D	188.3 -	193.6	1.21
4	9	286D	193.6 -	198.5	.99
5	6	288D	198.5 -	204.1	1.49
4	0	289D	204.1 -	208.1	4.73
5	2	290D	208.1 -	213.3	7.68

50.380 = 2.239
22.5
use 20.5' linear

19.607 / 26.0 = 0.754

13.423 / 24.3 = 0.552

1,673
56.500
83.9

5.164 / 15.2 = 0.340

15.402 / 14.0 = 1.100

14.791 / 23.8 = 0.621

11.549 / 9.9 = 1.167

58.441/52.9 = 1.48

35.491 / 44.4 = 0.799

37.394 / 26.0 = 1.438

96.321 / 99.7 = .966

			Muck		Cu
5	5	292D	213.3 -	218.8	11.84
5	9	293D	218.8 -	224.7	17.90
4	3	294D	224.7 -	229.0	2.77
5	5	295D	229.0 -	234.5	.96
5	5	296D	234.5 -	240.0	.23
5	0	297D	240.0 -	245.0	.36
5	1	298D	245.0 -	250.1	.08
5	0	299D	250.1 -	255.1	.16
6	2	300D	255.1 -	261.3	.03
4	6	301D	261.3 -	265.9	.01
5	1	302D	265.9 -	271.0	.02
5	0	303D	271.0 -	276.0	.02
					End

241.497 / 24.9 = 9.699

4.707 / 41.5 = 0.113

Change

MAR 12 1959

MISSION PROJECT
UNDERGROUND SAMPLES

370-4350N Drift West

	Muck		Cu		Channel		Cu
5 0	213D	0.0 - 5.0	1.26	21,590 / 16.0 = 1.349	225DC	0 - 5	.56
5 5	215D	5.0 - 10.5	1.41		226DC	5 - 10	.48
5 5	217D	10.5 - 16.0	1.37		227DC	10 - 15	.54
6 0	219D	16.0 - 22.0	2.39	55930 / 19.5 = 2.868	228DC	15 - 20	.73
4 0	221D	22.0 - 26.0	3.21		229DC	20 - 25	1.18
4 0	223D	26.0 - 30.0	4.19 ~~4.14~~		230DC	25 - 30	1.89
5 5	225D	30.0 - 35.5	2.18		231DC	30 - 35	.94
5 0	227D	35.5 - 40.5	1.31	10,670 / 9.0 = 1.186	232DC	35 - 40	.80
4 0	229D	40.5 - 44.5	1.03		233DC	40 - 45	.31
4 3	231D	44.5 - 48.8	.69		234DC	45 - 50	.07
4 8	233D	48.8 - 53.6	.46	11,503 / 19.5 = 0.590	235DC	50 - 55	.47
4 4	235D	53.6 - 58.0	.47		236DC	55 - 62	.89
4 0	257D	58.0 - 62.0	.65	(use 17.5')			
Use 2 0	291D	Slab Round	.83				

H

43763 / 44.5 = .983
use 42.5'

change

MAR 12 1959

MISSION PROJECT
UNDERGROUND SAMPLES

103.5

370-1375W Crosscut North

		Muck	Cu			Channel	Cu
Use	2.0 243D	Slab Round	.45	5.663 / 13.2 = 0.429 (use 11.2')	326DC	0.0 - 5.0	.25
	5.3 245D	0.0 - 5.3	.42		327DC	5.0 - 10.0	.15
	5.9 247D	5.3 - 11.2	.43		328DC	10.0 - 15.0	.45
	5.0 249D	11.2 - 16.2	.68	21.293 / 35.1 = 0.607	329DC	15.0 - 20.0	.58
	5.2 251D	16.2 - 21.4	.80		330DC	20.0 - 25.0	1.37
	5.4 253D	21.4 - 26.8	.72		331DC	25.0 - 30.0	.68
	4.6 255D	26.8 - 31.4	.51		332DC	30.0 - 35.0	.31
	5.0 259D	31.4 - 36.4	.46		333DC	35.0 - 40.0	.33
	5.1 261D	36.4 - 41.5	.53		334DC	40.0 - 45.0	.66
	4.8 263D	41.5 - 46.3	.52		335DC	45.0 - 50.0	.10
	4.3 265D	46.3 - 50.6	.33	5.687 / 23.5 = 0.242	336DC	50.0 - 55.0	.22
	4.8 267D	50.6 - 55.4	.27		337DC	55.0 - 60.0	.25
	4.4 269D	55.4 - 59.8	.24		338DC	60.0 - 65.0	.27
	5.6 271D	59.8 - 65.4	.24		339DC	65.0 - 70.0	.25
	4.4 273D	65.4 - 69.8	.13		340DC	70.0 - 75.0	.43
	5.2 275D	69.8 - 75.0	.40		341DC	75.0 - 80.0	.86
	4.0 277D	75.0 - 79.0	.60		342DC	80.0 - 85.0	.47
	5.8 279D	79.0 - 84.8	.75	21.776 / 33.7 = 0.646	343DC	85.0 - 90.0	1.27
	4.0 281D	84.8 - 88.8	.57		344DC	90.0 - 95.0	.60
	4.7 283D	88.8 - 93.5	.78		345DC	95.0 -100.0	.53
	5.0 285D	93.5 - 98.5	.72		346DC	100.0 -103.5	.57
	5.0 287D	98.5 - 103.5	.68				

326.43 / 71.2

EAST PIMA SHAFT

Along D. D. Hole # 151

BULK SAMPLES

Sample Number	Interval-Feet		% Cu	
1M	200.0 - 207.4	7.4	0.68	$\frac{7.100}{12.1} = .587$
2M	207.4 - 212.1	4.7	0.44	
3M	212.1 - 216.2	4.1	0.29	oxide $\frac{4.609}{13.6} = .339$
4M	216.2 - 225.7	9.5	0.36	
5M	225.7 - 232.0	6.3	0.54	$\frac{480435}{89.1} = .539$
6M	232.0 - 237.0	5.0	0.71	
7M	237.0 - 243.3	6.3	0.70	
8M	243.3 - 248.9	5.6	0.57	$\frac{29.113}{44.6} = .653$
9M	248.9 - 254.8	5.9	0.67	
10M	254.8 - 259.8	5.0	0.59	
11M	259.8 - 264.9	5.1	0.76	
12M	264.9 - 270.3	5.4	0.70	
13M	270.3 - 275.4	5.1	0.35	5.1 @ .35
14M	275.4 - 280.6	5.2	0.50	$\frac{7.031}{13.7} = .513$
15M	280.6 - 284.3	3.7	0.51	
16M	284.3 - 289.1	4.8	0.53	
17M	289.1 - 293.5	4.4	0.35	
18M	293.5 - 298.2	4.7	0.32	$\frac{4.420}{13.4} = .330$
19M	298.2 - 302.5	4.3	0.32	
20M	302.5 - 307.8	5.3	0.59	5.3 @ .59
21M	307.8 - 312.9	5.1	0.38	
22M	312.9 - 318.1	5.2	0.19	$\frac{5.710}{19.7} = .290$
23M	318.1 - 323.0	4.9	0.21	
24M	323.0 - 327.5	4.5	0.39	

East Pima Shaft
Along D.D.H. #151
Bulk Samples

Sample Number	Interval-Feet		%Cu	
25M	327.5 - 332.9	5.4	0.81	
26M	332.9 - 337.5	4.6	0.79	$\frac{10.618}{14.5} = .732$
27M	337.5 - 342.0	4.5	0.58	
28M	342.0 - 346.6	4.6	1.17	
29M	346.6 - 351.0	4.4	1.71	$\frac{18.756}{13.5} = 1.390$
30M	351.0 - 355.5	4.5	1.30	
31M	355.5 - 359.9	4.4	1.99	
32M	359.9 - 364.8	4.9	2.16	$\frac{47.393}{19.2} = 2.468$
33M	364.8 - 369.6	4.8	2.54	
34M	369.6 - 374.7	5.1	3.11	

$\frac{29379}{28.0} = 1.049$

19.2 @ 2.468

July 21, 1958