GEOCHEMICAL & GEOLOGICAL REPORT

ON

CANZAC OPTION & ADJOINING CLAIMS

ERIE, B. C.

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ERIE, B.C.

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BY

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Vancouver, B.C.

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I GENERAL

Geochemical sampling and geological mapping were completed on the Canzac option near Erie, B. C., between May 22 and August 10, 1968. A high content Cu geochemical anomaly about 5,000' long and 600' wide and several zinc anomalies were located. The former anomaly occurs mainly over hornfelsic sedimentary rocks and the latter over an area of mafic volcanic rocks. Numerous chalcopyrite filled fractures, as well as old workings, were found in the sedimentary rocks in the vicinity of the major copper anomaly.

The geology is complicated by numerous silicic dikes, probably offshoots from the Nelson batholith, in the northern half of the claim groups and by lack of exposure in the southern claims.

McIntyre personnel engaged on the project ranged from two to four in number. A. E. Angus, T. Mersereau, G. Kaiway, W. Day and John Godin took part in the field programme.

Pace and compass traverses were the control utilized in sample collection and geological mapping.

II LOCATION & ACCESS

The McIntyre and optioned claims (Figs. 1, 1A) straddle Erie Creek and are about six miles north of Erie, B.C., a village three miles west of Salmo and on Highway 3.

A public road to the old Second Relief mining camp and additional logging roads provide easy access to the property. Permission must be obtained from F. H. Rodder Lumber Co. to utilize logging roads on the west side of Erie Creek.

The claim area comprises part of the Bonnington Mountain Range. Elevation contrast is approximately 1500'.

III HISTORY OF DEVELOPMENTS

Approximately 20 adits have been located in the course of field mapping and geochemical sampling. Most of these are caved and short in length. At least three adits, however are up to 200' in length. No mention of the work which was completed before 1925 is made in the Minister of Mines reports. However, reports for 1926, 1927 and 1928 note that diamond drilling was completed in the area by Cominco during these years.

No recorded work has been filed since then.

IV OWNERSHIP OF PROPERTY

McIntyre Porcupine Mines Ltd. entered into an agreement (Agreement 580, March 20, 1968) with Canzac Mines Ltd. whereby 40 mineral claims and 4 mineral leases were optioned to McIntyre.

Claims SAL 1 - 40 were staked for McIntyre by A. E. Angus on April 24, 1968; DAL 1 - 3; 4, 8; 9 - 20 were staked at later dates. For grouping arrangements, expiration dates, annual rentals, etc. see Table 1, 2 and Figures 1, 1A.

V GENERAL GEOLOGY

The holdings are underlain dominantly by sedimentary (Sinemurian) and volcanic (Rossland) rocks of lower Jurassic age. Siliceous intrusive rocks of the Nelson batholith (lower Cretaceous) outcrop to the north

and the west and the Rossland and Hall Formations of Lower Jurassic age are present to the south and east of the claims.

Erie Creek flows along the axis of a major anticline (Little, 1960). No major faulting is obvious in the area.

VI DETAILED GEOLOGY

A. General

The Sinemurian sedimentary rocks have been intruded and altered to hornsfels by the Nelson intrusives which outcrop as sills? and dikes and presumably underlie the sedimentary rocks (Figs. 2, 2A). Augite porphyrite to the Rossland formation probably also intrudes the Sinemurian sediments, although this has not been definitely established.

The dominantly sedimentary sequence in the north portion of the area is interrupted by silicic igneous (Nelson) rock between Skillet and McKay creeks. To the south of First Creek and to the south of Last Creek, basaltic volcanic rocks become locally prominent (Fig. 2). Occasional dikes of silicic volcanic rocks were noted in the sedimentary rocks.

B. The Sinemurian Rocks

The Sinemurian sequence ranges from fine grained argillaceous to arenaceous, poorly to well bedded. Because of the folding in the area, it is not possible to estimate thickness of this unit.

In the locale of the major copper geochemical anomaly (Fig. 3), the sedimentary rocks are altered to hornfelses, and are often silicified. The alteration has in many places obscured primary sedimentary features. These features are also marked by the presence of iron staining over the

majority of the sedimentary outcrops.

The Sinemurian rocks seem to be extensively altered only in the vicinity of the augite porphyrite and possibly near large areas of quartz feldspar biotite porphyry. For this reason the sedimentary rocks become less altered to the south.

There is 1 - 4% of possible syngenetic iron sulfide in the Sinemurian rocks.

C. The Augite Porphyrite

Augite porphyrite (Rossland formation) has mid grey green matrix with crystals to 1/8" of augite and hornblende. Occasionally phenocrysts of plagioclase are seen. Phenocrysts comprise generally from 15 - 30% of the rock, but may range up to 50%.

The ferromagnesian crystals are readily obvious on the light green weathered surface.

The porphyrite is probably intrusive into the Sinemurian sedimentary rocks, although conclusive evidence is lacking.

Some "augite porphyrite" may be recrystallized Sinemurian sedimentary rocks.

D. Nelson Intrusive & Related Rocks

The quartz porphyry is a white aphanite with 10 - 15% quartz phenocrysts and is probably intrusive into the Sinemurian sedimentary rocks. The quartz porphyry is intruded by a quartz-feldspar biotite porphyry with a dark blue mafic matrix. This porphyry is contemporaneous with and at times younger than a quartz-feldspar-biotite porphyry with a felsic matric. The two previously mentioned porphyries are generally

dike like in shape and are probably both younger than the augite porphyrite.

Granite and granite porphyry outcrop predominantly on the West side of the map area (Fig. 2). Inclusions of sedimentary rocks and the quartz-feldspar biotite porphyry with the mafic matrix have been found in the granite.

The ages of a fine to coarse grained feldspar porphyry and a feldspar ferromagnesian rock are uncertain.

E. Volcanic Rocks

The basalt which outcrops in the south of the map area has a dark blue matrix within which occasional plagioclase laths are visible. Amygdales (CO_3 filling) are common and the basalt can have phenocrysts of feldspar, pyroxene and occasional olivine. Age relationships were not determinable in the field. It is believed, however, that the basalt may be correlatable with the volcanics of the Rossland Formation.

Occasional dikes of acidic volcanics were encountered. Two lamprophyre dikes were located.

F. Structural Geology

According to H. W. Little (1960), Erie Creek flows along the axis of an anticline trending N30W. However, all closures inferred during field mapping trend N20E. This is similar to the trend of structures in the Salmo Pb-Zn area to the southeast. The reasons for this desparity are not known.

The only major fault positively identified was along Skillet

Creek. However, most major creeks in the claim area appear to coincide with rapid geological changes.

Cleavage and minor folds are rare in the map area. No cross-folding was seen in outcrop.

Fracturing is common and of variable azimuth and attitude.

G. Mineralization

1. General

The known copper mineralization consists of chalcopyrite and possibly occasional chalcocite in fractures in hornfelsic sedimentary rocks, augite porphyrite and rarely acidic to intermediate dikes (see Map 2, 2A).

The fractures are generally less than 1/16" width and the host rock walls may be bleached. Dominant directions of mineralized fracture systems are: N-NW steeply dipping W or E, and NE steeply dipping E. From a brief underground examination of two adits there is a strong possibility that the fracturing is subsidiary to northerly striking, steeply dipping faults.

Assays up to 0.9% Cu have been obtained from grab samples. Old workings at L 15 N + 800 W reveal that sulfide mineralization (pyrrhotite, chalcopyrite) is present in concentrated form (up to 60%). Unfortunately due to lack of outcrop it was not possible to ascertain the extent of this showing. Lack of secondary copper oxide development is striking and may be a function of pH and lack of carbonate in waters.

The fracture type mineralization between PL 8S-8N is complicated by multiple intrusions of dikes.

2. Recommendations

The fracture type mineralization should be investigated by:

1) trenching - to determine extent and continuity
2) detailed geology - to determine extent of dikes
3) drilling - to determine depth possibilities and the possible presence of mineralization in the intrusive at depth.

The mineralization on line 15 and 16 should be investigated by:

1) electromagnetic geophysics - to determine extent and continuity
2) trenching - to determine extent and continuity
3) drilling - if (1) and (2) are encouraging.

VII GEOCHEMISTRY

A. Stream Sediment Sampling

1. General

Limited stream sediment sampling was completed on the Canzac option. (Fig. 2)

From the data, histograms have been prepared and it is possible to present threshold values.

Metal	Threshold	Definitely Anomalous
hxZn	90	180
hxCu	50	100
hxMo	1	2
cxCu	3	6

2. Anomalous Areas

(a) Sandy Creek - This creek is strongly anomalous with hxCu values up to 720 p.p.m., hxMo to 13 p.p.m., and cxCu to 20 p.p.m. A cutoff is obtained for Mo 1500' above the Second Relief road, however hxCu values are still strongly anomalous. Some chalcopyrite bearing float was discovered in the creek.

(i) Recommendations - Sampling should be continued up the creek until a hxCu and cxCu cutoff is obtained. Systematic soil sampling and prospecting could delineate the source of the metals. The cause of the Mo cutoff should be determined.

(b) Sample L-5, 400' south of Last Creek - This sample is anomalous in both hxCu and hxZn.

(i) Recommendations - Sampling and prospecting should be continued up the creek to establish the source of the anomaly. It is probable that either Zn soil anomaly 1 or 3 (Fig. 3) or Cu soil anomaly B or C (Fig. 2) is the causal source, but this has to be determined.

(c) Sample D-2 - This sample is located on the north side of Grassy Creek (Fig. 2).

(i) Recommendations - The analytical result should be verified and further sampling continued.

Skillet Creek is also anomalous, as are creek in the south end of the claim group. Sampling should be continued.

B. Soil Geochemistry

1. Copper in Soils

The samples were collected just below the A - B soil horizon interface (Podzolic soils), dried, sieved to -80 mesh and analyzed. The upper limit of background fluctuation is 240 p.p.m. (Copper in soils histogram, Fig. 3). The anomalous population distribution is bimodal and it is probable that the range 200 - 400 p.p.m. represents a population intermediate between highly anomalous and background.

(a) Results - A 600' wide area between PL 30 S and 20 N has been outlined. Within this anomaly are four significantly anomalous areas up to 1000' long and 200' wide. Detailed geology and geochemistry has been completed within the area (Map 1A, 3A). Numerous adits were located and outcrops with fracture fillings of chalcopyrite can be correlated with highly anomalous areas. However, within Anomaly A, areas 3 and 4 required further explanation. Area 4 could be a result of downslope migration of metals from old workings 200 feet further west, but this remains to be demonstrated. While some chalcopyrite has been detected within Anomaly 3, it is not sufficient to explain the size of the anomaly.

Anomalies B and C are within areas of high zinc concentration.

(b) Recommendations - The source of anomalies A3, and A4 should be established by trenching and prospecting. If the soil cover is sufficient analyses of C soil horizon samples might indicate the source area.

Anomalies B and C should be investigated as part of the investigation of the zinc anomalies 1 and 2 listed below.

2. Zinc in Soils

(a) General - The samples were collected just below the A - B soil horizon interface, dried, sieved and analyzed.

The hxZn analyses delineate several possibly significant anomalous areas (Fig. 4).

(b) Recommendations - The detailed investigation of anomalies 1 - 3 (Fig. 4) should determine whether further work should be done.

The proposed future examination would involve C soil zone sampling, prospecting and trenching in the preceeding order. Self potential geophysics might be useful in indicating the source of the metals. Pb, Ag, and Mn analyses in anomalous and barren terrain should be completed to discover whether the areas are anomalous in these metals.

Zn anomaly 2 (Fig. 4) should be delineated to the west. It may be necessary to stake claims to the west of the present SAL claims in order to cover the anomaly.

VIII CONCLUSIONS

Geochemistry and prospecting have indicated the presence of copper mineralization on the Canzac option. Trenching, geophysics, geology and drilling may be required to assess the showings.

Stream sediment sampling has indicated the efficiency of this method in the Erie area. Brooks that are anomalous in copper, zinc and molybdenum have been located. Proposals for future work are contained in the report.

Soil sampling has resulted in the discovery of areas of anomalous concentrations of zinc. Further investigation is required.

IX REFERENCES

Little, H. W., 1960 Nelson Map Area, West Half, British Columbia (82 F W½) Memoir 308.

MacLeod, J. W., 1968 Geochemical Report Erie Group No. 2, Canzac Mines Option on Erie Creek, 7 miles Northwest of Salmo 49° 117° SE Nelson Mining Division

TABLE I

McINTYRE PORCUPINE MINES LIMITED

CANZAC OPTION

BRITISH COLUMBIA

CLAIM HISTORY

Claim		Group No.	Tag No.	Record No.	Date Recorded	Record in Name of	F.M.C. No.
Hattie	1	Erie #2	792121	10280	Aug. 4/67	Canzac Mine Ltd.	55735
	2	" "	792122	10281	"	"	"
	3	" "	792123	10282	"	"	"
	4	" "	792124	10283	"	"	"
	5	" "	792125	10284	"	"	"
	6	" "	792126	10285	"	"	"
	7	" "	792127	10286	"	"	"
	8	" "	792128	10287	"	"	"
	9	Erie #1	771243	10234	July 12/67	R. Sostad	55737
	10	" "	771244	10235	"	"	"
	11	" "	771245	10236	"	"	"
	12	" "	771246	10237	"	"	"
	13	" "	771247	10238	"	"	"
	14	" "	771248	10239	"	"	"
	15	" "	771249	10240	"	"	"
	16	" "	771250	10241	"	"	"
	17	" "	771251	10242	"	"	"
	18	" "	771252	10243	"	"	"
	19	" "	771253	10244	"	"	"
	20	" "	771254	10245	"	"	"
	21	" "	771255	10246	"	"	"
	22	" "	771256	10247	"	"	"
	23	" "	771257	10248	"	"	"
	24	" "	771258	10249	"	"	"
	25	Erie #2	792129	10288	Aug. 4/67	Canzac Mines Ltd.	55735
	26	" "	792130	10289	"	"	"
	27	" "	792131	10290	"	"	"
	28	" "	792132	10291	"	"	"
	29	" "	792141	10292	"	"	"
	30	" "	792142	10293	"	"	"
	31	" "	792143	10294	"	"	"
	32	" "	792144	10295	"	"	"
	33FR	Erie #2	792140	10296	"	"	"
	34	" "	792134	10297	"	"	"
	35	" "	792135	10298	"	"	"
	36	" "	792136	10299	"	"	"
	37	" "	792137	10300	"	"	"
	38	" "	792138	10301	"	"	"
	39	" "	792139	10302	"	"	"
	40FR	" "	792140	10303	"	"	"

TABLE I (Continued)

Mineral Lease	Group No.	Lot No's	Annual Work	Annual Rental	Due Date	Recorded in Name of
M.125 (Belle)	Erie #1	2461				
" (Florence)	" "	3237				
" (Rosa)	" "	2460				
" (Bully Boy)	" "	3238	692.00	86.50	Aug 18/69	R. Sostad
M.126 (Arnold)	Erie #2	4079				
" (Maud S)	" "	3662				
" (Ontario)	" "	3659				
" (St. Louis)	" "	12176				
" (Gordon)	" "	12175	704.00	88.00	Aug 18/69	R. Sostad
M.129 (Nelson)	Erie #2	12177				
" (Goodenough)	" "	5466				
" (Monte Carlo)	" "	1066				
" (Drum Lummon)	" "	5481				
" (Copper King)	" "	5153				
" (Dora)	" "	5152				
" (Homestake)	" "	3433	852.00	106.50	Oct 10/69	R. Sostad
M.151 (Eddie)	Erie #2	12186	128.00	16.00	June 10/69	A. E. Angus

TABLE I (Continued)

Claim	Group No.	Tag No.	Record No.	Date Recorded	Record in Name of	F.M.C. No.
SAL 1		742565	10999	April 24/68	A. E. Angus	43483
2	Erie #1	742566	11000	"	"	"
3		742567	11001	"	"	"
4		742568	11002	"	"	"
5		742569	11003	"	"	"
6		742570	11004	"	"	"
7		742571	11005	"	"	"
8		742572	11006	"	"	"
9		742573	11007	"	"	"
10		742574	11008	"	"	"
11		742575	11009	"	"	"
12		742576	11010	"	"	"
13		742577	11011	"	"	"
14		742578	11012	"	"	"
15		742579	11013	"	"	"
16		742580	11014	"	"	"
17		742581	11015	"	"	"
18		742582	11016	"	"	"
19		742583	11017	"	"	"
20		742584	11018	"	"	"
21		742585	11019	"	"	"
22		742586	11020	"	"	"
23		742587	11021	"	"	"
24		742588	11022	"	"	"
25		742589	11023	"	"	"
26		742590	11024	"	"	"
27		742591	11025	"	"	"
28		742592	11026	"	"	"
29		742593	11027	"	"	"
30		742594	11028	"	"	"
31		742595	11029	"	"	"
32		742596	11030	"	"	"
33		742597	11031	"	"	"
34		742598	11032	"	"	"
35		742599	11033	"	"	"
36		742600	11034	"	"	"
37		742601	11035	"	"	"
38		742602	11036	"	"	"
39		742603	11037	"	"	"
40		742604	11038	"	"	"

TABLE I (Continued)

Claim	Group No.	Tag No.	Record No.	Date Recorded	Record in Name of	F.M.C. No.
DAL 1 FR	Erie #2	920295	11311	July 12/68	A. E. Angus	55949
2	" "	920296	11312	"	"	"
3	" "	920297	11313	"	"	"
4		847581	11432	Aug 19/68	McIntyre Porc.Mines	67471
5		847582	11433	"	"	"
6		847583	11434	"	"	"
7		847585	11435	"	"	"
8		847584	11436	"	"	"
9		946801	11659	Nov 4/68	"	"
10		946802	11660	"	"	"
11		946803	11661	"	"	"
12		946804	11662	"	"	"
13		946805	11663	"	"	"
14		946806	11664	"	"	"
15		946807	11665	"	"	"
16		946808	11666	"	"	"
17		946809	11667	"	"	"
18		946810	11668	"	"	"
19		946811	11669	"	"	"
20		946812	11670	"	"	"

TABLE 2

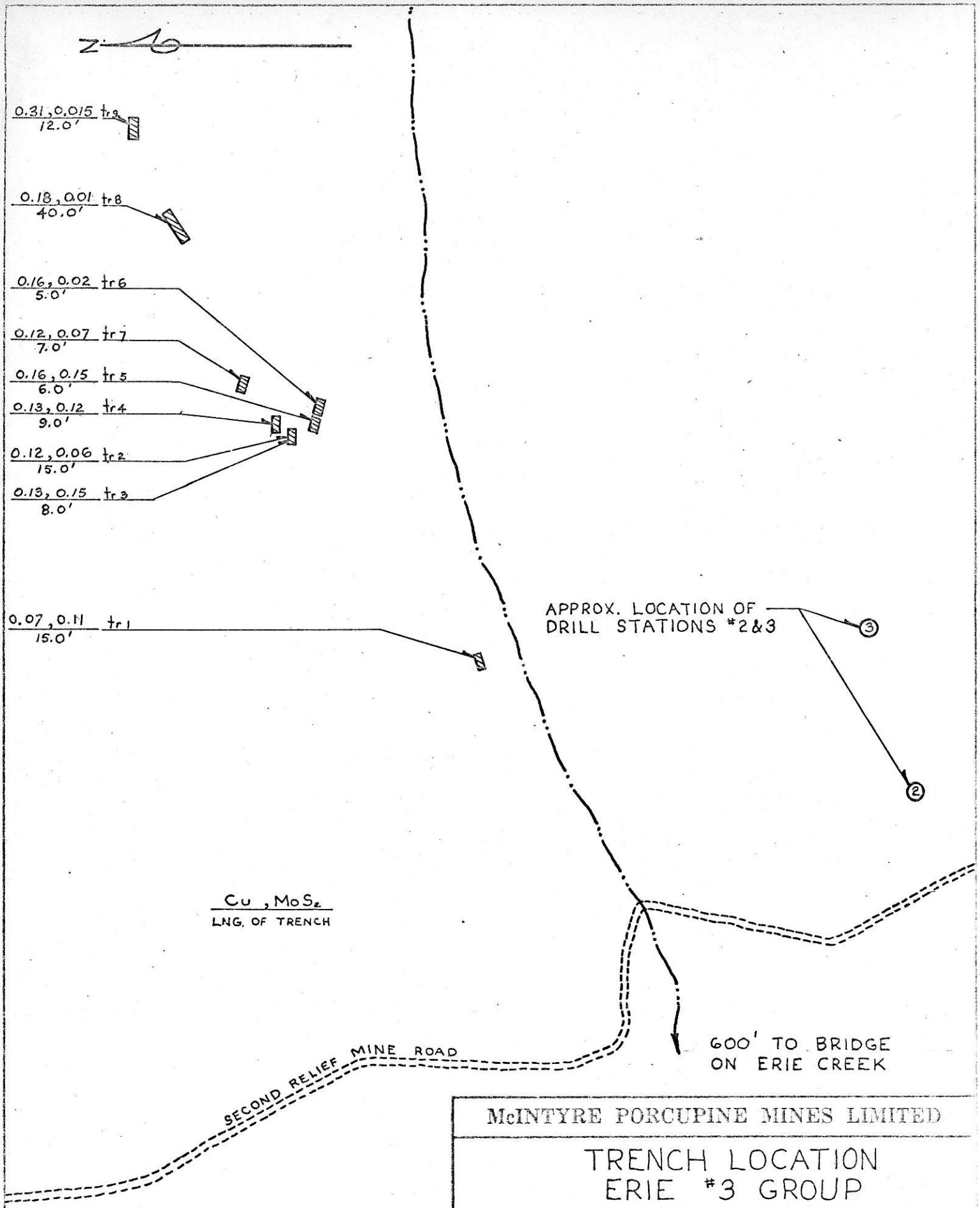
McINTYRE PORCUPINE MINES LIMITED

CANZAC OPTION

BRITISH COLUMBIA

ASSESSMENT WORK RECORD

Date	Claim No.	Work Reported	Work Recuired	Credit Balance	Due Date
		DAL CLAIMS			
	DAL 4-8				Aug 16/69
	9-20				Nov 4/69
		SAL CLAIMS			
	SAL 1, 3-40				Apr 24/69
		ERIE GROUP I			
	Erie Group I	July 12/68	$2,478.50	$11.50	July 12/69
		ERIE GROUP II			
	Erie Group II	July 12/68	$4,594.50		July 12/69



McINTYRE PORCUPINE MINES LIMITED

TRENCH LOCATION ERIE #3 GROUP

DATE DRAWN: JULY 21, 1969	SCALE: 1" = 200'
DRAWN BY: G.G.K.	N.T.S. 82 F/6