#4524

1974 Property Report

TITLE	LENNAC LAKE DRILL PROGRAM, March-April, 1974
AUTHOR	C.J. Hodgson
DATE	June, 1974
COMMODITY	Cu
LOCATION-Area	Babine Lake
-Mining Division	Omineca
-Coordinates	Latitude 54°45'N Longitude 126°19'W
-NTS	93 L 9, 16
CLASS	Prospect Drilled

AMAX VANCOUVER OFFICE

PD Box 28.

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SUMMARY

The Lennac Lake Copper Property, consisting of 132 claims (Thezar 1 - 132 inclusive) is located in Central British Columbia at latitude 54°45'N and longitude 126°19'. It is readily accessible via the Babine Lake Road and by 4-mile bush road constructed by AMAX in the fall of 1971.

The prospect was discovered by AMAX field crews in 1971, and was grid percussion drilled in 1973 under a joint venture agreement between Amax Potash Limited, Standard Oil Company of British Columbia, and the LUC Syndicate of Vancouver. The results of the percussion drilling were considered sufficiently encouraging to warrant a program of follow-up diamond drilling which is the basis of this report.

Between March 18 and April 7, 1974, a total of 3,017 feet were drilled in five holes utilizing a BQ wireline drill in the West Zone of the property. All holes were spotted within an area 1,000 feet in diameter which, on the basis of four 1973 percussion holes, grades +0.2% Cu. The aims of the drill program were (1) to test the +0.2% Cu zone to a depth of 600 feet, since several percussion holes showed improved copper grade towards the bottom at 300 feet; (2) to determine the reliability of percussion sample assays; and (3) to test the assumed westerly extension on the +0.2% Cu zone beneath Camp Lake.

Three vertical holes (LL-74-1, 2, 5) were drilled east of Camp Lake, and two inclined holes (LL-74-3, 4) were drilled beneath the lake from the east shore.

Assay highlights from the drilling are as follows:

Hole	Interval	Length		Grade
LL-74-1	14-60'	46'	@	0.25% Cu
	200-380'	180'	@	0.35% Cu, 0.003% Mo
	450-480'	30'	@	0.33% Cu, 0.013% Mo
LL-74-2	390-606'	216'	@	0.25% Cu, 0.01% Mo
	570-606'	36'	@	0.33% Cu, 0.01% Mo

LL-74-3	98-127.5'	29.5'	@	0.34% Cu, 0.003% Mo
	456-477'	21'	@	0.69% Cu, 0.005% Mo
	540-590'	50'	@	0.31% Cu, 0.006% Mo
LL-74-4	No significant intersections			
LL-74-5	310-390'	80'	@	0.28% Cu, 0.004% Mo
	540-590'	50'	@	0.26% Cu

Molybdenite is associated with copper in amounts ranging from 0.003% Mo to 0.013% Mo over the total width of the best copper sections. Composite samples grading +0.3% Cu were re-assayed for silver and gold. These elements ran <0.01% oz./ton and trace respectively.

Comparison of assays from percussion holes LL-73-6 with those in the upper 300 feet of diamond drill hole LL-74-1 suggest that the 1973 percussion assays should be upgraded by 10% of their respective values.

Detailed core logging revealed three separate intrusive phases on the property: early biotite-quartz-feldspar porphyry (BFP), porphyritic quartz diorite, and late post-mineral amphibole-quartz-feldspar porphyry (PMP). The first two phases are mineralized with pyrite, chalcopyrite and minor molybdenite, occurring as disseminations, in quartz veins and on "dry" hairline fractures. Both phases show moderate K feldspar-biotite alteration together with the adjacent intruded Hazelton andesite flows and pyroclastics. Post-Mineral Porphyry post dates both alteration and mineralization although minor molybdenite and chalcopyrite-bearing quartz veins are present. This phase was most prominent in LL-74-3 east of Camp Lake.

CONCLUSIONS AND RECOMMENDATIONS

The program can be considered a limited success in that a narrow (150 feet wide) zone grading 0.35% Cu was intersected in three of the five holes drilled. This higher grade zone within the +0.2% Cu zone dips 35 to 40° to the northeast and is traceable for about 1,000 feet down dip. However, continuity along strike has not been demonstrated. Assuming dimensions of 1,000 x 150 x 400 feet, the zone contains a possible 4×10^6 tons.

Cupriferous zones are preferentially located adjacent to intrusive contacts, although information is inadequate at present to say whether the main 0.35% Cu zone referred to above is localized by the Hazelton-BFP contact or by the BFP-PMP contact. On the basis of scant information from the 1973 percussion drilling it would appear that the northeastward dip of the main intrusive contact is due to tilting of the entire stock rather than to a quaquaversal doming of the stock.

Possible extensions of the 0.35% Cu zone exist north of LL-74-3 and west of LL-73-7, on the west side of the post-mineral porphyry phase beneath Camp Lake and at depth beneath LL-74-2 and further northeastward. It is conceivable that we are looking at the very top of a cylindrical porphyry system which shows topward thinning.

To test the above possibilities would require an additional three holes totalling about 2,000 feet; a westerly inclined hole spotted 400 feet north of LL-74-3, an extension of LL-74-2 to about 1,000 feet, and possibly a third hole inclined easterly from the western shore of Camp Lake.

INTRODUCTION

General Statement

This report presents the results of a diamond drilling program conducted on the Lennac Lake property in March and April, 1974, during which five holes were drilled for a total footage of 3,017 feet. The program was carried out under a joint venture agreement between Amax Potash Limited, Standard Oil Company of British Columbia, and the LUC Syndicate of Vancouver.

The Lennac Lake property is located in Central British Columbia at latitude 54°45'N, longitude 126°19'. It is readily accessible via the Babine Lake Road and by a four mile road constructed by AMAX in the fall of 1971 (Figure 1).

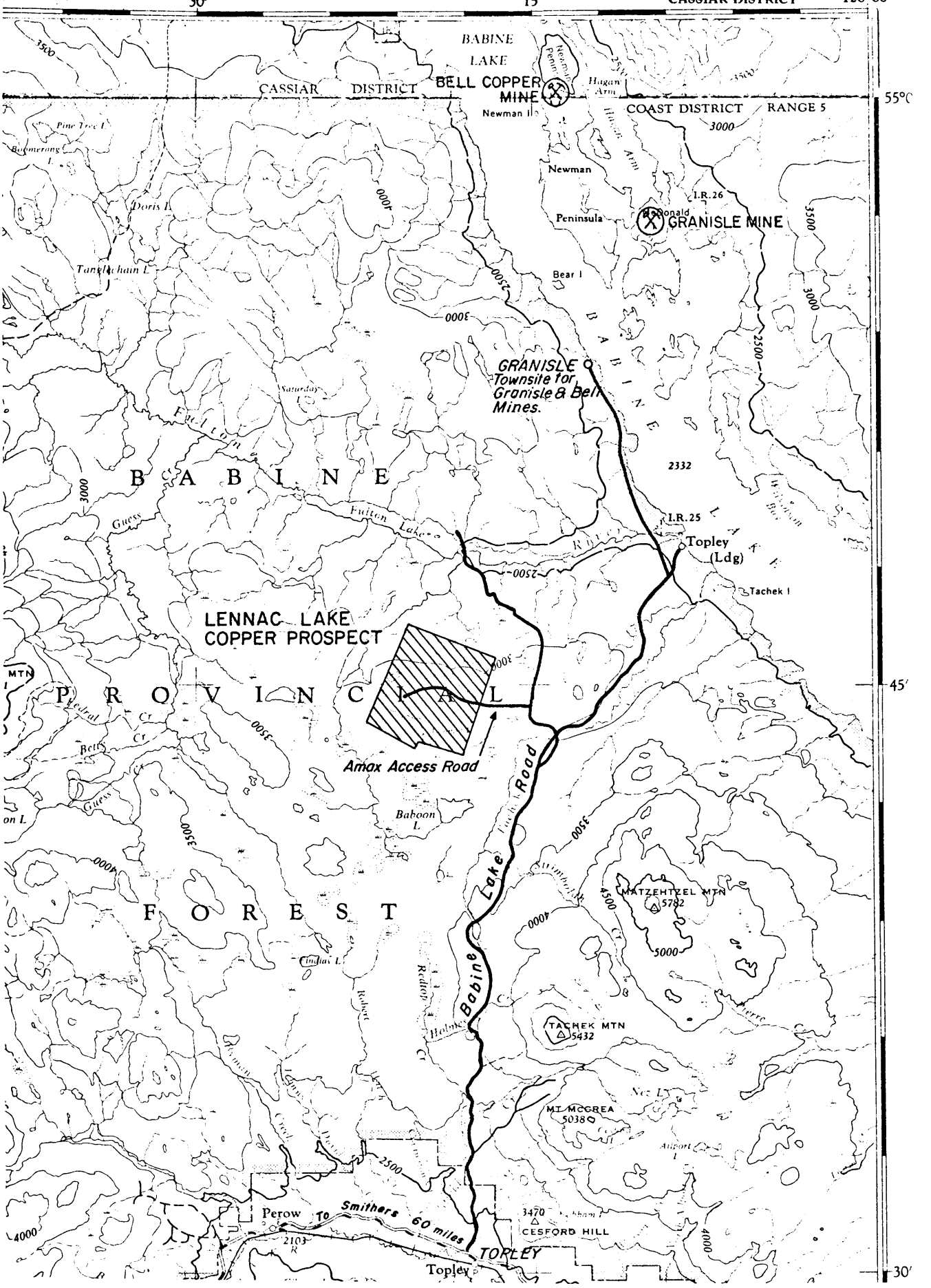
The prospect was discovered by AMAX prospecting crews in 1971. Detailed geological mapping, geochemical sampling and induced polarization surveys carried out in 1971 and 1972 indicated the presence of a porphyry copper-type target similar in gross aspects to the currently producing Granisle and Bell Copper Mines in the Babine Lake area. In 1973, 44 percussion holes totalling 11,360 feet were drilled on a grid basis in the West and East Zones. The main conclusions derived from this program were as follows:

1. The West (Main) Zone contains an area about 2,500 feet in diameter which grades +0.1% Cu.

2. Within the above area is a crescent-shaped area about 1,000 feet in diameter which contains +0.2% Cu. Four percussion holes in this area all graded between 0.20% and 0.22% Cu over their 300-foot length.

3. Two holes in the East Zone 400 feet apart averaged 0.17% Cu and 0.11% Cu respectively.

Background information to the current program is detailed in AMAX reports by Leary (1972), DePaoli (1972) and Silversides (January, 1973; December, 1973).



N.T.S. Ref. 93L/9,16

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROSPECT

OMINECA MINING DIVISION — BRITISH COLUMBIA

LOCATION & ACCESS

SCALE: 1/250,000.

Fig.1

1974 Program

Results of the 1973 percussion drilling in the West Zone were considered sufficiently encouraging to warrant additional testing in the form of BQ diamond drilling, the main purposes of which were: 1) To determine the reliability of percussion sample assays.

2) To test the +0.2% Cu zone to a depth of at least 600 feet, since several percussion holes within the zone showed improved grades at depth.

3) To test the assumed westerly extension of the +0.2% Cu zone beneath Camp Lake.

The drill contract was let to D.W. Coates Enterprises Ltd. of Vancouver, who utilized a BQ wireline drill capable of a depth penetration of 1500 feet.

Drill sites were located as follows:

- one vertical hole adjacent to LL-73-6 to determine the vertical extent of +0.2% Cu grades at the bottom of that hole, and to provide a comparison between assays of percussion and diamond drill samples
- one vertical hole in the triangle between LL-73-4, 5 and 21, all of which percussion holes average +0.2% Cu
- one vertical hole between LL-73-21 and 22 to determine the north-easterly extent of the +0.2% Cu zone, whose major axis trends in that direction, and to provide a check on the better-than-average Mo and Cu grades towards the bottom of LL-73-21
- two holes beneath Camp Lake to test (a) the assumed westerly extension of the +0.2% Cu zone beneath the lake, and (b) to test the central induced polarization chargeability low area in the south part of the lake. By analogy with other Babine Lake copper deposits, a central low-sulphide, bornite zone was considered to be a reasonable possibility in this area. Due to the soft

condition of the ice at the time of drilling, both of these holes were drilled as -45° inclined holes from the east shore of the lake, rather than as vertical holes through the ice.

Supervision was provided by the writer, assisted by N. Sworyk of Houston, B.C. Core was split, bagged, and shipped to Rossbacher Laboratory, Burnaby for Cu analysis. Samples with ≥0.3% Cu were subsequently assayed for Mo. Drill core from the project is currently in storage at the AMAX warehouse in Smithers. A total of 3,017 feet were drilled in five holes between March 18 and April 7, 1974. Core recovery was essentially 100 per cent in all holes except LL-74-2, where core loss in two shear zones between 108-120 and 150-209 feet reduced over all recovery to 96%.

Claim Status

The Lennac Lake property consists of 132 claims known as Thezar #1 - #132 inclusive. The claims were regrouped (Groups A, B, C, D) on July 18, 1973.

Cost of the March, 1974 drilling program was applied as three years' assessment to each of the 58 centrally located claims (see Table 1, Figure 2). Rental payments were made on the same claims to cover the three year period July 27, 1974 to July 27, 1977. One year's rental payment was made on each of the peripheral claims, together with one year s assessment on 29 of the 74 peripheral claims.

TABLE I

STATUS OF THEZAR CLAIMS AS OF JULY 19, 1974

Claim Number	Record Number	Anniversary Due Date	Rental Due	Group
Thezar 1-10	100129-100138	July 27,1975	July 27,1975	No. 2
11-22	100139-100150	July 27,1975	July 27,1975	No. 4
23-25	100151-100153	July 27,1975	July 27,1975	No. 2
26	100154	July 27,1981	July 27,1977	No. 2
27	100155	July 27,1977	July 27,1975	No. 2
28	100156	July 27,1981	July 27,1977	No. 2
29	100157	July 27,1977	July 27,1975	No. 2
30	100158	July 27,1981	July 27,1975	No. 1
31	100159	July 27,1975	July 27,1975	No. 2
32	100160	July 27,1981	July 27,1977	No. 1
33	100161	July 27,1975	July 27,1975	No. 4
34	100162	July 27,1981	July 27,1977	No. 1
35	100163	July 27,1975	July 27,1975	No. 4
36	100164	July 27,1981	July 27,1977	No. 1
37	100165	July 27,1975	July 27,1975	No. 4
38	100166	July 27,1981	July 27,1977	No. 1
39	100167	July 27,1975	July 27,1975	No. 4
40	100168	July 27,1981	July 27,1977	No. 1
41	100169	July 27,1975	July 27,1975	No. 4
42	100170	July 27,1976	July 27,1975	No. 3
43	100171	July 27,1975	July 27,1975	No. 4
44	100172	July 27,1976	July 27,1975	No. 3
45	100173	July 27,1975	July 27,1975	No. 2
46	100174	July 27,1975	July 27,1975	No. 2
47	100175	July 27,1981	July 27,1977	No. 2
48	100176	July 27,1981	July 27,1977	No. 2
49	100177	July 27,1983	July 27,1977	No. 1
50	100178	July 27,1983	July 27,1977	No. 2
51	100179	July 27,1983	July 27,1977	No. 1
52	100180	July 27,1983	July 27,1977	No. 2
53	100181	July 27,1983	July 27,1977	No. 1
54	100182	July 27,1984	July 27,1978	No. 1
55-62	100183-100190	July 27,1983	July 27,1977	No. 1
63-66	100191-100194	July 27,1976	July 27,1975	No. 3
67	100195	July 27,1975	July 27,1975	No. 2
68	100196	July 27,1975	July 27,1975	No. 2
69	100197	July 27,1981	July 27,1977	No. 2
70	100198	July 27,1981	July 27,1977	No. 2
71	100199	July 27,1983	July 27,1977	No. 2
72	100200	July 27,1983	July 27,1977	No. 3
73	100201	July 27,1983	July 27,1977	No. 2

TABLE I - Continued

Claim Number	Record Number	Anniversary Due Date	Rental Due	Group
Thezar 74-76	100202-100204	July 27,1983	July 27,1977	No. 3
77-84	100205-100212	July 27,1983	July 27,1977	No. 1
85	100213	July 27,1980	July 27,1977	No. 1
86	100214	July 27,1980	July 27,1977	No. 1
87	100215	July 27,1976	July 27,1975	No. 3
88	100216	July 27,1976	July 27,1975	No. 3
89	100217	July 27,1975	July 27,1975	No. 2
90	100218	July 27,1975	July 27,1975	No. 2
91-94	100219-100222	July 27,1983	July 27,1977	No. 3
95-104	100223-100232	July 27,1983	July 27,1977	No. 1
105	100233	July 27,1981	July 27,1977	No. 1
106	100234	July 27,1981	July 27,1977	No. 1
107-110	100235-100238	July 27,1976	July 27,1975	No. 3
111	100239	July 27,1975	July 27,1975	No. 2
112	100240	July 27,1975	July 27,1975	No. 2
113	100241	July 27,1976	July 27,1975	No. 3
114	100242	July 27,1975	July 27,1975	No. 2
115	100243	July 27,1976	July 27,1975	No. 3
116	100244	July 27,1975	July 27,1975	No. 2
117	100245	July 27,1976	July 27,1975	No. 3
118	100246	July 27,1975	July 27,1975	No. 2
119	100247	July 27,1976	July 27,1975	No. 3
120	100248	July 27,1975	July 27,1975	No. 2
121	100249	July 27,1976	July 27,1975	No. 3
122	100250	July 27,1975	July 27,1975	No. 2
123-132	100251-100260	July 27,1976	July 27,1975	No. 3

RESULTS OF THE DRILL PROGRAM

The following remarks are based on the drill hole logs and sections, assay data, and thin section descriptions which are reproduced as appendices to the report, and on Figure 3 which presents a compilation of the data in plan and profile.

Assay Results

Hole	Interval	Length		Grade
LL-74-1	14-60'	46'	@	0.25% Cu
	200-380'	180'	@	0.35% Cu, 0.003% Mo
	450-480'	30'	@	0.33% Cu, 0.013% Mo
LL-74-2	390-606'	216'	@	0.25% Cu, 0.01% Mo
	570-606'	36'	@	0.33% Cu, 0.01% Mo
LL-74-3	98-127.5'	129.5'	@	0.34% Cu, 0.003% Mo
	456-477'	21'	@	0.69% Cu, 0.005% Mo
	540-590'	50'	@	0.31% Cu, 0.006% Mo
LL-74-4	No significant intersections			
LL-74-5	310-390'	80'	@	0.28% Cu, 0.004% Mo
	540-590'	50'	@	0.26% Cu

The +0.3% Cu intersections in the middle portion of LL-74-1, in the upper portion of LL-74-3, and at the base of LL-74-2 outline a zone 100-150 feet thick which dips moderately (35-40°) to the northeast and extends down dip for a distance of 1,000 feet. The zone is slightly transgressive to the main BFP-Hazelton contact, occurring entirely within BFP in LL-74-3, straddling the BFP-Hazelton contact in LL-74-1, and occurring largely (?) within Hazelton andesites in LL-74-2, which hole was terminated within the +0.3% Cu zone before the main BFP contact was reached (Figure 3).

This zone was not intersected in either of the two diamond drill holes south of the above panel, although the bottom 50 feet of percussion hole LL-73-5 graded 0.31% Cu. North of the panel, only percussion hole LL-73-7 was drilled anywhere near the presumed strike

extension of the zone. This hole was drilled entirely in Hazelton volcanics, and although grades are low throughout, there is an indication of increasing grade towards the bottom.

Thus a volume of rock measuring 100 feet thick by 1000 feet in down dip extent by, say, 400 feet (?) in strike length, equivalent to about 4×10^6 tons, grading 0.35% Cu and 0.005% Mo, has been indicated by the recent drilling.

Comparison of Percussion vs. Diamond Drill Assay Results

Drill hole LL-74-1 was spotted adjacent to LL-73-6 to test, among other things, the assay variance between percussion chip and split drill core samples. The mean assay value over 283 feet (17-300 feet depth) assayed in LL-73-6 was 0.21% Cu, whereas the mean assay value over 286 feet (14-300 feet depth) in LL-74-1 is 0.24% Cu. To determine whether these are statistically significant differences or whether they can be accounted for by a high assay variance between individual 10-foot veins, a Student's "t" test was performed on the two sets of assay data, according to the formula

$$t = \frac{\bar{X}_1 - \bar{X}_2}{Sp\sqrt{(1/N_1) + (1/N_2)}}$$

where $\bar{X}_1 = 0.2075\%$ Cu

$\bar{X}_2 = 0.2428\%$ Cu

$N_1 = 28$ samples

$N_2 = 29$ samples

$$Sp = \sqrt{\frac{\left(\Sigma X_{1i}^2 - \frac{(\Sigma X_{1i})^2}{N_1}\right) + \left(\Sigma X_{2i}^2 - \frac{(\Sigma X_{2i})^2}{N_2}\right)}{N_1 + N_2 - 2}}$$

Calculating, $t = 1.096$ for $N_1 + N_2 - 2 = 27$ degrees of freedom, (from Dixon and Massay, 1957, Table A-5), $t_{.80} = 0.855$, and $t_{.90} = 1.314$.

Thus we can be reasonably certain (i.e. about 85% certain) that the two populations are different. However, since the two holes were drilled a full 25 feet apart, we cannot say whether the difference in population mean is due entirely to differences in the two drilling and sampling methods, or to real differences in copper content of the two holes, or to a combination of these factors.

Tentatively, I would conclude that it is fairly safe to upgrade the 1972 percussion assays by 10% of their value. Such a minimal increase, needless to say, has little effect on the economics of this situation.

Geological Aspects of the Deposit

Several modifications of the previous geological interpretation are required by the drill data. The intrusive stock is somewhat more complex than thought previously in that it is now known to consist of three phases: biotite-quartz-feldspar porphyry (BFP), porphyritic quartz diorite (PQD), and post-mineral amphibole-quartz-feldspar porphyry (PMP), in sequence from oldest to youngest.

Biotite-quartz feldspar porphyry is the dominant phase, and may be the only phase exposed in outcrop. It consists of 20-30% euhedral plagioclase phenocrysts ($\leq$ 1 cm.), 2-10% euhedral quartz phenocrysts ($\leq$ 8 mm.), and 5% biotite (5 mm.). The latter consists of both single chestnut-coloured crystals, and flaky aggregates of green crystals. The latter appear to be pseudomorphs after amphibole, and display typical amphibole rhomb-shaped cross sections. The groundmass is a fine grained mosaic of K-feldspar (25-35%), plagioclase (5%), quartz (25%), with accessory green biotite and chlorite.

Porphyritic quartz diorite (PQD) occurs at depth in holes LL-74-4 and LL-74-5. It differs from BFP in having a slightly coarser groundmass, and smaller and fewer phenocrysts. It is much less uniform in texture, with irregularly alternating sections rich in, and almost devoid of phenocrysts. Mafics display a crude to well-defined foliation which is at high angles to the core axis in

LL-74-5. K-feldspar content of the matrix is low ($\lesssim$ 10%), and where present leaves the impression of being introduced from adjacent quartz-K feldspar veins. Porphyritic quartz diorite post-date BFP, since numerous BFP fragments were observed as inclusions in this phase in LL-74-5. However, no BFP inclusions were found in the PQD section in LL-74-4.

Post-mineral porphyry (PMP) occurs over a length of 290 feet in LL-74-3, and as a few narrow dykes in LL-74-1 and LL-74-5. It is very similar in appearance to BFP, but in contrast to the latter has an aphanitic to very fine-grained dull grey matrix and phenocrysts of plagioclase ($\lesssim$ 1 cm., 25%), quartz ($\lesssim$ 8 mm., 6%), hornblende (5%), biotite (3%), and apatite (<1%). The rock forms sharp contacts with BFP and truncates quartz-K feldspar-sulphide veins in the latter. BFP inclusions in PMP are common. The phase is very fresh and is the only one in which amphibole is completely unaltered. Large apatite phenocrysts are common in minor amounts in this phase, but were not noted in BFP.

All intrusive phases are texturally more akin to the Tahtsa Lake area porphyries than to the Babine Lake porphyries, and an age date of 77 m.y. on the Lennac Lake porphyry by N. Carter of the B.C. Department of Mines supports this observation. This date is identical to one obtained from the Ox Lake porphyry in the Tahtsa Lake area, and contrasts with the standard 50-55 m.y. dates obtained from other Babine Lake porphyries.

In terms of alteration all five holes were drilled within a moderately well-developed biotite-K feldspar (potassic) zone of alteration. Although the drill logs in a number of places refer to abundant chlorite within the Hazelton flows and fragmentals of andesitic composition, thin sections showed most of this to be fine grained green biotite, which together with plagioclase makes up the bulk of the rock. In BFP and PQD, secondary biotite occurs as fine grained clusters which are pseudomorphous after amphibole. In only

two thin sections (LL-74-4, 426.5', 524') was any primary amphibole found, the reason for this probably being that both sections are from the low-sulphide core zone of the deposit where potassic alteration is typically weaker (Carson and Jambor, CIM Bull. February, 1974). Biotite occurs rarely in veins; for example, at 142 feet in LL-74-3. Introduced K-feldspar is largely confined to veins (although where a good stockwork is developed may partially fill the intervening areas), forming selvages to quartz veins, occurring alone or with one or several of the minerals; pyrite, chalcopyrite, epidote, chlorite and carbonate.

Other widespread alteration products include sericite, clay, and epidote. Sericite alteration results in a distinctive apple green colouration of the plagioclase phenocrysts in the intrusive rocks. In places it is pervasive (e.g. LL-74-1), but more commonly it is localized over several feet adjacent to barren quartz-ankerite shear veins and adjacent to contacts (e.g. in PMP adjacent to BFP in LL-74-3, and in BFP adjacent to PQD in LL-74-4). Clay alteration is manifested by a chalky opaque appearance of the plagioclase, and is localized within and adjacent to late stage fractures. Epidote is largely restricted to disseminations and veinlets in andesite, where it is present up to 1/2% and co-exists with K-feldspar, chlorite, carbonate, pyrite and magnetite.

Mineralization consists of chalcopyrite, molybdenite, pyrite, magnetite and rare fluorite, occurring as disseminations, in quartz veins and in dry hairline fractures in BFP, PQD and Hazelton volcanics. The sulphide distribution on average is as follows: 25% in quartz veins, 50% on minor fractures, and 25% disseminated in the rock. Minor skarn development in Hazelton volcanics was noted in one 3.5 foot section between 458 and 461.5 feet in LL-74-3. Here, up to 10% chalcopyrite and 15% pyrite occur with abundant epidote and magnetite within an andesite lense in PMP.

Chalcopyrite is the only copper sulphide mineral present and occurs in roughly comparable amounts in all units except the PMP, where Cu assays never exceed 0.1%. Chalcopyrite generally tends to be concentrated near contacts: the BFP - andesite contact in LL-74-1 and 2, the PMP-BFP contact in LL-74-3, and PFP - PQD contacts in LL-74-4 and 5.

Pyrite distribution is outlined in fair detail by the induced polarization survey. Proceeding outwards from the central I.P. low, pyrite content in the center (LL-74-4) is about 0.5% with a pyrite/chalcopyrite ratio of 1:1-2. In the best copper sections (e.g. LL-74-1, 3), pyrite averages about 1% with pyrite/chalcopyrite $\underset{\sim}{\sim}$ 1/1. In andesites, pyrite jumps to 3-6% with pyrite/chalcopyrite $\underline{\geq}$ 5/1.

Molybdenite occurs in widely-spaced quartz veins, generally without associated chalcopyrite. No particular distribution pattern is evident, except that molybdenite veins appear to be most abundant in LL-74-2, and this is reflected in the slightly higher assays there (average 0.010% Mo) compared to mineralized sections in LL-74-1 and 3 (average 0.003% Mo).

Minor 1 mm. wide quartz-magnetite veinlets occur locally in the drill core. These appear to be late-stage veinlets which cut cupriferous and pyritic veins. In the vertical holes they lie at low angles to the core axis. For the most part they are localized within andesite though a few occur in BFP in LL-73-3 and LL-73-4.

A number of major shear zones were intersected in the drill core, namely at:

LL-74-1	407-429'
	507.5-534.5'
LL-74-2	108-120'
	150-209'
	368-370'
LL-74-3	69-90'
	417-456'
	472.5-488'

LL-74-4	339-341'
	372-404'
	571-572'
LL-74-5	40-43'
	457-458'
	510-528'

Only those measuring at least 1-foot wide are listed above, but there are probably twice as many zones of lesser width. The 1-2 foot zones listed above are for the most part entirely gouge, whereas the wider ones are composed of alternating gouge and blocky sections. No attempt has been made to portray these faults in Figure 3 since attitudes are unknown. Suffice it to say that the area has been subjected to a great deal of post intrusive faulting.

DISCUSSION

Ore Guides

Several features were noted in the core that bear a direct relationship to copper grades, notably the abundance of quartz veins and the degree of "pinking" (K-feldspar veining) in the rocks. These features were particularly noticeable in LL-74-1, where both pinking and quartz veining reached a maximum intensity in the best mineralized section and tapered off above and below.

On a larger scale, results of the recent drill program would suggest that intrusive contacts are an important guide to cupriferous zones. Holes LL-74-1 and 2 (Figure 4) would suggest that perhaps the BFP-Hazelton contact is the most important, whereas LL-74-3 points to the importance of the BFP-PMP contact, and holes LL-74-4 and LL-74-5 indicate slightly increased copper content at the outer contacts of the PQD phase. It is quite conceivable that sulphide introduction was associated with each intrusive pulse; this is suggested by the duplication of cupriferous zones in LL-73-6 and LL-74-1, one of which may be related to the BFP, the other to the PMP.

Potential

The recent drilling has considerably reduced the probable size of the +0.2% Cu zone east of Camp Lake, although the results of LL-74-3 suggest that the zone might be more extensive under the lake than previously assumed.

The only indication of higher grade material within this zone consists of sections grading 0.35% Cu in holes LL-74-1, 2 and 3. Figure 3 portrays these assay sections as samples of a continuous zone which dips moderately (35 - 40°) eastward; however no lateral continuity north and south of this east-west section has been demonstrated.

If the zone extends south to the vicinity of LL-74-4 and 5; it must be either considerably narrower or dip more steeply. The zone may continue to the northwest of LL-73-7 (beneath Camp Lake) where information is lacking.

Other possible extensions of the zone are even more hypothetical. These include (a) wrapping around the upper contact of the main PMP plug beneath Camp Lake, and extending as a narrow limb down the west side of the plug, and (b) thickening of the eastern limb at depth, since the zone was not completely penetrated by LL-74-2. These possibilities are suggested in Figure 3. What I would like to suggest is that we are looking at the very top of a cylindrical porphyry stem which shows thinning of the ore zone towards the top, analogous to the San Manuel deposit.

To test this possibility would require an additional inclined hole beneath Camp Lake spotted say, 400 feet north of LL-74-3, an extension of LL-74-2 to 800 - 1,000 feet, and possibly a third hole in li ed easterly from the western shore of Camp Lake. Total additional footage would be about 2,000 feet.

June, 1974
AMAX Vancouver Office

C.J. Hodgson

APPENDIX I

STATEMENT OF EXPENDITURES

Expenditures to July 18, 1974

Staff salaries	$2,350.55
Fringe costs on above	383.14
Wages - temporary field personnel	2,000.00
Fringe costs on above	134.00
Telephone/Radio telephone	166.25
Reproduction of maps	181.02
Hauling of tractor, shipping	520.10
Diamond drilling	31,977.05
Contractors - non technical	1,754.50
Field materials and supplies	148.03
Maintenance, rental and operation of equipment	1,372.18
Assays	1,220.80
Project travel	672.55
Operator's area office overhead	4,343.00
Claim rental fee and application for assessment work	2,622.00
TOTAL	$49,845.17

APPENDIX II

DRILL HOLE LOGS

DATE: 5-1-59

Form#DL 1

LL-74-1

Company AMAX Potash Limited
Mining Division Omineca
Geographic Coordinates 54°45'N Lat. 126°19'W Long.

Project #515
Property Lennac Lake
Started March 25,1974
Completed March 26,1974
Logged by C.J.Hodgson

Bearing -
Inclination -90°
Depth 603'

Sheet1 of 5 Hole No.
Coordinates 114+00N 76+25E
Altitude 40' above lake

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
0	14					Casing
						14-206.5
14	20			.21	-	Dull grey-green, andesite, fine grained,
20	30			.20	-	- local plagioclase phenocrysts (2mm. 5-15%)
30	40			.24	-	- locally subtle breccia texture apparent (flow brecci
40	50			.29	-	- chloritized throughout. Minor epidote in disseminate
50	60			.33	.001	spots and quartz veins
60	70			.11	-	- quartz vein stockwork throughout. Veins 1 mm. to 4 c
70	80			.17	-	wide (av. 5 mm.)., 10-15 per foot, predominantly
80	90			.26	-	at 45° and 0-10° to core axis. Veins contain py,
90	100			.23	-	cpy, mag, moly. Quartz-magnetite veins, 1-2 mm.,
100	110			.14	-	parallel to core axis are late-stage, cutting
110	120			.12	-	all other veins. Vein quartz comprises 2-4%
120	130			.16	-	of rock between 14 and 182' and 5% of rock between
130	140			.17	-	182 and 206.5'. Some veins have drusy cavities
140	150			.15	-	- sulphides total about 3%, with py/cpy approx. 5/1.
150	160			.17	-	occur on 1 mm. fractures, in quartz veins and
160	170			.17	-	disseminations
170	180			.15	-	
180	190			.11	-	
190	200			.15	-	30-40' minor magnetite-cpy-py veins at low angles
200	210			.41	.001	(< 10°) to CA
						40' trace moly in quartz vein
						56-61' weak shearing and calcite veins

Sheet / of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
210	220			.19	.003	145.5' Bleached andesite adjacent to quartz-ankerite vein
220	230			.14	.001	158-168' Magnetite veinlets
						173-174' Bleached andesite
						206.5-219 Biotite-Feldspar Porphyry (BFP)
						- Upper contact at 20° to CA. Rock consists of 35% plagioclase phenocrysts to 1 cm. (av. 5 mm.), 5% biotite phenocrysts (5 mm.) 1% amphibole phenocrysts (8 mm.) 2% quartz phenocrysts 57% fine grained groundmass
						- Predominant alteration is weak-moderate intensity, apple green sericitization of plagioclase, with cloudy clay (?) alteration of plagioclase in patches and adjacent to fractures
						- Vein quartz is 5% of rock. Sulphides total approx. 3%, Py/cpy = 1-2/1. Rare moly (e.g. 215.5'). Sulphides occur in quartz veins (25%), on micro fractures (50%) and as disseminations (25%)
						219-224.5
						- Post-mineral biotite feldspar porphyry. Sharp upper contact at 45°. Similar to main porphyry, but plagioclase phenocrysts only 15-20%. Matrix 75-80%, darker grey, finer grained, much less altered than at 206.5 - 219.
						No quartz veins. Traces disseminated py. cpy.

Hole No. Sheet 2 of

Footage		Core Rec	% Rec	total % Cu	total % Mo	Remarks
230	240			.21	.002	224.5 - 242.5 As 206.5-219, but grn. sericite alteration is more intense, with relict patches of
240	250			.44	.002	white clay alteration of plagioclase
250	260			.45	.004	-quartz veins 5-7%, many at 0° to CA
260	270			.63	.003	-minor barren quartz-carbonate (ankerite?) veins occur in this section and at 206.5-219, at 070° to CA.
270	280			.30	.002	These cut other quartz veins and are up to 1" wide.
280	290			.42	.003	234' - K-feldspar-quartz-moly vein
290	300			.32	.007	242.5-269.5 Andesite
						Upper contact @ 45° to CA, lower at 30° to CA
300	310			.36	.002	Quartz veins very abundant, about 10%. Py/cpy approx.
						1-2/1. Total 3% sulphides. Rare late mag-quartz
310	320			.29	.001	veins.
320	330			.36	.002	247.5'- 4" quartz vein with abundant pyrite
330	340			.38	.001	269.5-336 BFP
						Alteration less than 224.5-242.5. Mainly white clay alteration.
						Py/cpy approx. 1/1-2. Total approx. 3% sulphides
						Quartz veins mainly 30-60 and 0° to CA, about 5%, mainly < 1/2" (av. 1/4")
						327-336' - Schistose towards contact
						330' - 2" quartz vein with abundant py, no cpy. vuggy.

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						336-376 Andesite
340	350			.52	.002	Upper contact at 45° to CA, lower at 35° to CA, 5%
350	360			.35	.002	quartz veins
360	370			.35	.004	Sulphides 3-4%, py/cpy approx. 1/1
370	380			.23	.003	
380	390			.06	.002	376-603 BFP
390	400			.09	-	-Weak to moderate clay-sericite alteration of feldspar,
400	410			.15	-	local pinking adjacent to quartz veins @ 386', 397-8',
410	420			.13	-	403' is hematite.
420	430			.32	.002	
430	440			.16	-	-1% sulphides, py/cpy approx. 1/1
440	450			.16	-	
450	460			.43	.005	-quartz veins 3% to 467 , then about 1% between 467' and 603'
						380-385' Finer grained lenses at 45° to CA (1-4" thick). Inclusions?
						395-407' White clay alteration increases towards fault zone
						407-422' Rock is gouged, sheared, rubbly
						422-426' 5% quartz veins, with 2% cpy
						426-429' clay gouge
						422-575' predominant alteration is weak-intense apple green sericitization of plagioclase
						445' 6" clay gouge
						450-455' Quartz-carbonte veins to 1" in sericitized BFP (healed fault zone?)

Hole No. / Sheet 4 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						456.5' Minor moly disseminated in 3" quartz vein
460	470			.32	.018	
470	480			.25	.017	467-603' Quartz veins decrease to approx. 1%,
480	490			.12	-	sulphides 1/2-1% (cpy > py). Green sericit
490	500			.08	-	alteration continues strong to 575',
500	510			.11	-	weakens thereafter
510	520			.23	-	
520	530			.17	-	476-476.5' sericite-clay gouge
530	540			.08	-	
540	550			.08	-	507.5-508' Sericitized shear zones @ approx. 45°
550	560			.10	-	513-514' to CA " "
560	570			.07	-	518-519' " "
570	580			.19	-	523-527' " "
580	590			.20	-	528-531' " "
590	603			.12		533-534.5' " "
						543.5-545' clay and sericite shear
						566.5 4" andesite inclusion with 5% quartz veins most of which terminate at edges of inclusion
						584-603' Last box of core. Generally fresher-looking, fewer sulphides and quartz veins.
						603 END OF HOLE

Hole No.
Sheet 5 of

DATE: 5-1-59

Form#DL 1

LL-74-2

Company AMAX Potash Limited
Mining Division Omineca
Geographic Coordinates

Project #515
Property Lennac Lake
Started March 27,1974
Completed March 31,1974
Logged by C.J.Hodgson

Bearing
Inclination -90°
Depth 606'

Sheet 1 of 4 Hole No.
Coordinates
114+00N
80+00E
Altitude 15' above lake

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						0-26 Casing
26	40			.13	.004	26-298 Dull grey andesite, variable texture from fine grained equigranular to porphyritic. For the most part fragmental (flow breccia - no foreign fragments).
50	60			.10	.005	
70	80			.09	.004	
90	100			.21	.003	
110	120			.07	-	- Well fractured, with quartz veins (+ py, ep, trace mag, trace cpy) and pyrite veinlets. Pyrite and epidote also occurs in disseminated grains and clots.
130	140			.08	-	
150	160			.07	-	- Quartz veins 1%, 1 mm - 2 cm. average 1-3 mm. Commonly drusy. Commonly low angles to CA. Py 3-5%, Py/cpy ≥ 5/1, epidote 2%
170	180			.11	-	
190	200			.09	-	Rock is reasonably competent to 150'
210	220			.13	-	28' looks like K-feldspar associated with py-ep vein
230	240			.07	-	32.5' traces moly in 1/2" quartz vein
250	260			.27	.005	38.5-39' chloritized plagioclase porphyry fragments (dyke?) at 75° to CA
270	280			.15	-	43-48' Blocky. Calcite veins on fractures.
290	300			.11	-	

Sheet / of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						59.5' Quartz vein with K-feldspar
						66.5' Quartz vein with cpy, trace moly, 3 mm. K-feldspar selvage
						73.5-97' Light to dark green fragmental structure
						108-120' Shear zone, blocky
						108-112' 2.5' ground (1.5' recovered)
						112-118' 5.5' ground (0.5' recovered)
						150-209' Major shear zone at 20°(?) to CA Core very blocky throughout. Gouge intermittently 172-198'. Core recovery between 160-168 (5'); 168-172 (2'); 172-174 (1'); 174-178 (6"); 178-185.5 (7.5'); 185.5-190 (4.5'); 190-194 (1'); 194-198 (4'); 198-200 (1')
						198-202' BFP dyke
310	320			.13	-	298-323 BFP, grey chloritized, 1/2% disseminated epidote
						Upper contact at 30° to CA 1-2% quartz veins 2% sulphides, pyrite >> chalcopyrite Numerous andesite inclusions towards base.

Hole No.
Sheet 2 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
330	340			.20	-	323-370 Andesite, with BFP dykes
350	360			.09	.010	Blocky and chloritized, with minor shears at 324.5', 328-330', 342.5'.
						BFP dykes at 325.5 (6"); 332-333 (lower contact 45° to CA); 342.5-347; 351.5-353;355.5-359. 1% quartz veins with epidote, pyrite, minor magnetite. Pyrite 1-3%
						354' 2" quartz-K-feldspar-epidote-pyrite vein 80° to CA
						368-370' Gouge zone at lower contact
370	380			.13	.025	370-384 BFP, dark grey, weakly chloritized
						1% quartz veins 1/2 - 1% sulphides, pyrite >> chalcopyrite
						374' 3/8" quartz vein 20° to CA, with selvage of moly, minor chalcopyrite
390	400			.20	.010	384-408 Andesite 3% sulphides (py/cpy = 5/1), 1% quartz veins, 1/2% epidote, 396-401'— Cpy, py in 1/2" quartz vein at 0° to CA. 403'- 1/2" quartz vein with moly.
400	415.5			.24	.010	408-415.5 BFP, fresh 1% sulphides (pyrite >> chalcopyrite) Upper contact 35° to CA

Hole No.
Sheet 3 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
415.5	430			.21	.011	415.5-521 Andesite breccia. med-dark grey mottled.
430	440			.39	.007	1-3% quartz veins with pyr, cpy, epidote, some
440	450			.32	.009	with minor moly (e.g. 429',483',489'). Many of
450	460			.32	.004	the larger quartz veins (> 1/4") are 0-20° to CA.
460	470			.38	.008	Sulphides approx. 3% (py/cpy approx. 3/1)
470	480			.22	.011	440' - 1/4" cpy seam 10° to CA.
480	490			.23	.028	
490	500			.16	.015	521-534 - BFP
						Pale green clay-sericite alteration of feldspar
500	510			.18	.007	Rare quartz veins
510	520			.18	.008	528' 1/2" vuggy quartz vein with moly.
520	530			.37	.009	
530	540			.32	.007	534-606 - Andesite tuff breccia, greywacke, dull grey-
540	550			.12	.010	green
550	560			.15	.013	1-2% quartz veins, 2-3% sulphides, pyrite >> cpy
560	570			.25	.007	
570	580			.35	.006	538-547' Fine grained, volcanic greywacke,
580	590			.30	.007	locally banded at 80° to CA
590	600			.32	.005	
						547-590' Andesite breccia (flow breccia?) same as
						415.5-521'
600	606			.34	.023	590-606' Andesitic tuff-breccia with greywacke
						matrix. Some banding at 75° to CA
						1/2% disseminated epidote throughout.
						Chloritized throughout. Black chlorite
						especially apparent adjacent to hairline
						quartz seams.
						606 END OF HOLE

Hole No. [illegible]
Sheet 4 of

DATE: 5-1-59

Form#DL 1

LL-74-5

Company AMAX Potash Limited
Mining Division Omineca
Geographic Coordinates

Project #515
Property Lennac Lake
Started March 31,1974
Completed April 2,1974
Logged by C.J.Hodgson

Bearing 303°
Inclination -46°
Depth 613'

Sheet 1 of 6 Hole No.
Coordinates
112+00N
74+64E
Altitude Lake elevation

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						Casing
0	60					
60	70			.15	.006	60-82 BFP
						-Fairly fresh - plagioclase is translucent to pale
70	82			.25	.002	green, in brownish-grey very fine grained to
						aphanitic matrix
82	98			.07	.001	-Quartz veins about 3-4%, up to 1" wide, some
						drusy. Stockwork with numerous attitudes
98	110			.26	.002	-Sulphides approx. 3%, py/cpy approx. 1/1. Minor
						magnetite (<1%), associated with sulphides in
110	120			.46	.004	narrower quartz veins
						Sulphides in quartz veins (75%) and disseminated
120	130			.31	.004	(25%).
						-Rare K-feldspar veins (e.g. 74')
130	140			.39	.001	
						60-90' Quite blocky, with several clay gouge
140	150			.30	.001	zones at 73-77', 79-80', 84-90'. There-
						after, down to at least 345', very
150	160			.34	.002	competent.
160	170			.13	.016	82-98 Grey, unaltered post-mineral porphyry (PMP)
						Contacts at approx. 45° to CA
170	180			.18	.002	Very minor py. cpy. (1/4% total) in rare 1 mm.
						quartz veins
180	190			.94	.001	

Sheet / of

LL-74-3

Footage	Core Rec	% Rec	Remarks
			98-116 BFP, as 60-82
			Quartz veins up to 5-7%; pyrite ≥ cpy. About 0.5% Cu ?
			100.5- 102.5' Andesite inclusion
			116-133.5 Andesite. Contacts at 45-60° to CA
			Vein quartz up to approx. 10%
			Sulfides 3% (py ≥ cpy). Cpy locally in coarse splashes (e.g. 132')
			K-feldspar locally in quartz veins
			Magnetite 1/2% 1 mm. veins
			133.5-226.5 BFP
			-Quartz veins approx. 10%, mainly subparallel at approx. 60° to CA. Py/cpy approx. 1/1, total 3%, at least half the sulphides are on hairline fractures at 60-70° to CA, which appear to cut quartz veins or move out from them. Minor mag. (1/4%), trace moly. Veins are ≤1/4" wide, 20/ft, rarely 2-3" wide with green sericitized plagioclase
			-Alteration generally is minor-weak local bleaching of plagioclase and weak K-feldspar adjacent to quartz veins
			142' 1/2" bleached (kaolinized)vein with sulphides, sooty secondary biotite
			Minor moly in quartz veins at 159,162,170
			172-175' Green sericite alteration on either side of qtz.-ankerite vein at 174'
			177 Trace purple fluorite on joint
			Opaque white clay alteration gradually increases in intensity below 150'
			183-185 Quartz vein at 10° to CA, approx. 4" wide.

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						182-191' Moderately sericitized
190	200			.43	.002	187-191' Andesite inclusion. Fine grained secondary biotite, 10% quartz veins
200	210			.36	.005	226-227.5 Biotitized breccia with BFP andesite
210	220			.13	.002	fragments. Felted biotite, py, cpy disseminated
220	227.5			.21	.005	in matrix. Intrusive breccia, marginal to late-stage porphyry dyke
227.5	240			.09	.003	227.5-456 Post-mineral porphyry (PMP)
						227.5-234' Intense green sericite alteration of plagioclase
						234-235' BFP inclusion with quartz veins
250	260			.05	.003	PMP is typically unaltered, darker grey that BFP with 25% plagioclase phenocrysts to 1 cm, 3% biotite phenocrysts to 1 cm, in 65% dull grey aphanitic matrix. Alteration is minor white kaolinization of plagioclase adjacent to fractures, and green sericitized zones adjacent to shear zones. Minor quartz-K-feldspar veins are present.
						Rare inclusions of BFP andesite
						≤ 1/2% sulphides, py ≥ cpy. Disseminated and on fractures
						335' 2" quartz vein with K-feldspar, minor moly
						370.5-372.5' Weak shear zone - kaolinized

Hole No. 3
Sheet 2 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						375' 6" BFP inclusion
						395' 8" Andesite inclusion
						388-407' Calcite filled fractures about 1 per foot
430	440			.03	-	408-456' Variably sericitized, with several major
440	456			.05	-	gouge zones at 417-418,428-437,441-443, 455-456.
456	461			1.88	.008	456-477 Andesite
461	469			.30	.004	Upper contact is shear zone
469	477			.34	.003	
						458-461.5' - Skarn-type mineralization with abundant ep, mag, py, cpy, tapering off at depth towards 461.5. Sulphides are particularly abundant between 458.5--459.5' (10% cpy, 15% py).
						Section is very blocky. Gouge at 472.5-473.5'. Good quartz vein stockwork, 5-8% quartz;sulphides approx. 2% outside skarn section (py/cpy approx. 2-3/1. Section is quite bleached
477	490			.07	-	477-506 PMP, as above. Minor BFP inclusions.
490	500			.07	-	Minor quartz veins. $\leq$1/2% sulphides (py $\simeq$ cpy), in quartz veins, hairline seams, disseminated
						476.5-482' Gouge
						482-488' Moderately sericitized

Hole No.
Sheet 4 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						506-509 BFP
500	510			.16	-	5% quartz veins, 2% sulphides (py ≈ cpy)
510	520			.15	-	509-519.5 PMP, as above BFP inclusions at 515.5', 517.5'
520	530			.14	.002	519.5-523 Andesite, porphyritic, blocky, 5% quartz veins
						523-534 BFP 5% quartz veins to 1/2", mainly 70-80° to CA commonly with K-feldspar selvages 524-524.5' Sericitized shear zone 1-2% sulphides py ≈ cpy
						534-585.5 Andesite, dark grey
530	540			.18	-	534-542' Veryfine grained (greywacke?)
540	550			.29	.005	542-585.5' More normal fine grained subporphyritic andesite
550	560			.31	.008	
560	570			.35	.008	Quartz veins 2-3%; sulphides, 3% (py/cpy approx. 5/1)
570	580			.34	.004	Epidote up to 5%. Irregularly distributed in patches, quartz veins, and with pyrite along seams.
						571-571.5' PMP dyke 25° to CA, 1-2% disseminated epidote
580	590			.25	.006	585.5-608.5 BFP, moderate clay-sericite alteration
590	600			.11	-	throughout. Upper contact 30° to CA. Quartz veins 2-3%, K-feldspar selvages common. Sulphides 1-2%, py ≈ cpy, trace moly.
						597-598' Sericitized skarn.

Hole No. [illegible]
Sheet 5 of [illegible]

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
600	613			.20	.004	608.5-613 Andesite, dark grey, quartz veins 2%, minor K-feldspar selvages, sulphides approx. 3%, py/cpy approx. 2-3/1.
						613 END OF HOLE

Hole No.
Sheet of

DATE: 5-1-59

Form#DL 1

LL-74-4

Company AMAX Potash Limited
Mining Division Omineca
Geographic Coordinates

Project #515
Property Lennac Lake
Started April 2, 1974
Completed April 4, 1974
Logged by C.J.Hodgson

Bearing 300°
Inclination -46.5° at collar, -48° at 597'
Depth 597'

Sheet 1 of 4 Hole No.
Coordinates 108+00N, 73+93E
Altitude Lake elevation

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						0-46 CASING
						46-504 BFP
46	60			.13	-	46-100' Alteration: K-feldspar veins 5-6/ft, 1 mm.
60	70			.10	-	Local sericitized plagioclase at 65',
70	80			.13	-	79', 90', 92', 96' adjacent to quartz-
80	90			.15	-	calcite, pyrite veins, 20° to CA.
90	100			.12		Quartz veins rare (<1%), <1/ft average.
						Sulphides approx. 1%, cpy~py, mainly
						disseminated. Rare hairline magnetite
						seams, some with cpy.
100	110			.18	-	100-200' Pretty much the same as above, with some
110	120			.30	.002	rather prominent silicified zones, and
120	130			.11	-	more abundant sericite alteration.
130	140			.03	-	Traces disseminated epidote, less
						K-feldspar veining.
						110-115' - 4' recovered in 2' quartz-
						calcite-pyrite shear vein 112-114',
						at 30° to CA, with peripheral sericitized
						BFP. Sericite alteration continues to
						125'
						Main sericitized pyrite veins at 123,
						125'.

Sheet / of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
140	150			.09	-	143-145' Quartz-pyrite shear veins 05° to CA,
150	160			.12	-	BFP is sericitized 1' either side
160	170			.07	-	164-174 Large quartz vein or silicified zone with sericitized BFP inclusions with secondary biotite. Minor pyrite in this zone. Moderate-intense sericitization extends down to about 203'
170	180			.16	-	179-180' Bleached feldspars adjacent to pyrite-
180	190			.12	-	quartz-calcite veins @ 20° to CA
190	200			.13	-	
						200-300' Same as 100-200 Sulphides uniform, at approx. 1/2% (cpy > py) dissem and fractures Minor quartz veins, quartz & K-feldspar veins, K-feldspar veins (total <1%), averaging may be 1/ft (1/4-1/2" wide)
210	220			.09	-	220.5' 3" PMP dyke - 70° to CA
230	240			.05	-	221.5' Sericitized quartz-pyrite-hematite shear vein 1" at 20°, Same at 213'
250	260			.08	-	
						263' 6" PMP dyke
270	280			.11	-	264' 6" sericitized pyritic shear zone
290	300			.02	-	
310	320			.11	-	300-400' Continuing very weak K-feldspar and quartz veining, ≤ 1/2% sulphides. Several shear zones with peripheral sericitized BFP

Hole No. 4
Sheet 2 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						319.5-320' Sericitized shear
330	340			.05	-	339-341' Sericitized shear gouge
350	360			.09	-	348-348.5' Sericitized shear gouge
370	380			.17	-	372-373' Sericitized shear gouge
						374' 3" Sericitized shear gouge
390	400			.08	-	389' 2" pyrite shear zone at 40° to CA
						The section 372-404 is throughout quite blocky, with
						numerous shears in addition to the larger ones mentioned.
						Green sericite alteration throughout.
410	420			.14	-	400-504' Continuing fresh looking BFP with
						minor quartz and quartz-K-feldspar
430	440			.12	-	veins 1/4" (up to 3/ft, but total <1%)
						Sulphides 1/2 - 1%, cpy ≥ py
450	460			.10	-	458-466.5' Sericitized zone
470	480			.12	-	
490	500			.07	-	493-504' Increasing sericite alteration towards
						contact, with minor pyritic fractures
						at 502.5'
						504-505 Dark grey, fine grained, andesite
510	520			.26	.001	505-584 Medium to dark grey chloritized BFP or PMP (?)
						Tone is non-uniform, with alternating medium and
530	540			.14	-	dark grey sections. Unit is not as convincingly
						PMP as in LL-14-3. This is more of a tonal than
550	560			.08	-	a textural difference. Quartz veins plus quartz -
						K-feldspar veins are just as numerous than above
						if not more so (1-4/ft, 1-2%). Sulphides appear
						to be about equally abundant to above unit at
						approx. 1/2% (cpy ≥ py).
						Carbonate veins are common at 10-60° to CA

Hole No. 7
Sheet 3 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
570	580			.06	-	571-572' Shear zone, bleached and sericitized.
						505-552 Biotite phenocrysts are not present. Apparently completely gone to chlorite
						552-577 Much less altered, almost same as above 504'. Biotite phenocrysts unchloritized
						577-584 Intensely chloritized, with 30% green sericitized plagioclases in a black chloritic matrix
						584-589 Blocky, highly chloritized fine grained andesite with quartz veins, 2% py, minor cpy.
590	597			.13	-	589-597 Breccia, with BFP, andesite fragments. Some interstitial carbonate, minor disseminated sulphides (< 1/2%, cpy ≤ py), along with traces disseminated epidote.
						Can not tell whether intrusive or diatreme breccia. May herald approach of PMP as in LL-74-3. Last 8" appears to be non brecciated BFP
						597 END OF HOLE

Hole No. _____ Sheet 4 of _____

DATE: 5-1-59

LL-74-5

Company AMAX Potsh Limited
Mining Division Omineca
Geographic Coordinates

Project #515
Property Lennac Lake
Started April 5,1974
Completed April 7, 1974
Logged by C.J. Hodgson

Bearing
Inclination -90°
Depth 598'

Sheet 1 of 3 **Hole No.**
Coordinates 108+00N 78+00E
Altitude 12' above Lake

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						0-40 CASING
40	50			.12	-	40-295 Grey andesite breccia, chlorite-carbonate alteration. Calcite mainly on stringers.
60	70			.23	-	Quartz veins approx. 1-2%, about 3/ft.
80	90			.16	-	Sulphides approx. 3%, Py/cpy ≈ 3-5/1, 1/2% epidote, mainly on fractures with pyrite. Rare moly in quartz veins at 99',146',156', generally in quartz
100	110			.17	-	veins wider than 1/4", commonly with drusy quartz. Rare magnetite veinlets.
120	130			.13	-	
140	150			.26	.013	40-43' Sheared, with calcite and chlorite 171-203' Very blocky, about 29' of core recovered 219-230' Splash of cpy with py, magnetite
160	170			.26	.003	228' 6" cave 233' 6" chloritized shear
180	190			.18	-	282.5-285.5' chloritized shear zone 288' 4" chloritized shear
200	210			.19	-	291.5' 4" chloritized shear
220	230			.21	-	
240	250			.19	-	The section 280-295' is heavily chloritized and
260	270			.22	-	sheared throughout
280	290			.18	-	
300	310			.17	-	295-306 BFP dyke Upper contact 25° to CA, lower about 30° to CA Weakly chloritized, quartz veins approx. 1%, Sulphides approx. 1-2% py > cpy.

Hole No. Sheet / of 3

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						306-365 Andesite breccia
						Same as 40-295'
310	320			.28	.003	≤ 1% quartz veins, approx. 3% sulphides, py/cpy approx. 3/1
						1/2% disseminated epidote
320	330			.34	.002	318-326' Blocky, chlorite slips, esp. 6" at 322'.
						365-494.5 Fine-grained foliated quartz diorite, unlike
330	340			.28	.004	any phases seen in other holes.
						3% subparallel biotite phenocrysts to 5 mm. 70-90°
340	350			.19	-	to CA.
						10-25% plagioclase phenocrysts to 8 mm.
350	360			.30	.005	
						Texturally this unit is very in-homogeneous.
360	370			.33	.004	Locally it resembles BFP, but grades from that
						to a very fine-grained porphyry with no sharp
370	380			.30	.006	contact between the two. Included fragments of
						pinkish BFP are common. On the other hand, this
380	390			.20	-	unit is unlike the PMP in that it is quartz-veined
390	400			.16	-	and has a low but constant sulphide content.
400	410			.14	-	
420	430			.21	-	Unit is fairly fresh, but shows kaolinite alteration
						of plagioclase where more coarsely porphyritic.
440	450			.19	-	Quartz veins 1% with sericite selvages, possibly
460	470			.15	-	some K-feldspar.
480	490			.10	-	Sulphides ≤ 1/2% py ≥/cpy
						365-369' looks like pretty good BFP
						384' 2" quartz veins and moly 30° to CA
						395' 2" quartz veins and moly 30° to CA

Hole No. -
Sheet 2 of

Footage		Core Rec	% Rec	Total % Cu	Total % Mo	Remarks
						396.5' - 494.5' Good fine grained phase with BFP inclusions
						457-458' Clay-sericite gouge zone
						482-488' Good PMP. Cuts off quartz veins in adjacent fine grained phase
500	510			.06	-	494.5-536 BFP, grey with pinkish tones
						Very rare quartz veins, traces sulphides except in
520	530			.07	-	major shear zone
						Traces disseminated epidote
						510-528' shear zone, blocky, local gouge, green sericite alteration throughout. Pyritic shear vein 0° to CA @ 510-513'. Gouge at 522-524'
530	540			.11	-	536-598 Fine-grained quartz diorite with 15-20% BFP inclusions: essentially an intrusive breccia.
540	550			.24	-	Foliation very variable - mainly at approx. 45° to CA. Quartz veins 1%, to 1" wide, some with
550	560			.16	-	K-feldspar rims.
						Sulphides <1/2% (py/cpy ≥ 1/1).
560	570			.27	.001	Traces disseminated epidote
						Minor calcite veins
570	580			.25	-	
580	590			.38	.001	590.5-596' Sericitized shear zone
590	598			.13	-	
						598 END OF HOLE

Hole No. [illegible]
Sheet 3 of

APPENDIX III

ASSAY RESULTS

AMAX

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

APR 16 1974

2225 S. SPRINGER AVE.,
BURNABY, B. C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

VANCOUVER OFFICE

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4008

INVOICE NO. 4008

DATE RECEIVED April 8, 1974

DATE ANALYSED April 10, 1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C. V6E-3L2

AMAX order # 1846

ATTN: Mr. C. Hodgson.

LENNAC LK. DDH. LL-74-1

SAMPLE NO.:	% tot. Cu	% tot. Mo	Footage
51651	.21	-	14 - 20
51652	.20	-	20 - 30
51653	.24	-	30 - 40
51654	.29	-	40 - 50
51655	.33	.001	50 - 60
51656	.11	-	60 - 70
51657	.17	-	70 - 80
51658	.26	-	80 - 90
51659	.23	-	90 - 100
51660	.14	-	100 - 110
51661	.12	-	110 - 120
51662	.16	-	120 - 130
51663	.17	-	130 - 140
51664	.15	-	140 - 150
51665	.17	-	150 - 160
51666	.17	-	160 - 170
51667	.15	-	170 - 180
51668	.11	-	180 - 190
51669	.15	-	190 - 200
51670	.11	.001	200 - 210
51671	.19	.003	210 - 220
51672	.14	.001	220 - 230
51673	.21	.002	230 - 240
51674	.44	.002	240 - 250
51675	.15	.004	250 - 260
51676	.63	.003	260 - 270
51677	.30	.002	270 - 280
51678	.42	.003	280 - 290
51679	.32	.007	290 - 300
51680	.36	.002	300 - 310
51681	.29	.001	310 - 320
51682	.36	.002	320 - 330
51683	.38	.001	330 - 340
51684	.52	.002	340 - 350
51685	.35	.002	350 - 360
51686	.35	.004	360 - 370
51687	.23	.003	370 - 380
51688	.06	.002	380 - 390
51689	.09	-	390 - 400

Certified by

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B. C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

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DATE RECEIVED april 8,1974

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TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.
ATTN: Mr. C. Hodgson.

AMAX order # 1846.

LENNAC LK. DDH. LL-74-1

SAMPLE NO.:	% tot. Cu.	% tot. Mo	Footage
51690	.15	-	400 - 410
51691	.13	-	410 - 420
51692	.32	.002	420 - 430
51693	.16	-	430 - 440
51694	.16	-	440 - 450
51695	.43	.005	450 - 460
51696	.32	.018	460 - 470
51697	.25	.017	470 - 480
51698	.12	-	480 - 490
51699	.08	-	490 - 500
51700	.11	-	500 - 510
51701	.23	-	510 - 520
51702	.17	-	520 - 530
51703	.08	-	530 - 540
51704	.08	-	540 - 550
51705	.10	-	550 - 560
51706	.07	-	560 - 570
51707	.19	-	570 - 580
51708	.20	-	580 - 590
51709	.12	-	590 - 603

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4011

INVOICE NO. 4011

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

AMAX order # 1846

DATE RECEIVED April 22, 1974

DATE ANALYSED April 24, 1974

ATTN: Mr. C. Hodgson

Lennac Lk. DDH. LL-74-2

SAMPLE NO.:	% tot. Cu	% tot. Mo	Footage
51736	.13	.004	26 - 40
51737	.10	.005	50 - 60
51738	.09	.004	70 - 80
51739	.21	.003	90 - 100
51740	.21	.011	415.5- 430
51741	.32	.009	440 - 450
51742	.38	.008	460 - 470
51743	.23	.028	480 - 490
51744	.18	.007	500 - 510
51745	.37	.009	520 - 530
51746	.12	.010	540 - 550
51747	.25	.007	560 - 570
51748	.30	.007	580 - 590
51749	.34	.023	600 - 606

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4014

INVOICE NO. 4015

DATE RECEIVED May 17, 1974

DATE ANALYSED May 20, 1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

Order # 1846

ATTN: Mr. C.J.Hodgson

LENNAC LAKE
DDH # LL. 74-2

SAMPLE NO.:	% totCu	% tot Mo	Footage
51787			
51788	.07	-	110-120
51789	.08	-	130-140
51790	.07	-	150-160
51791	.11	-	170-180
	.09	-	190-200
51792	.13	-	210-220
51793	.07	-	230-240
51794	.27	.005	250-260
51795	.15	-	270-280
51796	.11	-	290-300
51797	.13	-	310-320
51798	.20	-	330-340
51799	.09	.010	350-360
1800	.13	.025	370-380
51801	.20	.010	390-400
51802	.24	.010	400=415.5
51803	.39	.007	430-440
51804	.32	.004	450-460
51805	.22	.011	470-480
51806	.16	.015	490-500
51807	.18	.008	510-520
51808	.32	.007	530-540
51809	.15	.013	550-560
51810	.35	.006	570-580
51811	.32	.005	590-600

Certified by _____

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B. C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4010

INVOICE NO. 4010

DATE RECEIVED April 11;1974

DATE ANALYSED April 17,1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

ATTN: Mr. C. Hodgson.

Amax order # 1846

LENNAC LK. DDH. LL 74-3

SAMPLE NO.:	% tot. Cu	% tot. Mo	Footage
51710	.15	.006	60 - 70
51711	.25	.002	70 - 82
51712	.07	.001	82 - 98
51713	.26	.002	98 - 110
51714	.46	.004	110 - 120
51715	.31	.004	120 - 130
51716	.39	.001	130 - 140
51717	.30	.001	140 - 150
51718	.34	.002	150 - 160
51719	.13	.016	160 - 170
51720	.18	.002	170 - 180
51721	.94	.001	180 - 190
51722	.43	.002	190 - 200
51723	.36	.005	200 - 210
51724	.13	.002	210 - 220
51725	.21	.005	220 - 227.5
51726	.09	.003	227.5 - 240
51727	.05	.003	250 - 260
51728	1.88	.008	456 - 461
51729	.30	.004	461 - 469
51730	.34	.003	469 - 477
51731	.14	.002	520 - 530
51732	.29	.005	540 - 550
51733	.35	.008	560 - 570
51734	.25	.006	580 - 590
51735	.20	.004	600 - 613

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Rossbacher Laboratory
GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4018
INVOICE NO. 4015

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

Order # 1846

DATE RECEIVED May 20, 1974

ATTN: Mr. C.J. Hodgson

LENNAC LAKE
DDH # LL. 74-3

DATE ANALYSED May 23, 1974

SAMPLE NO.:	% tot Cu	% tot Mo	Footage
51812	.03	-	430-440
51813	.05	-	440-456
51814	.07	-	477-490
51815	.07	-	490-500
51816	.16	-	500-510
51817	.15	-	510-520
51818	.18	-	530-540
51819	.31	.008	550-560
51820	.34	.004	570-580
51821	.11	-	590-600

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GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B. C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4011
INVOICE NO. 4011
DATE RECEIVED April 22, 1974
DATE ANALYSED April 24, 1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

AMAX order # 1846

ATTN: Mr. C. Hodgson

Lennac Lk. DDH. LL 74-4

SAMPLE NO.:	% tot. Cu	% tot. Mo	Footage
51750	.13	-	46 - 60
51751	.10	-	60 - 70
51752	.13	-	70 - 80
51753	.15	-	80 - 90
51754	.12	-	90 - 100
51755	.18	-	100 - 110
51756	.30	.002	110 - 120
51757	.11	-	120 - 130
51758	.03	-	130 - 140
51759	.09	-	140 - 150
51760	.12	-	150 - 160
51761	.07	-	160 - 170
51762	.16	-	170 - 180
51763	.12	-	180 - 190
51764	.13	-	190 - 200

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GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4018
INVOICE NO. 4015

TO: AMAX EXPLORATION INC
601-535 Thurlow Street
Vancouver, B.C.

ATTN: Mr. C.J. Hodgson

Order # 1846

LENNAC LAKE
DDH # LL. 74-4

DATE RECEIVED May 20, 1974
DATE ANALYSED May 23, 1974

SAMPLE NO.:	% tot Cu	% tot Mo	Footage
51822	.09	-	210-220
51823	.05	-	230-240
51824	.08	-	250-260
51825	.11	-	270-280
51826	.02	-	290-300
51827	.11	-	310-320
51828	.05	-	330-340
51829	.09	-	350-360
51830	.17	-	370-380
51831	.08	-	390-400
51832	.14	-	410-420
51833	.12	-	430-440
51834	.10	-	450-460
51835	.12	-	470-480
51836	.07	-	490-500
51837	.26	.001	510-520
51838	.14	-	530-540
51839	.08	-	550-560
51840	.06	-	570-580
51841	.13	-	590-597

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4011

INVOICE NO. 4011

DATE RECEIVED April 22, 1974

DATE ANALYSED April 24, 1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

AMAX order # 1846

ATTN: Mr. C. Hodgson

Lennac Lk. DDH. LL 74-5

SAMPLE NO.:	% tot. Cu	% tot. Mo	Footage
51765	.12	-	40 - 50
51766	.23	-	60 - 70
51767	.16	-	80 - 90
51768	.17	-	100 - 110
51769	.13	-	120 - 130
51770	.26	.013	140 - 150
51771	.26	.003	160 - 170
51772	.18	-	180 - 190
51773	.19	-	200 - 210
51774	.21	-	220 - 230
51775	.19	-	240 - 250
51776	.22	-	260 - 270
51777	.18	-	280 - 290
51778	.1	-	300 - 310
51779	.34	.002	320 - 330
51780	.33	.004	360- 370
51781	.14	-	400 - 410
51782	.19	-	440 - 450
51783	.10	-	480 - 490
51784	.07	-	520 - 530
51785	.27	.001	560 - 570
51786	.38	.001	580 - 590

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B. C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 4018

INVOICE NO. 4015

DATE RECEIVED May 20, 1974

DATE ANALYSED May 23, 1974

TO: AMAX EXPLORATION INC.
601-535 Thurlow Street
Vancouver, B.C.

ATTN: Mr. C.J. Hodgson

Order # 1846

LENNAC LAKE
DDH # LL. 74-5

SAMPLE NO.:	% tot Cu	% tot Mo	Footage
51842	.26	.003	310-320
51843	.28	.004	330-340
51844	.19	-	340-350
51845	.30	.005	350-360
51846	.30	.006	370-380
51847	.20	-	380-390
51848	.16	-	390-400
51849	.21	-	420-430
51850	.15	-	460-470
51851	.06	-	500-510
51852	.11	-	530-540
51853	.24	-	540-550
51854	.16	-	550-560
51855	.25	-	570-580
51856	.13	-	590-598

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO: 4022

INVOICE NO. C4023E

TO: AMAX EXPLORATION INC. Order # 1846

601-535 THURLOW STREET
VANCOUVER, B.C.

ATTN: Mr. C. Hodgson

LENNAC LAKE
Au/Ag composites

DATE RECEIVED June, 1974

DATE ANALYSED June 7, 1974

SAMPLE NO.:	oz/t Au	oz/t Ag	Sample Nos.	Drill Hole	Footage
Composite #1	tr.*)	0.09	51670-51674	LL 74-1	200-250
#2	tr.	0.07	51675-51679	"	250-300
#3	tr.	0.07	51680-51684	"	300-350
#4	tr.	0.05	51685-51687	"	350-380
#5	tr.	0.07	51741,42, 51803,04	LL 74-2	430-470
#6	tr.	0.07	51748,49,51810,11	LL 74-2	570-606
#7	tr.	0.09	51713-51716	LL 74-3	98-145
#8	tr.	0.05	51717-51720	LL 74-3	140-180
#9	tr.	0.05	51721-51725	LL 74-3	180-227.5

*) tr. = gold value less than 0.001 oz per ton.

Certified by _____

APPENDIX IV

THIN SECTION DESCRIPTIONS

PETROGRAPHIC REPORT LL-74-1 283 feet

Collected and Examined by C.J. Hodgson April 16, 1974

Macroscopic Description - Typical Biotite-Feldspar Porphyry (BFP) cut by quartz vein stockwork.

Phenocrysts
Plagioclase phenocrysts (20%) - euhedral laths to 7 mm.

Quartz phenocrysts (8%) - euhedral grains to 7 mm.

Mafic phenocrysts (5%) - originally biotite ? now composed of variously oriented biotite flakes in chlorite, with opaques and rutile.

Groundmass
Matrix is essentially K-feldspar (40%) and quartz (25%) with accessory biotite and chlorite (2%). Biotite has pale-dark greeny brown pleochroism.

Veins
Quartz veins in the BFP contain pyrite, calcite and chlorite.

General Remarks
Biotite alteration, with weak retrograde chloritization.

PETROGRAPHIC REPORT LL-74-1 598 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description - Fresh BFP

Phenocrysts

Plagioclase (25%) - very fresh, replicate zoning, up to 1 cm.
Quartz (10%) - to 8 mm.
Biotite (3%) - reddish brown pleochroism.
Amphibole (14%) - completely pseudomorphed by secondary green biotite.

Groundmass

K-feldspar (25%)
Plagioclase (10%)
Quartz (25%)
Mica (2%)

Veins

One quartz vein

One hairline K-feldspar-biotite-chlorite veinlets.

PETROGRAPHIC REPORT LL-74-2 37 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description - Andesite breccia

Phenocrysts

Plagioclase (10%)phenocrysts

Groundmass

Plagioclase (55%)
Biotite (20%) - greeny brown. Fine grained in matrix and coarser grained amphibole pseudomorphs
Chlorite (5%)
Carbonate (3%)
Sphene (1%)
Epidote (2%)
Apatite (1%)
Sulphides (3%) (pyrite mainly)

Veins

(1) quartz veins
(2) pyrite-epidote-chlorite-K-feldspar-carbonate

PETROGRAPHIC REPORT LL-74-2 380.5 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description - BFP

Phenocrysts

Plagioclase (30%) - weak clouding
Quartz (5%)
Biotite (2%) - some primary chestnut brown biotite, most shows varying degrees of alteration to secondary green biotite flakes.

GROUNDMASS

K-feldspar, plagioclase, quartz, green biotite.

VEINS

Quartz-sulphide veins with K-feldspar selvages.

PETROGRAPHIC REPORT LL-74-3 142 feet

Collected and Examined by C.J. Hodgson April 16, 1974

Macroscopic Description - BFP cut by a quartz vein with secondary biotite. Staining indicates abundant K-feldspar in matrix.

Phenocrysts

Plagioclase phenocrysts (20%) - weak kaolinized
Biotite phenocrysts (5%) - chestnut brown pleochroism
Quartz phenocrysts (3%) - up to 5 mm. diameter

Groundmass

Is very fine grained K-feldspar, quartz, (plagioclase ?) biotite. The latter is in ragged aggregates, has greenish brown pleochroism, and is presumed secondary.

General Remarks

Biotite alteration

PETROGRAPHIC REPORT LL-74-3 202 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description - BFP

Phenocrysts

Plagioclase (25%)
Quartz (2%)
Biotite (5%) - fresh chestnut brown

Groundmass

K-feldspar (25%)
Quartz (30%)
Plagioclase (10%)
Biotite - green secondary

Veins

Quartz-sulphide veins with K-feldspar selvages; K-feldspar veinlets

General Remarks

K-feldspar - biotite alteration

PETROGRAPHIC REPORT LL-74-3 552 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Plagioclase porphyry andesite

Groundmass

Plagioclase - 55%
Biotite (25%) - brown
Amphibole - 4%
Quartz - 15%
Clinozoisite - 1%
Opaques - <1%
Sphene - <1%

Veins

Minor quartz veins and pyrite veins

General Remarks

Porphyritic nature is not obvious under the microscope. Rather, patches with greater and lesser amounts of biotite. The rock is uniformly fine grained and recrystallized.

PETROGRAPHIC REPORT LL-74-3 263 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Post-Mineral Porphyry (PMP)

Phenocrysts

Plagioclase (25%) - replicate zoning, absolutely fresh, to 1 cm.
Quartz (6%) - to 3 cm.
Amphibole (5%) pale green, poikilitic, with plagioclase biotite
Biotite (3%) - chestnut brown
Apatite (<1%)
Opaques (<1%)

Groundmass

Very fine grained mixture of K-feldspar, plagioclase, quartz

General Remarks

Rock is distinguishable from BFP by (a) unaltered state of plagioclase and presence of primary amphibole (altered to secondary biotite in BFP); (b) finer grained texture of matrix; and (c) absence of quartz or other veins.

PETROGRAPHIC REPORT LL-74-4 52.5 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description BFP

Phenocrysts

Plagioclase (25%) - weak clouding
- 1 cm.
Quartz (5%) - to 8 mm.
Biotite (2%) - chestnut brown
Amphibole (4%) - completely replaced by flakes of green biotite

Groundmass

Very fine grained mixture of quartz (25%) + K-feldspar (35%)

Veins

Minor quartz, quartz-K-feldspar, and K-feldspar-pyrite veinlets

General Remarks

Biotite alteration zone. Matrix in this sample is finer grained than average BFP.

PETROGRAPHIC REPORT LL-74-4 426.5 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Darker grey BFP or PMP

Phenocrysts

Plagioclase (25%) - very fresh, to 8 mm.
Quartz (10%) - to 15 mm.
Biotite (3%)
Amphibole (5%)
Apatite (1%)

Groundmass (55%)

Very fine grained mixture of K-feldspar (25%), quartz (25%), and plagioclase (5 ?).

Veins

Quartz - K-feldspar veins.

General Remarks

Abundance of amphibole plus presence of apatite phenocrysts and very fine grained matrix suggest PMP. But veining suggests weak potassic alteration of BFP.

PETROGRAPHIC REPORT LL-74-4 524 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description BFP or Porphyritic Quartz Diorite

Phenoerysts

Quartz (5%)
Plagioclase (35%)

Groundmass

Plagioclase (25%)
Quartz (25%)
Biotite (3%) - greenish brown
Amphibole (3%) - almost colourless
Opaques, apatite (1%)

Veins

Quartz - K-feldspar veins are numerous. Rare biotite veins.

General Remark:

This rock is quartz diorite porphyry, distinguished from BFP by absence of K-feldspar in matrix. Biotite is commonly in clusters - could be after amphibole.

PETROGRAPHIC REPORT LL-74-5 332 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Andesite

Groundmass

Plagioclase (70%) - subporphyritic
Opaques (1%)
Biotite (25%) - greeny brown

Veins

Quartz veins with carbonate cores and K-feldspar selvages. Also quartz-sulphide veins.

PETROGRAPHIC REPORT LL-74-5 442 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Fine grained porphyritic quartz diorite

Phenocrysts

Plagioclase (25%) - ragged, moderately altered to carbonate
Biotite (2%) - brownish green
Quartz (5%)
Apatite (<1%)

Groundmass

Plagioclase (25%)
Quartz (25%)
K-feldspar (10%) (much of it may be introduced)
Biotite (3%)

Veins

Quartz - K-feldspar - carbonate K-feldspar

PETROGRAPHIC REPORT LL-74-5 447 feet

Collected and Examined by C.J. Hodgson April 17, 1974

Macroscopic Description Fine grained porphyritic quartz diorite

Phenocrysts

Plagioclase (25%) - weak to moderate clouding
Quartz (5%)
Biotite (3%) - chestnut brown
Apatite (<1%)

Groundmass

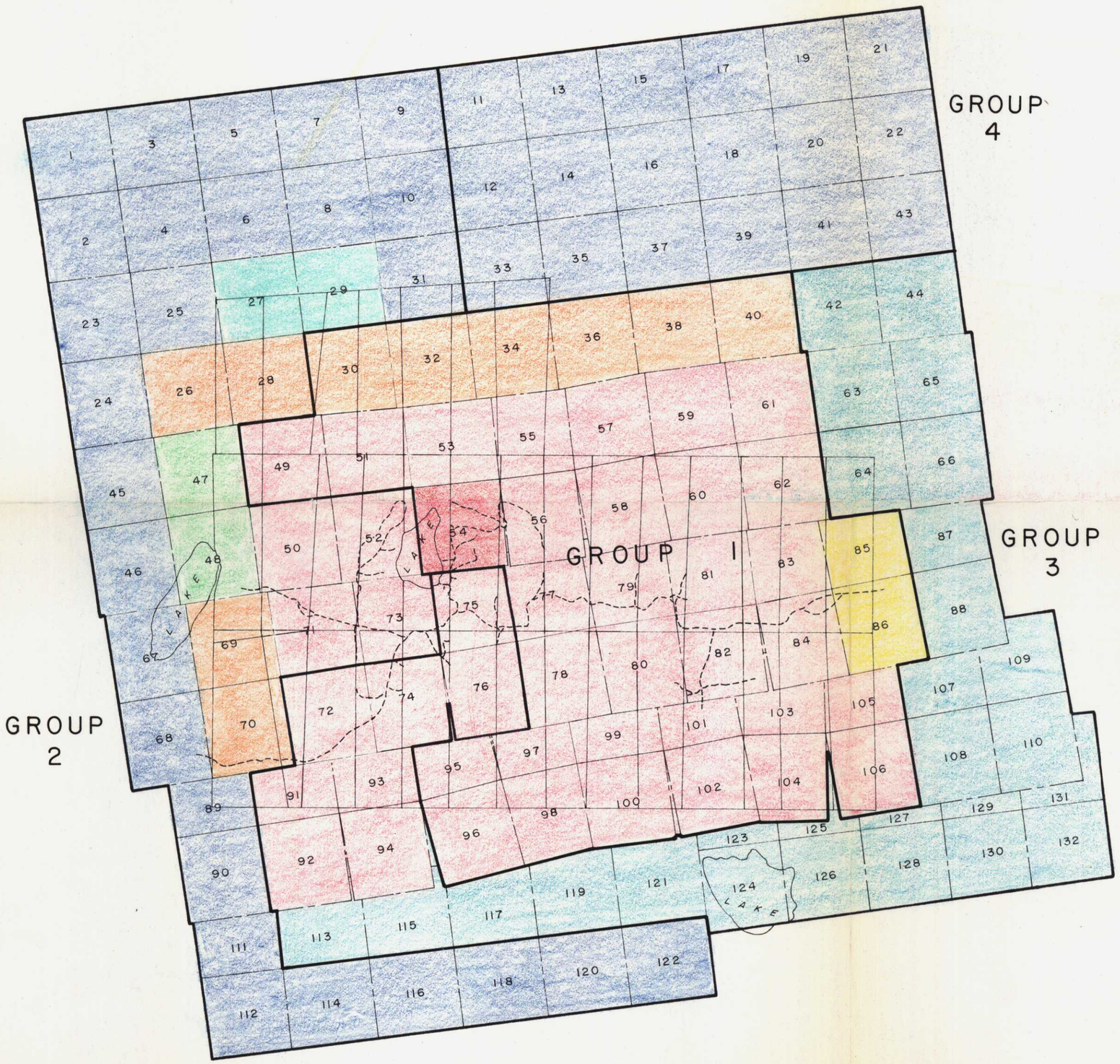
Plagioclase (25%)
Quartz (25%)
Biotite (5%) green-brown
Chlorite (2%)
K-feldspar (10% ?)

Veins

Quartz - K-feldspar
K-feldspar ± pyrite

General Remarks

BFP inclusion on one end of section



ANNIVERSARY DATES

- July 27, 1975.
- July 27, 1976.
- July 27, 1977.
- July 27, 1978.
- July 27, 1980.
- July 27, 1981.
- July 27, 1983.
- July 27, 1984.

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION-BRITISH COLUMBIA

CLAIM MAP
THEZAR CLAIMS

1"= 1600'

To accompany report "LENNAC LAKE DRILL PROGRAM - 1974" by: C. J. Hodgson

~~#4524~~

June, 1974

N.T.S. Ref. 93 L 9, 16

FIG. 2

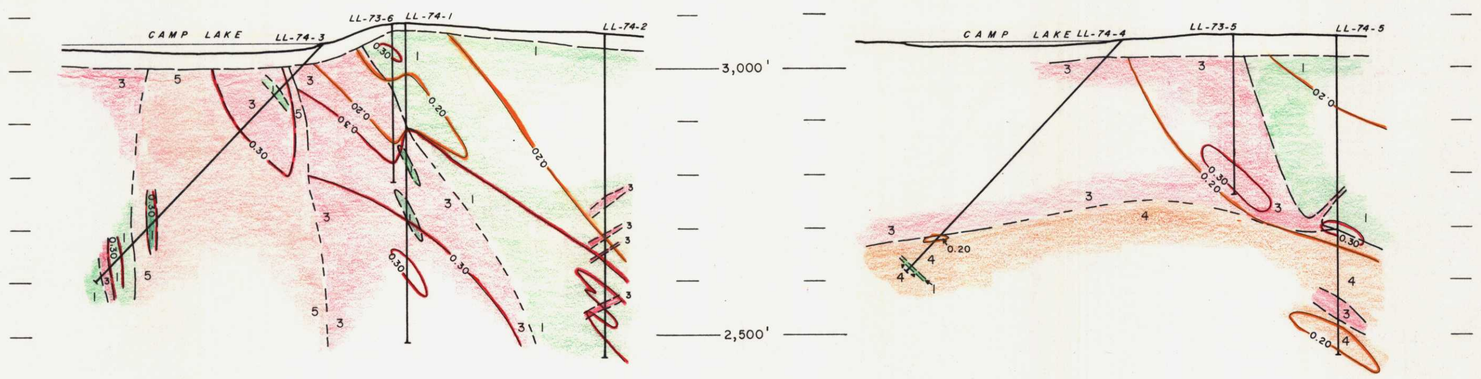
L E G E N D

- 5 — Post mineral porphyry.
- 4 — Porphyritic quartz diorite.
- 3 — Biotite feldspar quartz porphyry.
- 2 — Hazelton Group — Siltstone, greywacke.
- 1 — Hazelton Group — Andesitic flows and pyroclastics.

S Y M B O L S

- Geological contact (defined, approximate, assumed).
- Intrusive breccia.
- Averaged copper grade contours.
- Diamond drill hole (inclined, vertical)
- (O.B.) LL-73-22 — Percussion drill hole; (O.B.) Denote hole abandoned in overburden.
- Grid picket line.
- Trench.
- Road.
- Claim post, claim location line.
- Claim boundary.
- Stream.
- Swamp, swamp boundary.

SCHEMATIC CROSS SECTIONS



THROUGH DIAMOND DRILL HOLES
LL-74-1, LL-74-2 AND LL-74-3

THROUGH DIAMOND DRILL HOLES
LL-74-4 AND LL-74-5

LOOKING NORTH

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

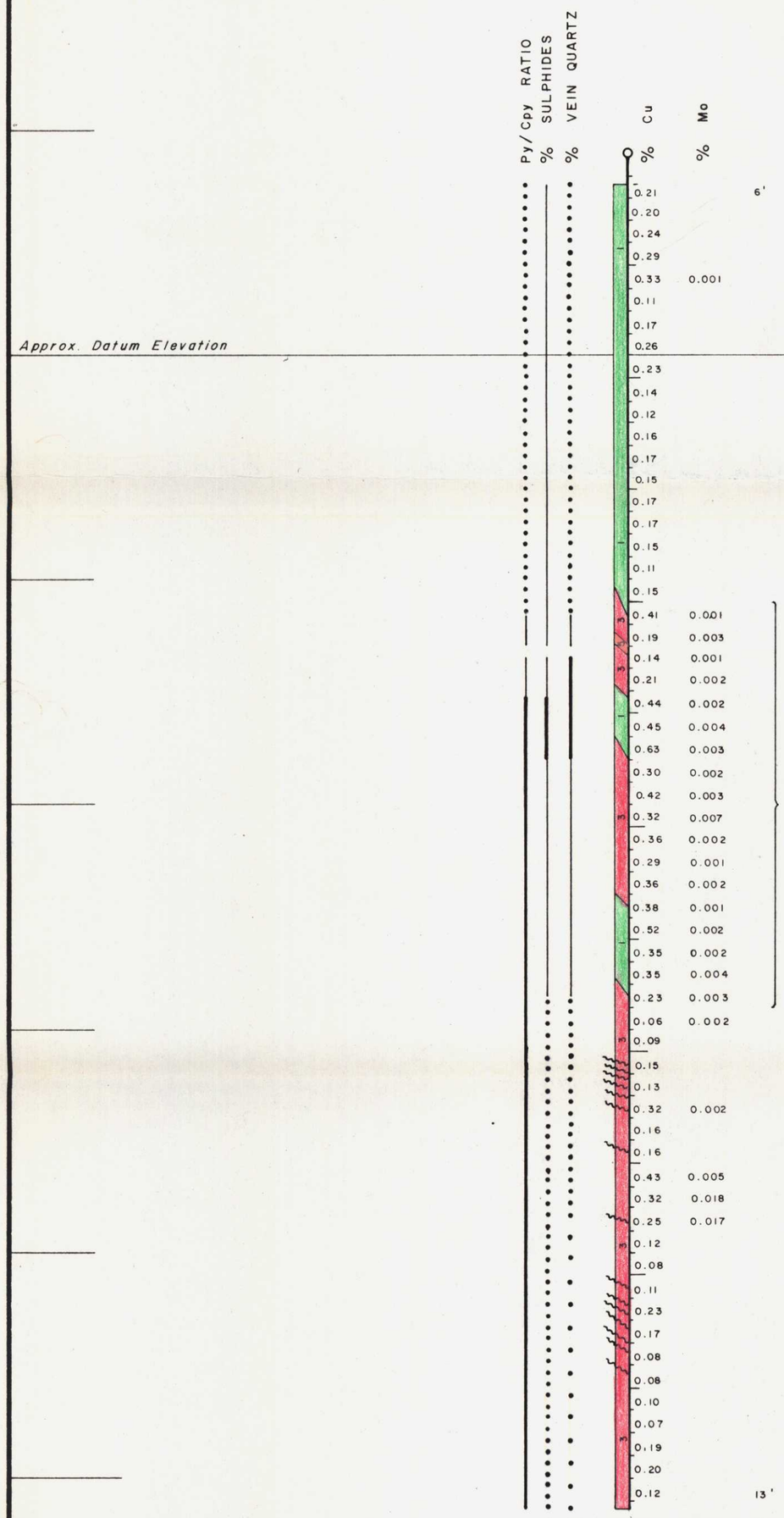
DIAMOND DRILL HOLES GENERALIZED GEOLOGY AND ASSAY DATA

SCALE 200 0 200 FEET — 1 : 2,400

#4524

DATE REVISED		DATE PRINTED		Drawn by: H.C.P Date 21/6/74 N.T.S. File 93 L 9, 16	FIG. 3

To accompany report "LENNAC LAKE DRILL PROGRAM — 1974" by: C.J. Hodgson. June 1974



L E G E N D

- 5 — Post mineral porphyry.
- 4 — Porphyritic quartz diorite
- 3 — Biotite feldspar quartz porphyry.
- 2 — Hazelton Group — Siltstone and greywacke.
- 1 — Hazelton Group — Andesitic flows and pyroclastics.

Shear zone.

Intusive breccia.

% Vein quartz: < 1; 1 – 3; 4 – 6; 7 – 12

% Sulphides: < 1; 1 – 3; 4 – 6; > 6

Py/Cpy Ratio: > 5/1; 4/1 – 2/1; 1/1 – 1/2

CO-ORDINATES 114 + 00 N
76 + 25 E
COLLAR ELEVATION 3,090'
AZIMUTH — AT COLLAR
INCLINATION -90 AT COLLAR

TOTAL DEPTH 603'

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

DIAMOND DRILL HOLE SECTION
LL-74-1

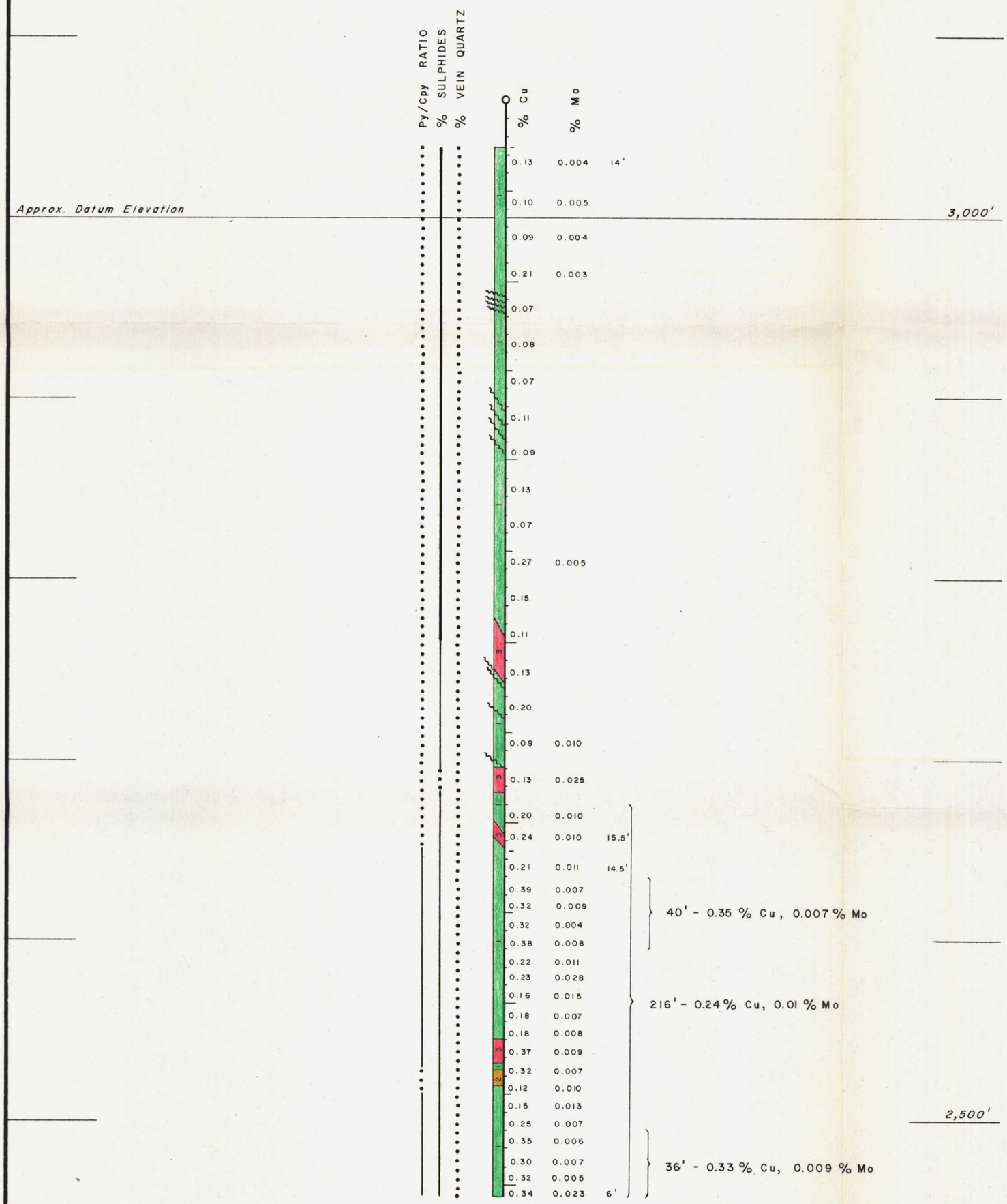
SCALE 50 0 50 FEET 1 : 600

To accompany report " LENNAC LAKE DRILL PROGRAM - 1974"
by: C. J. Hodgson

#4524

N. T. S. Ref 93L.9, 16

FIG. 4a



L E G E N D

- 5 — Post mineral porphyry.
- 4 — Porphyritic quartz diorite
- 3 — Biotite feldspar quartz porphyry.
- 2 — Hazelton Group — Siltstone and greywacke.
- 1 — Hazelton Group — Andesitic flows and pyroclastics.

Shear zone.

Intusive breccia.

% Vein quartz: < 1; 1 – 3; 4 – 6; 7 – 12

% Sulphides: < 1; 1 – 3; 4 – 6; > 6

Py/Cpy Ratio: > 5/1; 4/1 – 2/1; 1/1 – 1/2

CO-ORDINATES 114 + 00 N
80 + 00 E
COLLAR ELEVATION 3,065'
AZIMUTH — AT COLLAR
INCLINATION -90° AT COLLAR

TOTAL DEPTH 606'

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

DIAMOND DRILL HOLE SECTION
LL-74-2

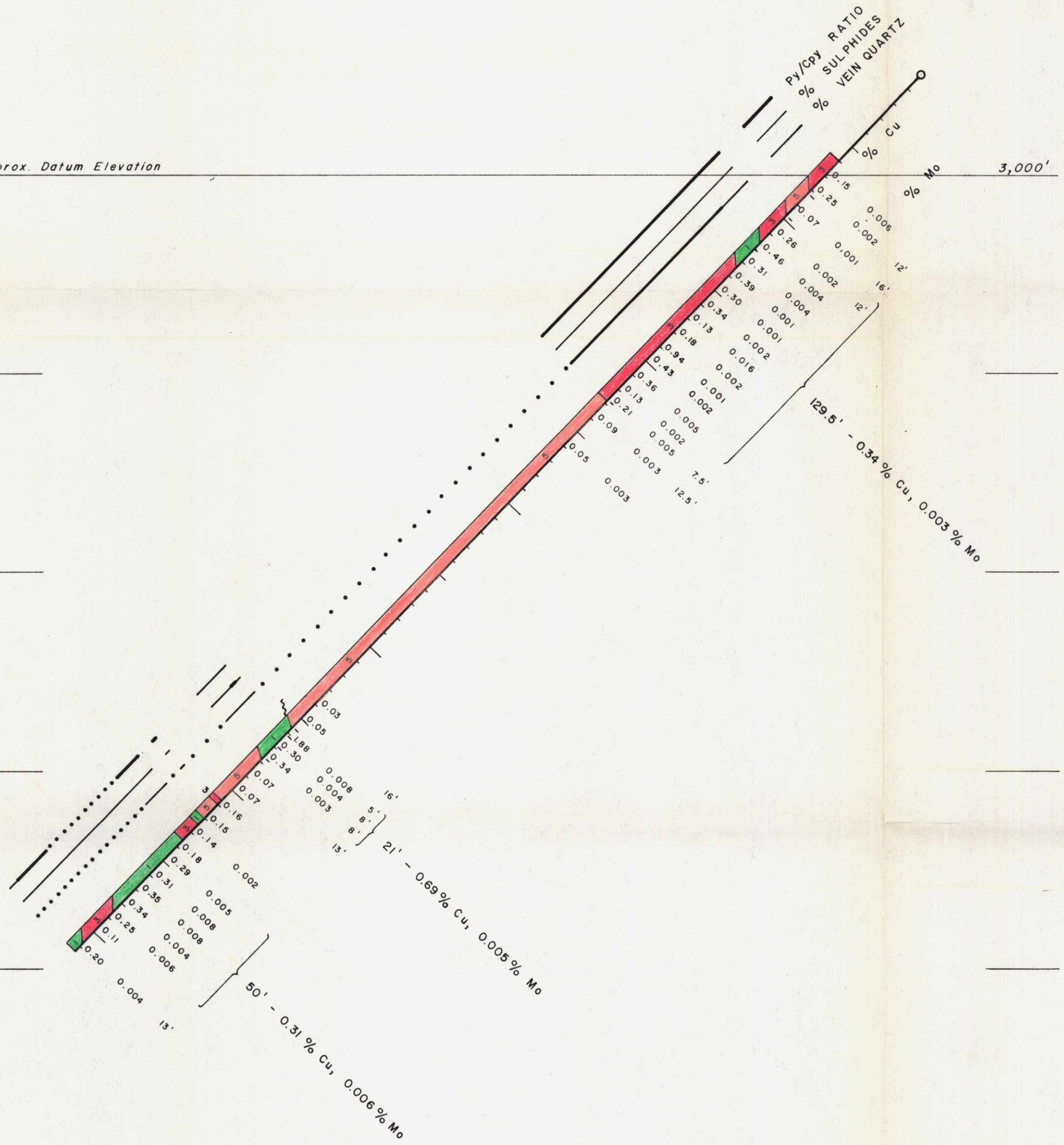
SCALE 50 0 50 FEET 1 : 600

To accompany report " LENNAC LAKE DRILL PROGRAM - 1974"
by: C. J. Hodgson

#4524

N.T.S. Ref 93 B.9, 16

FIG. 4b



L E G E N D

- 5 — Post mineral porphyry.
- 4 — Porphyritic quartz diorite
- 3 — Biotite feldspar quartz porphyry.
- 2 — Hazelton Group — Siltstone and greywacke.
- 1 — Hazelton Group — Andesitic flows and pyroclastics.

Shear zone.

Intusive breccia.

% Vein quartz: < 1; 1 – 3; 4 – 6; 7 – 12

% Sulphides: < 1; 1 – 3; 4 – 6; > 6

Py/Cpy Ratio: > 5/1; 4/1 – 2/1; 1/1 – 1/2

CO-ORDINATES 112+00 N
74+64 E
COLLAR ELEVATION 3,050'
AZIMUTH 303° AT COLLAR
INCLINATION -46° AT COLLAR

TOTAL DEPTH 613'

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

DIAMOND DRILL HOLE SECTION
LL-74-3

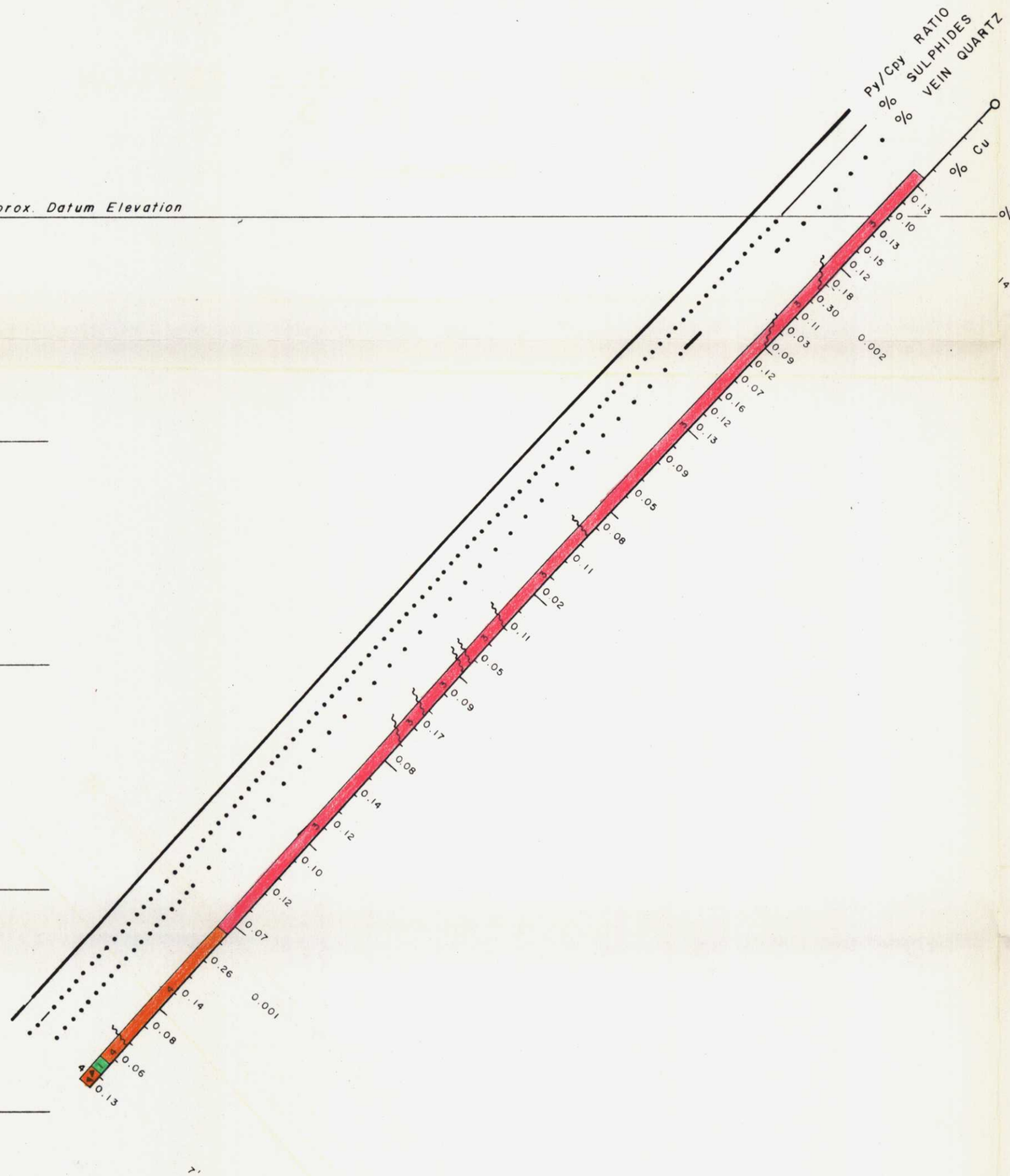
SCALE 50 0 50 FEET 1 : 600

To accompany report " LENNAC LAKE DRILL PROGRAM - 1974"
by: C. J. Hodgson

#4524

N.T.S. Ref 93 L.9, 16

FIG. 4c



L E G E N D

- 5 — *Post mineral porphyry.*
- 4 — *Porphyritic quartz diorite*
- 3 — *Biotite feldspar quartz porphyry.*
- 2 — *Hazelton Group — Siltstone and greywacke.*
- 1 — *Hazelton Group — Andesitic flows and pyroclastics.*

Shear zone.

Intusive breccia.

% Vein quartz: *< 1* / *1 – 3* / *4 – 6* / *7 – 12*

% Sulphides: *< 1* / *1 – 3* / *4 – 6* / *> 6*

Py/Cpy Ratio: *> 5/1* / *4/1 – 2/1* / *1/1 – 1/2*

CO-ORDINATES 108+00 N
73+93 E

COLLAR ELEVATION 3,050'

AZIMUTH 300° AT COLLAR

INCLINATION -46° 30' AT COLLAR
-48° at 597'

TOTAL DEPTH 597'

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

DIAMOND DRILL HOLE SECTION
LL-74-4

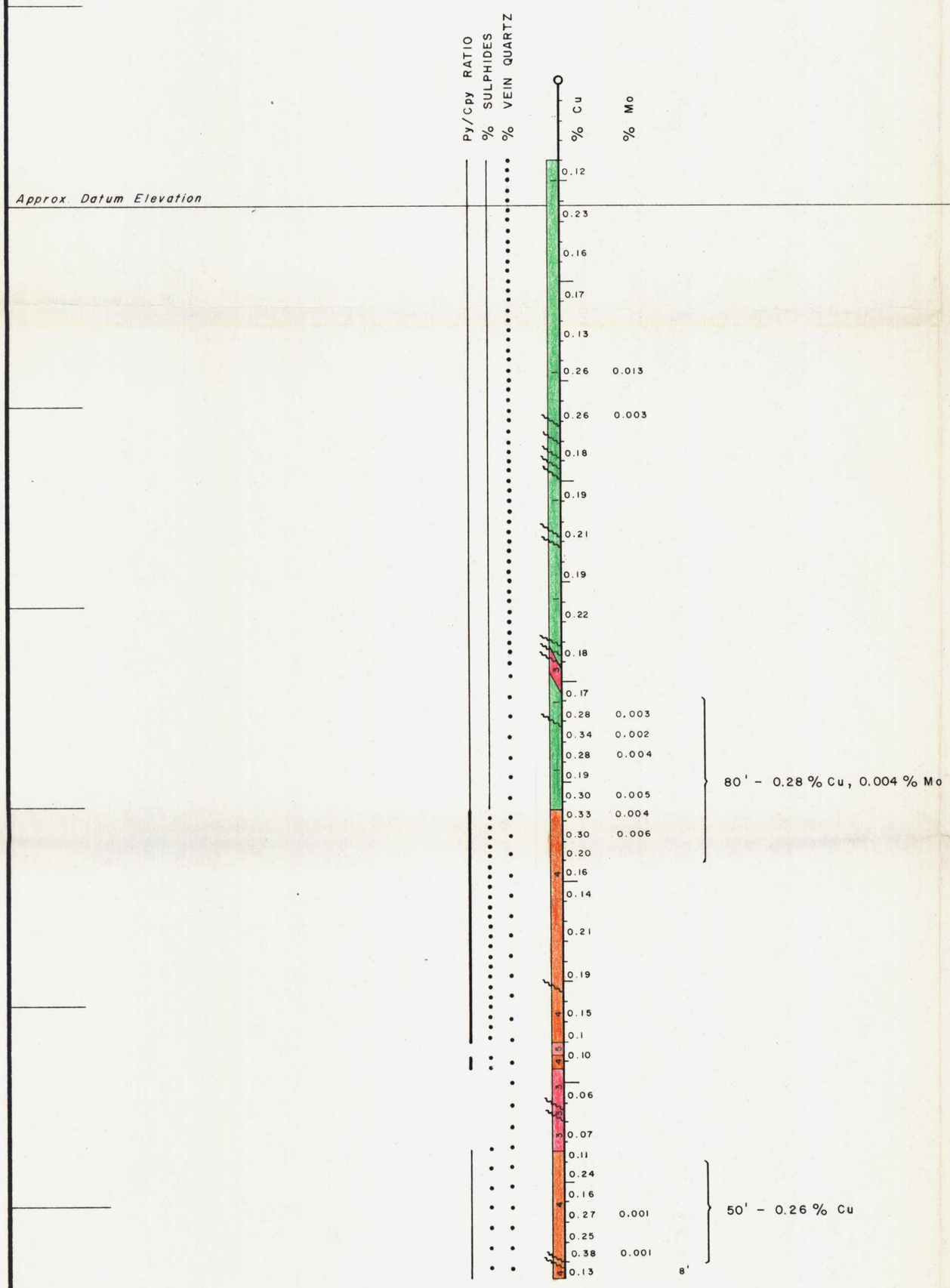
SCALE 50 0 50 FEET 1 : 600

To accompany report " LENNAC LAKE DRILL PROGRAM - 1974"
by: C. J. Hodgson

#4584

N.T.S. Ref 93 L.9, 16

FIG. 4d



L E G E N D

- 5 — Post mineral porphyry.
- 4 — Porphyritic quartz diorite
- 3 — Biotite feldspar quartz porphyry.
- 2 — Hazelton Group — Siltstone and greywacke.
- 1 — Hazelton Group — Andesitic flows and pyroclastics.

Shear zone.

Intusive breccia.

% Vein quartz: < 1 | 1 – 3 | 4 – 6 | 7 – 12

% Sulphides: < 1 | 1 – 3 | 4 – 6 | > 6

Py/Cpy Ratio: > 5/1 | 4/1 – 2/1 | 1/1 – 1/2

CO-ORDINATES 108+00 N
78+00 E
COLLAR ELEVATION 3,062'
AZIMUTH — AT COLLAR
INCLINATION -90° AT COLLAR

TOTAL DEPTH 598'

AMAX POTASH LIMITED

LENNAC LAKE COPPER PROPERTY

OMINECA MINING DIVISION — BRITISH COLUMBIA

DIAMOND DRILL HOLE SECTION
LL-74-5

SCALE 50 0 50 FEET 1 : 600

To accompany report " LENNAC LAKE DRILL PROGRAM - 1974 "
by: C. J. Hodgson

#4524

N.T.S. Ref 93 L.9, 16

FIG. 4e