COGEMA CANADA LIMITED

PORPHYRY CREEK PROJECT

FINAL REPORT 1988

"GEOLOGICAL TRAVERSES"

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October 1988

Ref. No. 88-CND-52-01
(Document: #0020Y)

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1. INTRODUCTION

The Porphyry Creek property comprises 80 contiguous mining claims and is owned and explored by COGEMA CANADA Ltd. It occurs just to the west of the Burntbush River property, on which we have explored for gold since 1986.

The claims were staked in August 1986 based on the interpretation from regional airborne magnetics that a major-east west structural deformation zone continued west from the Burntbush River property onto this ground.

In December 1987, a detailed magnetic-electromagnetic airborne survey was commissioned to Aerodat, Ltd (see COGEMA Reference No. 87-CND-52-01). Next, in July 1988, a program of systematic ground traversing of the property was performed in order to identify, map and sample all (if possible) outcrop occurrences. This report describes results of that program.

2. LOCATION AND ACCESS

The project area is located in northeastern Ontario; at 150 km northeast of Timmins, at 150 km north of Kirkland Lake, at 100 km northwest of La Sarre, Que. and at 35 km west of the Ontario-Quebec border (49°30'N, 80°W, see Fig. 1). The claim block covers approximately 13 km^2 mostly within Hoblitzell township, but three claims cross into Blakelock township at the western end.

During the field program, access to the property was by helicopter. We used a helicopter which was based at a temporary camp constructed by Newmont Exploration of Canada Ltd at only ~12 km to the southeast.

The property is not readily accessed by any other means, although parts of the winter road system constructed by Esso Minerals Canada in recent years come to within a few tens of meters of the southern property boundary.

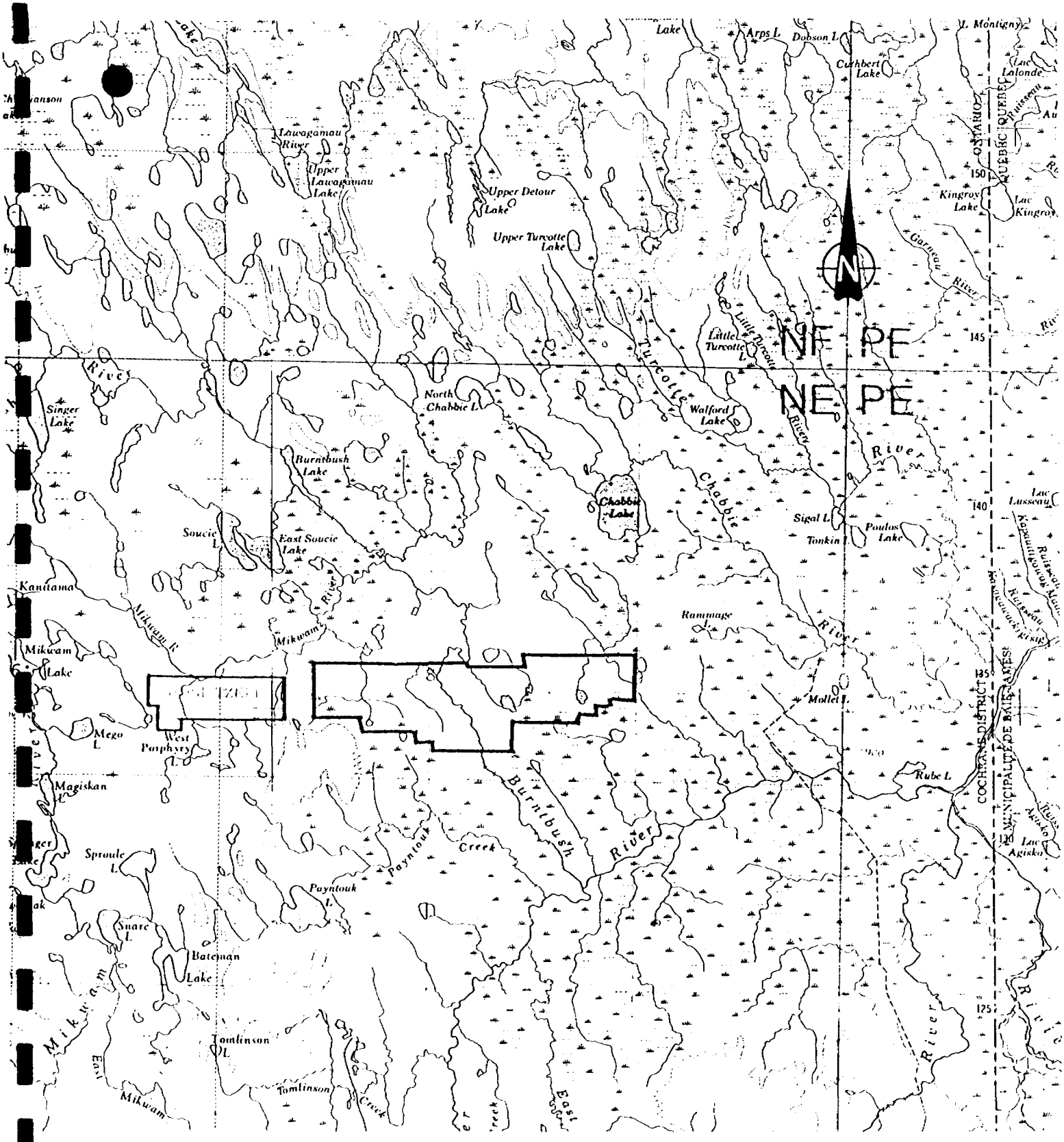


Figure 1 : Location map of the Porphyry Creek (to the west) and Burntbush River (to the east) properties. Scale 1:250 000

3. REGIONAL GEOLOGIC SETTING

The Porphyry Creek property is located in the northern part of the Archean Abitibi greenstone belt of the Superior Province of the Canadian Shield. Voluminous publications, dealing with regional and local studies within the Abitibi belt, are available for reference and continue to be issued on a regular basis. However, the area underlain by our claims has up until the recent discoveries in the "Casa Berardi belt" of Quebec, received very little attention. This was due primarily to poor bedrock exposure and the lack of producing mines.

Thomson (1936) was the first to publish a geological map which includes the claim group. His map is useful in some respects, but his interpretation is not comprehensive and is outdated.

More recently, Johns (1982) has published a geological map of the Burntbush-Detour Lakes area. But, the western limit of his map approximately correlates with the eastern limit of the project area.

Our best assumptions of the bedrock geology of the property prior to the field program were therefore based on extrapolation of the known (and interpreted) geology of our Burntbush River property, and on our interpretation of the detailed airborne survey results.

Prior to this field program, we interpreted that most of the claim group was underlain by high-grade metamorphosed sediments similar to the "northern metasedimentary terrane" described by us on the Burntbush River property (see, for example, COGEMA Reference No. 88-CND-47-01). The main structural deformation zone originally interpreted by us to transect the property in an east-west direction appears, from the detailed airborne magnetics contouring, to bend southwest to the east of the property and then approximately follow, or occur to the south of, the Porphyry Creek claim group.

4. PREVIOUS EXPLORATION WORK

Numerous companies, starting with CONWEST EXPLORATION Co Ltd in 1959, have performed reconnaissance drilling in the general area, mostly directed at base metal sulfide (electromagnetic) targets. Up until now, however, no drill holes have been performed within the present limits of the Porphyry Creek project area.

More recent exploration work has focussed towards gold. In addition to COGEMA CANADA Ltd, NEWMONT EXPLORATION of CANADA, ESSO MINERALS CANADA and others, have done much work in the past few years.

The recent work performed by Esso is most pertinent since their property adjoins the Porphyry Creek project to the south, and since a few drill holes have been performed very close to the common boundary.

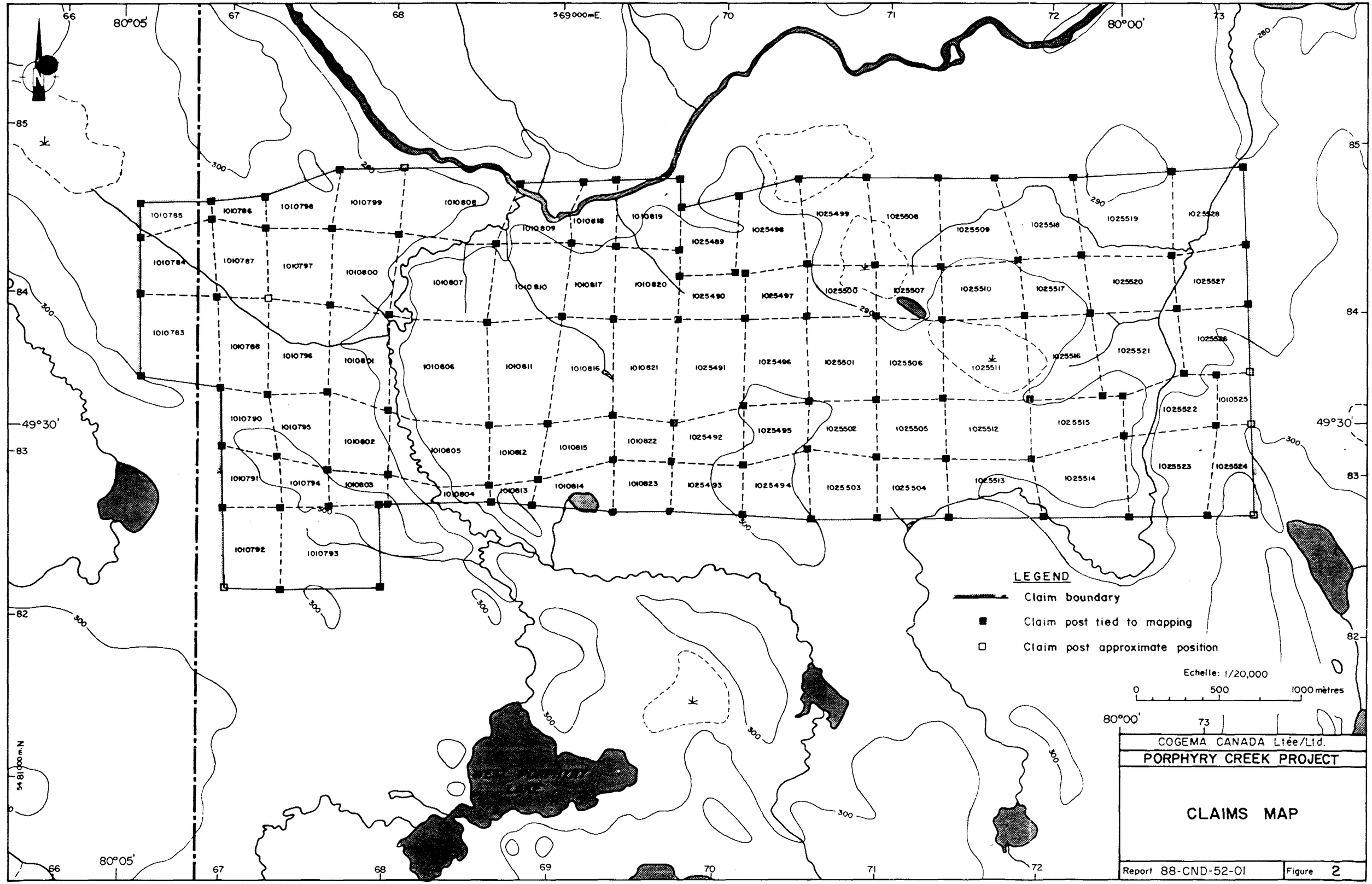
Hole HN-87-7 was drilled to test an IP anomaly close to Esso's northern boundary, at a position approximately equivalent to the centre of the Porphyry Creek property (in east-west sense). They report mostly mafic volcanic derived sediments with subordinate felsic to intermediate crystal tuffs. Alteration is generally weak (calcite, silicification, sericitic), and shearing is not mentioned. Gold values up to 0.34 g/t are reported.

Hole HN-87-15 was also drilled to test an IP anomaly close to their northern boundary at about 1.5 km west of HN-87-7. They report similar rock types, but with an increased proportion of felsic to intermediate rock compositions. Alteration is generally weak (carbonate, chlorite, silicification), and shearing is not mentioned. Gold values up to 0.15 g/t are reported.

5. DESCRIPTION OF FIELD WORK

The objective of this field program was to traverse the property on foot at close enough spacing to be able to map most, if not all, of the outcrop exposures. Based on minimum spacing requirements to gain special provisions credits for a geological survey, a nominal spacing of 100 m was chosen. On the eastern side of the property, average spacing of traverses was closer to 80 m, due to our interpretation from aeromagnetics that a southwest trending structure was present in the southeast part.

Since the outcrop exposure was anticipated to be low, grubhoes were carried at all times by all workers. Workers were encouraged to dig frequently in search of hidden outcrop and significant float boulders. Additionally, notes were taken concerning vegetation and surficial cover (in order to qualify for special provisions credits). Finally, claim posts were tied into the mapping, but not all claim posts were found in the field (see Fig. 2).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Claim boundary
Claim post tied to mapping
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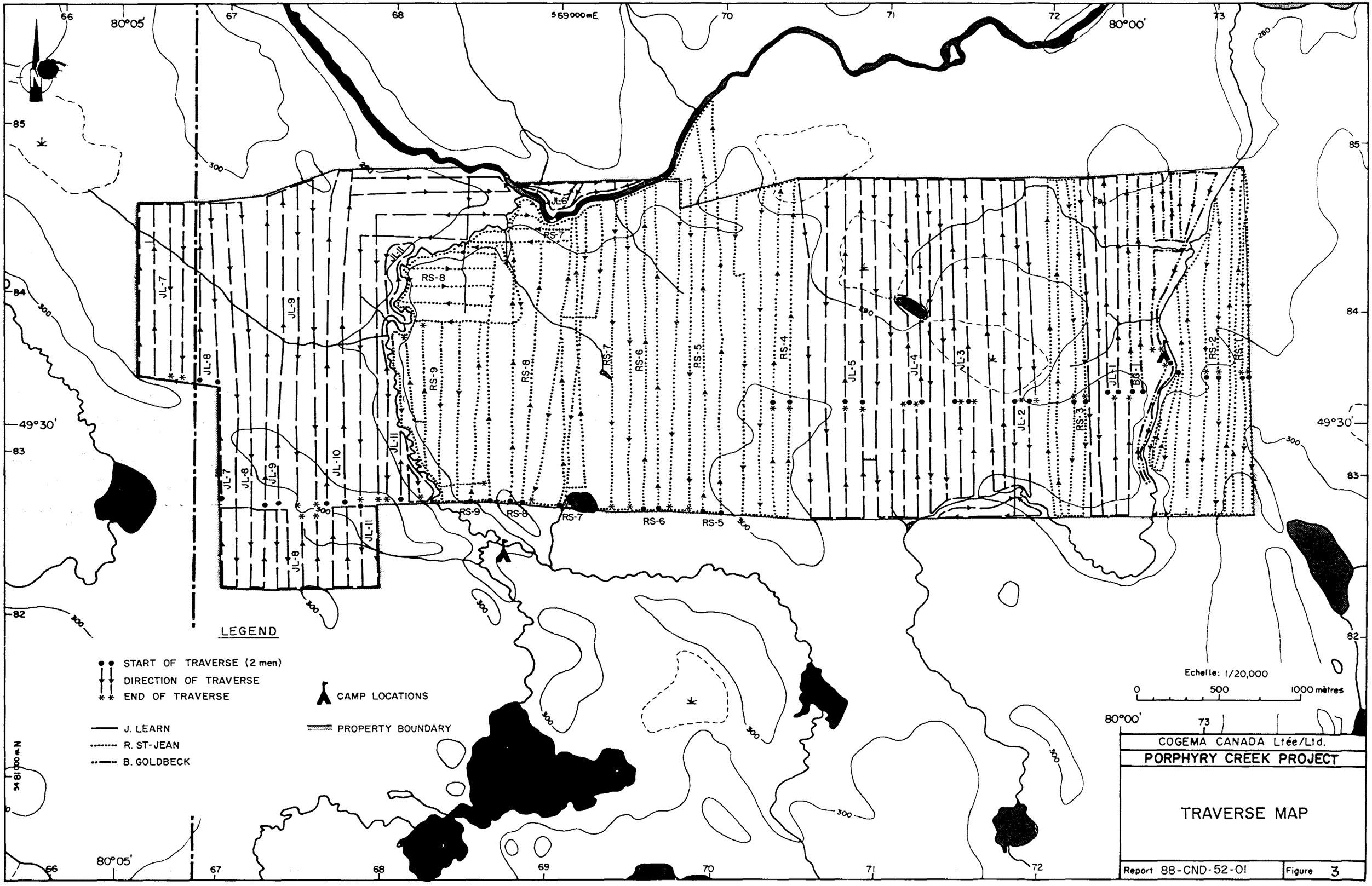
COGEMA CANADA Ltée/Ltd.
PORPHYRY CREEK PROJECT
CLAIMS MAP
Report 88-CND-52-01
Figure 2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JL-11
RS-1
RS-2
RS-3
RS-4
RS-5
RS-6
RS-7
RS-8
RS-9
B.S.L.
LEGEND
START OF TRAVERSE (2 men)
DIRECTION OF TRAVERSE
END OF TRAVERSE
J. LEARN
R. ST-JEAN
B. GOLDBECK
CAMP LOCATIONS
PROPERTY BOUNDARY
Echelle: 1/20,000
0 500 1000 mètres
COGEMA CANADA Ltée/Ltd.
PORPHYRY CREEK PROJECT
TRAVERSE MAP
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Figure 3

Traversing was performed in groups of two (one geologist and one geological technician), and mostly in a north-south direction. In most cases, two workers traversed separate lines at 80 to 100 m apart and these lines are drawn separately on Figure 3. Where the geologist and technician walked closer than 50 m apart, only a single line is drawn. All traverses were performed by pace and compass, with airphoto support, and claim posts were used as reference points on a regular basis.

6. RESULTS OF FIELD WORK

6.1 Vegetation

Distribution of the vegetation types is shown at 1:5000 scale on Map 1. This map was constructed using aerial photographs and notes taken during traverses. Transition between vegetation types is always gradual, so the boundaries drawn are somewhat arbitrary. The main widespread factor which determines the vegetation type is drainage, but other factors may locally be of greater importance eg relief, soil type.

The most common tree species which grows in the project area is black spruce. The low ground cover is a mixture of mosses, sedges and Labrador tea. The predominant vegetation unit mapped has been named spruce forest, and this unit consists almost exclusively of black spruce, where the trees are all >10 cm in diameter.

In areas of poor drainage, the following vegetation types are encountered:

spruce muskeg : widely spaced trees <10 cm in diameter, found in low lying flat areas underlain by organics and clay; due to the thick organic layer, standing water is seasonal so that during the summer months it is in fact quite dry.

spruce tamarack muskeg : fewer trees than in spruce muskeg type, still <10 cm in diameter, abundant tamarack, found also in low lying flat areas underlain by organics and clay; however, there is still considerable standing water even in the summer months.

swamp : mostly grasses, we also saw insectivores and bog cotton, abundant standing water.

spruce tamarack forest : shown on Map 3 as a subunit of the main spruce forest type, black spruce is still predominant, but tamarack trees >10 cm in diameter are common, found in flat, relatively low lying areas underlain by clay but lacking a thick organics layer; "holes" generally about a meter large with standing water are common.

In areas of improved drainage, the following vegetation types are encountered:

alders : thick alders occur in and adjacent to stream beds, alders may be 4 m high, and in these areas they are generally the only tree species, close to the boundaries with other vegetation types, Labrador tea and dwarf birch thrive, black spruce and/or tamarack may occur.

spruce forest with alders : shown on Map 3 as a subunit of the main spruce forest type, these low lying areas slope gently towards stream beds; although they were dry in the summer, they must be wet enough during spring and during periods of rainfall to support a relatively dense alder undergrowth.

spruce forest with deadfall : also shown on Map 3 as a subunit of the main spruce forest type, these areas are well drained, and generally at slightly higher elevation than spruce forest; the spruce trees have grown tall, and the weight of snow and/or high winds have toppled them, the thin organic layer into which the roots have grown cannot keep the trees rooted under stressful conditions; usually there are more abundant Canada balsam fir in these areas, compared to spruce forest.

mixed forest : generally occurring at the highest elevations, eg along ridges or along well drained gently sloping areas, black spruce is still predominant, but a wider variety of subordinate tree types is present, eg Canada balsam fir, poplars, white birch and jack pine. Mature jack pine trees occur only where drainage is excellent and on sandy soils. Fallen trees are common and may be abundant.

overmature forest : mixed forest of very mature trees, and much deadfall; the trees are so old and large that most have died, thus a new generation of growth has begun; where young trees have not yet started to grow, raspberry bushes thrive.

flood plain : one small area in the northeast part of the claims, at the junction of two streams has been termed flood plain; there are no trees, there are only tall grasses and very few alders and dwarf birch, and although from airphotos it appears that this area is swamp or alders, in fact it is very dry, and resembles a wheat field.

Finally, in the southeastern part of the property, there is considerable new growth of jack pine, spruce and tamarack with maximum age of trees estimated to be about 20 years. We interpret these areas to be the result of several small forest fires, probably of the same age, since rejuvenated.

6.2 Surficial Geology

Most of the claim group is underlain by Cochrane Till. This till is very clayey, and gives a gently undulating topography. A few ridges trending southeast parallel the ice-flow direction, and these have steep northeast faces (~10 m relief over 100 m), and gentle backslopes. Granite boulders up to 30 m^3 are occasionally found at surface, and local concentrations of the largest boulders can be found along the steep side of such ridges, and in stream beds.

In the west part of the claim group, much of the area is underlain by a moderately well sorted fine to medium sand. This is probably glacial outwash or glaciolacustrine, and clearly overlies the Cochrane Till. Minor very small sand kames occur in the southeast.

6.3 Bedrock Geology

As expected, very few outcrop exposures were found. However, a few previously undocumented outcrops were found, mapped and sampled, and these are shown on Map 2 (which also gives the surficial geology). Also plotted on Map 2 are the approximate positions of diamond drill holes HN-87-7 and HN-87-15 (Esso Minerals) which were described in chapter 4.

The following descriptions are based on field descriptions and on chemistry results and thin section examination (see Appendix for full and detailed descriptions).

The most important outcrop found occurs in the southeast part of the property. Much time was spent manually stripping these exposures, since, as has already been stated, we perceived this area to be of the greatest potential for gold mineralization.

The outcrop was mapped as interbedded greywacke and argillite intruded by fine to medium grained mafic dykes and subordinate felsic dykes. Argillite beds are characterized by scattered garnets set in a moderately foliated, very fine grained dark grey to black groundmass. Beds are generally much less than a meter thick and occasionally pinch out or are folded. Greywackes are grey to dark grey fine grained rocks that are weakly foliated and these beds may exceed a meter in thickness. One bed appeared to be graded, indicating a stratigraphic top towards the north. The mafic dykes strongly resemble the greywackes but are massive, rather than weakly foliated, except in places where the two units are sheared. Where shearing was observed, it was very difficult to distinguish mafic dyke material from the greywackes. A few thin, very light coloured felsic dykes seem to have been emplaced along fault contacts.

Bedding and foliation strike east-northeast and dip steeply north. Most of the dyke rock contacts are parallel to subparallel to the bedding/foliation; only in one place was a truly discordant contact found between a mafic dyke and argillite, at about 30° from the bedding/foliation.

Shearing of weak to moderate intensity is best developed in the north part of the eastern exposures. It is parallel to subparallel to the bedding/foliation; the best evidence of shearing are the abundant low angle truncations of the foliation, and the appearance of foliated mafic dyke material intimately mixed with greywacke.

In this area we also observed minor brittle faulting (fractures with unknown, probably minor displacements) parallel to subparallel to the shear fabric, and a few oblique fractures which had folded the pre-existing mineral fabrics (offset a few cm).

Microscopic studies revealed that the metasediments could not be typical greywackes and argillites, since the hornblende content of both rock types is very high. In fact, the greywackes are mineralogically identical to the mafic dykes, the only real difference between the two is the presence of rare hornblende porphyroblasts (phenocrysts ?) in the dyke samples (hornblende in the greywackes and argillites is fine grained). Thus, these sediments are probably waterlain mafic tuffs.

Minor and major element studies support the mafic metavolcanic affinities of these rocks. Table 6-1 compares minor element results from reverse circulation bedrock chip samples from the Burntbush River project for greywackes and mafic metavolcanics, with the results from these samples. These samples clearly approximate very closely the mafic metavolcanic results from the Burntbush area.

Table 6-1

Comparison of selected elements results:
Burntbush River Project* greywackes, mafic metavolcanics, and Porphyry Creek samples from outcrop in southeast

	GREYWACKE $\bar{x} \pm \sigma_n$ n = 62	MAFIC VOLC. $\bar{x} \pm \sigma_{n-1}$ n = 18	PORPHYRY CREEK - Range of Values - T1-R-1 to T1-R-8
Ba (ppm)	680 ± 140	200 ± 130	65 - 200
Cs (ppm)	4.2 ± 1.6	1.5 ± 1.1	<0.5 - 1.7
Cr (ppm)	300 ± 60	195 ± 65	110 - 320
Co (ppm)	29 ± 5	66 ± 51	27 - 68
Fe (%)	4.9 ± 0.5	9.2 ± 1.6	6.6 - 17.0
La (ppm)	28 ± 6	12 ± 4	4 - 12
Rb (ppm)	85 ± 20	26 ± 13	<5 - 52
Sc (ppm)	16 ± 2	33.9 ± 5.4	20.0 - 35.4
Th (ppm)	6.3 ± 1.7	0.9 ± 0.4	0.2 - 0.9
Na (%)	2.8 ± 0.4	2.05 ± 0.6	0.83 - 3.10

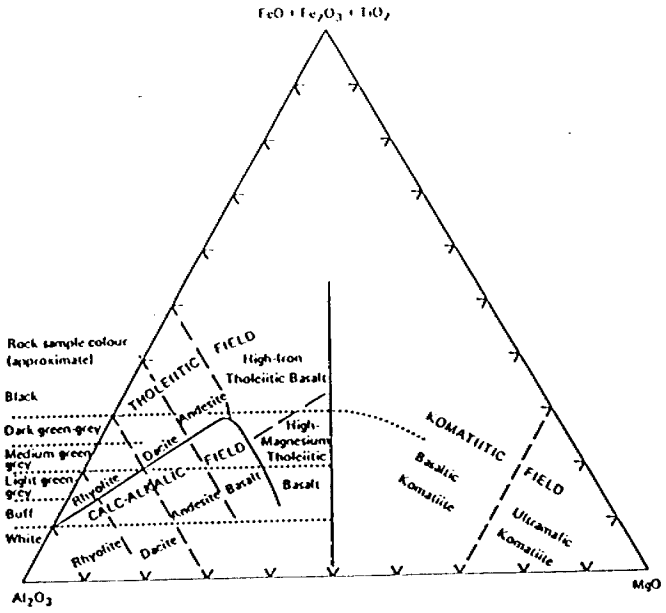
* taken from COGEMA Ref. No. 88-CND-47-01

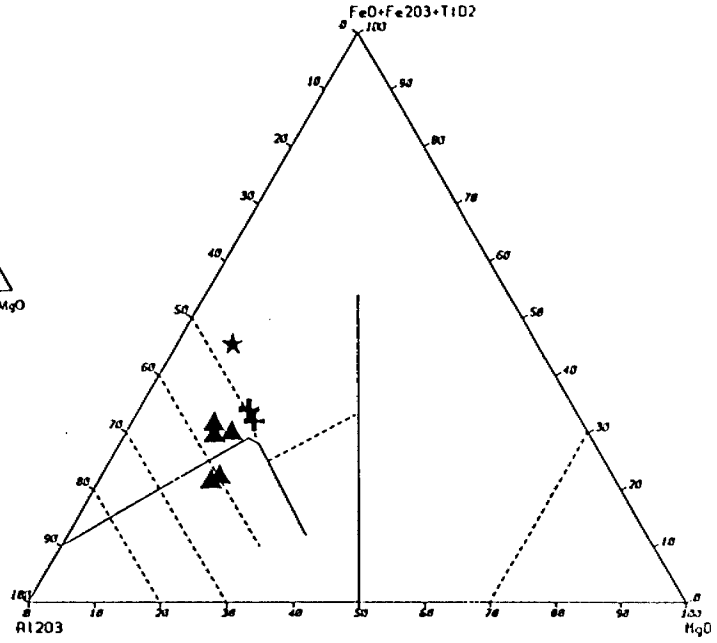
1) outcrop T1 (southeast)

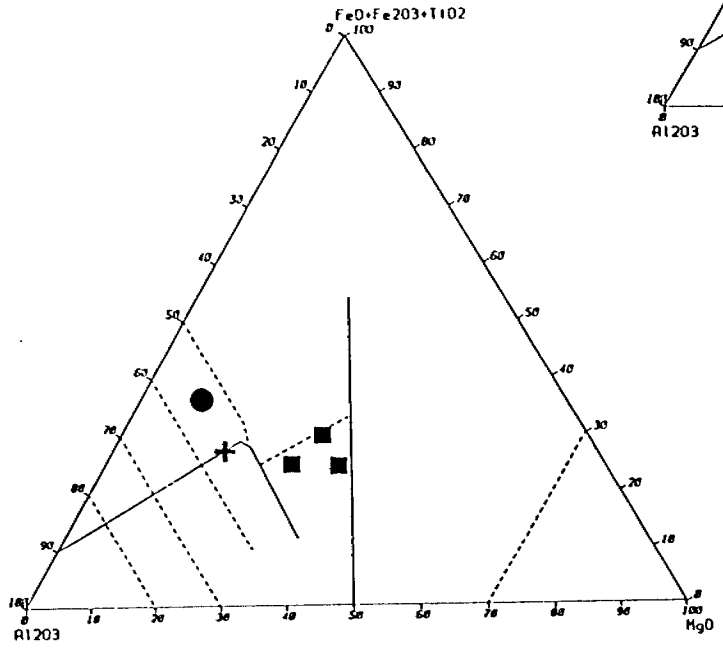
+ = mafic dykes (samples 3,6)

★ = "argillite" (sample 5)

▲ = "greywacke" (samples 1,2,4,7,8)







2) outcrops RIO, T2 (north)

+ = vein (sample 12)

■ = metabasalt (samples 11,13,14)

● = mafic tuff (sample RIO from river)

Figure 6-1 : Jensen cation plots of Porphyry Creek metavolcanic samples: 1) waterlain tuffs and mafic dykes from southeast, 2) pillow lavas from north, and outcrop RIO in Mikwam River (mapped by Thomson).

Furthermore, Jensen cation plots (see Fig. 4) of these rocks show tholeiitic basalt to andesite trends except for two samples. One of these (T1-R-7) is clearly very strongly altered, the other (T1-R-4) was not thin sectioned but was taken adjacent to a brittle fault similar to the altered sample.

It is very likely that this outcrop strongly resembles the "mafic volcanic derived sediments" described by Esso Minerals in drill holes HN-87-7 and HN-87-15.

The other outcrops found are all located in the north central part of the property, in or close to the Mikwam river.

One of these exposures, located about 300 m south of the Mikwam, consists of well preserved pillowed metabasalt. Pillows are undeformed to weakly stretched, bedding is parallel to foliation (east-southeast, dipping north), and stratigraphic tops are to the north (from pillow shapes).

Most samples are composed predominantly of hornblende and feldspar and are fine-grained and granoblastic (very weakly foliated). One sample though, showed clinopyroxene rather than amphibole. Although garnet was not observed in thin section, it was observed in the field to occur at the pillow margins.

Major element geochemistry results indicate that these are Mg-tholeiitic basalts (see Fig. 4).

A second, smaller outcrop of similar, but poorly exposed (due to staining and smoothing by river water) rock occurs in the Mikwam River. Thomson (1936) named it hornblende schist and this was interpreted by Bennett et al (1966) in their compilation study to be part of an extensive metasedimentary unit.

Microscopic examination shows that this rock is similar to the pillow basalts, but that foliation is much better developed. It plots on a Jensen diagram in the tholeiitic andesite field, thus it may better resemble the waterlain tuffs mapped in the southeast.

All of the remaining outcrops are of a coarse grained felsic granitoid. Megacrysts of K-feldspar (up to several cm large) and uncommon coarse muscovite flakes are set in a coarse-grained matrix of quartz and feldspar (orthoclase > microcline > plagioclase) with about 10% biotite. Minor hornblende and clinopyroxene, and accessory sphene (well formed wedge shaped crystals up to 1 mm), opaques and apatite are also present. At one locality, xenoliths of metabasalt were observed.

These outcrops have apparently not been documented. Although Thomson (1936) has mapped granite downstream from here, Bennett et al (1966) draw the (inferred) contact at about 1 km north of these exposures.

Gold Geochemistry

All of the rock samples taken were analyzed for their gold content, and all gave low, background values (<5 ppb).

7. DISCUSSION

The Porphyry Creek property was staked based on regional airborne magnetics interpretation which suggested that a major east-west structural deformation (shear) zone continued west from the Burntbush River property into the area.

Results of a detailed airborne survey instead suggested that this deformation zone changed orientation near the eastern boundary of the new property, and swung southwest, probably entering the project area in the southeast corner for a distance of a few hundred meters before entering Esso Minerals' HN prospect to the south.

At this point, we chose to perform ground traverses across the property to try and confirm this hypothesis, and to confirm that most of the property was underlain by greywackes with low potential for gold mineralization (a geologic extrapolation of our interpretation of the setting of the Burntbush River project area to the east), before abandoning the project.

The most important result of the program, therefore, was the discovery of an outcrop in the southeast part of the property, since

i) the interpretation that shearing oriented east-northeast in this area was confirmed

ii) the field mapping suggested that these were bedded metasediments similar to the northern metasedimentary terrane at the Burntbush River.

We now interpret that the bedded rocks are waterlain mafic tuffs, based on microscope studies and geochemistry results, and that they are similar to "mafic volcanic derived sediments" described by Esso from drill holes further west. But, we still interpret these rocks to be part of the "northern metasedimentary terrane" described at our Burntbush River project, since

i) the rocks have mafic tholeiitic chemistry: all of the metavolcanics in the "northern metasedimentary terrane" at our Burntbush property are mafic tholeiitic rocks, whereas in the "southern metavolcanic terrane" calcalkaline metavolcanics predominate over tholeiitic types, and although mafic rocks are most common, intermediate and felsic varieties also occur.

ii) the Porphyry Creek property is mostly characterized by uniform, low amplitude magnetic susceptibilities: this setting resembles that in the "northern metasedimentary terrane" at our Burntbush property. But, at Porphyry Creek, the total field values are about 200 nT higher than at the Burntbush, and this is explained by the more abundant ferromagnesians in the waterlain tuffs. Thus, the bedrock north and northwest of this outcrop probably resembles the rocks exposed here.

If the above interpretations are true, then the main shear zone which extends southwest from the Burntbush property must pass southeast of this outcrop and into the Esso Minerals' HN prospect. Thus, the four claims in the southeast corner of the 80 claim block hold the best potential for gold mineralization.

But, this main contact between the "northern metasedimentary terrane" and the "southern metavolcanic terrane" has not yet been drilled on the Burntbush River property, and the nature of this contact should be determined before further work in these four claims is undertaken.

We could drill a small number of reverse circulation drill holes to try and better locate the position of this contact, or alternatively, we could proceed directly to a diamond drill program.

The only other outcrops found during the field program occur near the north boundary. Most of these are coarse-grained megacrystic granites, and their discovery indicates that the inferred contact which appears on current maps should be moved about 1 km further south in this area.

Pillowed metabasalt was also found, which is similar to the setting in the Burntbush area. In the Burntbush area though, these basalts are easily mapped using airborne magnetics contours, since the basalts have magnetic susceptibility values which give total field contours at about 200 to 700 nT higher than the metasediments. At Porphyry Creek, the total field background values are already about 200 nT higher, so even though there is a slight perturbation of the magnetics contours at the pillow basalt outcrop (which trends east-south east - the same as the measured bedding/ foliation), the contrast is not apparent enough to map its extent.

8. CONCLUSIONS AND RECOMMENDATIONS

Although very few outcrops were found on the property, we feel confident that it is underlain mostly by waterlain mafic metatuffs with tholeiitic chemistry trends. Minor thin metabasalt flows are also present. These rocks are not considered by us to be high priority targets.

In the extreme southeast corner of the property, we have evidence that a major structural deformation (shear) zone is present, which marks the boundary between these metatuffs, and a more heterogeneous metavolcanic domain to the southeast. The exact nature of the contact should be determined by future drilling on the Burntbush River property to the east.

It is recommended that no work be performed on the Porphyry Creek project until results of this drilling are received and evaluated.

In any event, 76 of the 80 claims should be allowed to lapse, and all available and future assessment credits should be applied to the 4 claims in the southeast corner of the project area.

9. REFERENCES

Bennett, G., Brown, D.D. and George, P.T. 1967, Coral Rapids - Cochrane Sheet, Ont. Dept. Mines Geological Compilation Series, Map 2161

Johns, G.W. 1982, Geology of the Burntbush-Detour Lakes Area, District of Cochrane, Ont. Geol. Surv. Report 199, 82p

Thomson, R. 1936, Geology of the Burntbush River Area, Ont. Dept. Mines Ann. Report v.45, Part 6, p.49-63

Various assessment files, Office of the Resident Geologist, Kirkland Lake, Ont., Blakelock, Hoblitzell, Noseworthy Townships area:

COGEMA CANADA LTD	1986, 1987, 1988
CONWEST	1959
ESSO MINERALS	1987

A P P E N D I X

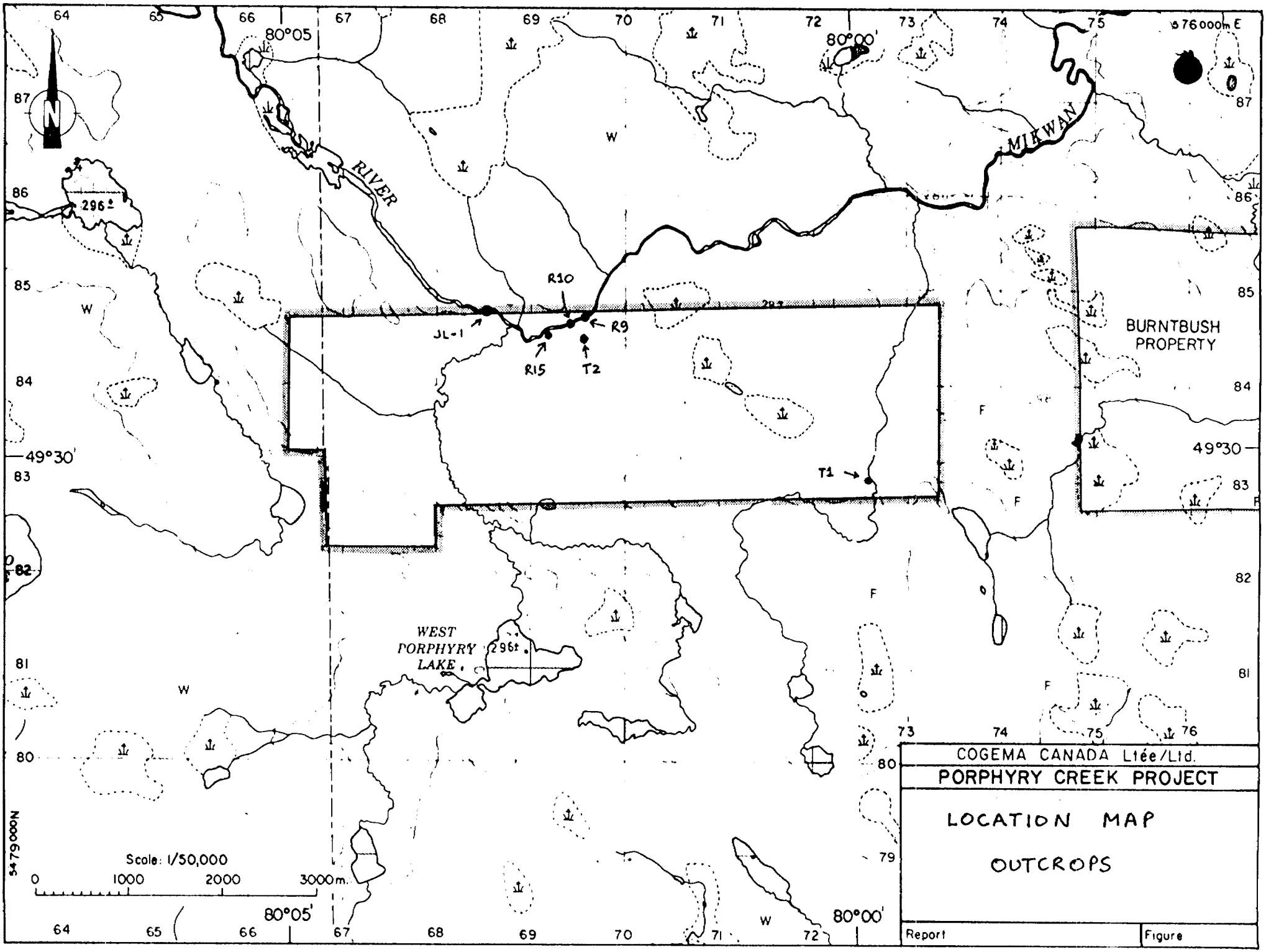
1. Outcrop Descriptions

2. Hand Specimen Descriptions

3. Thin Section Descriptions

4. Analytical Procedures and Chemistry Results

OUTCROP DESCRIPTIONS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RIVER
296±
R10
R9
R15
T2
JL-1
T1
BURNTBUSH
PROPERTY
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WEST
PORPHYRY
LAKE
296±
Scale: 1/50,000
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576000mE
COGEMA CANADA Ltée/Ltd.
PORPHYRY CREEK PROJECT
LOCATION MAP
OUTCROPS
Report
Figure

COGEMA CANADA LIMITEE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: T1

Photo No.:

Approximate dimensions and shape (sketch diagram over): 10 x 55 m

% Exposure: about 50%

Rock Type(s & %): ~70% mafic dyke (very fine grained gabbro?) intruding thinly interbedded greywacke and argillite (turbidites), minor felsic dykes, very minor fine mm quartz veinlets

Contact Zones and Relationships: intrusive contact mostly parallel to subparallel to bedding/foliation; no chilled margins

Structures: So, S1, S2, S3 bedding So parallel to foliation S_1 ~060/70NW shear fabric S_2 shows truncations at low angles but is parallel to subparallel to S_0/S_1

~~Cleavages~~

Folds minor "Z" folds plunge steeply northeast in S_1 plane also few minor folds related to late fractures (buckle-ductile)

Fracturation, Faulting, Veining-Density: fault at 060 to 075/70N, unknown but probably minor displacement, felsic dyke adjacent to fault plane; quartz veinlets generally parallel to S_1; main late fracture system trends north-south

Jointing:

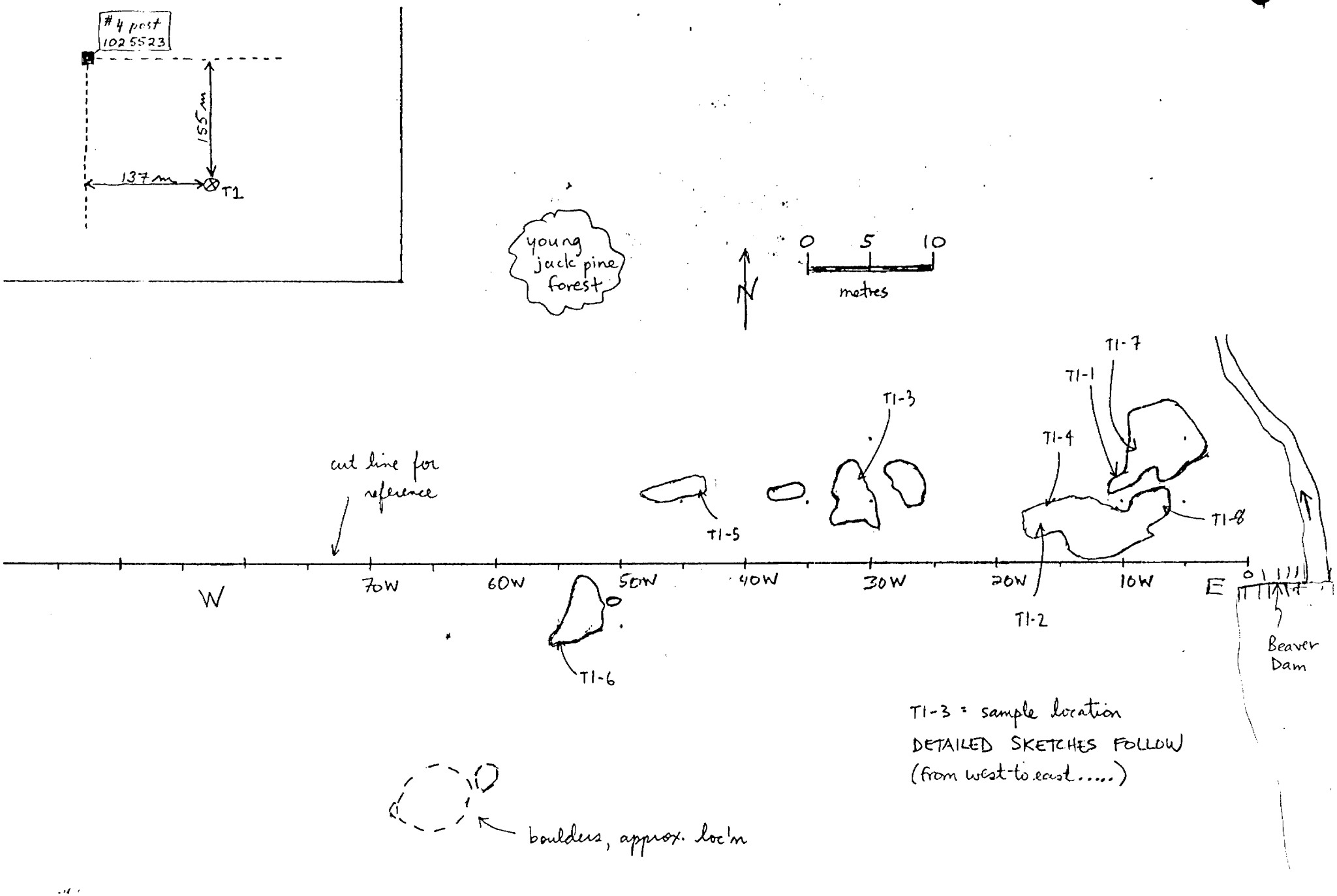
Alterations: discolouration (bleaching) along faults and some dykes, some local limonite

Weathering: smooth, rounded weathered surface to dykes; argillaceous sediments are pitted

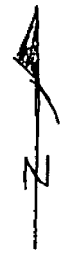
Glacial Striae: at ~170°

Sample No(s). if hand specimen(s) taken: T1-R-1 to T1-R-8

(Doc. #0003U - 12.06.86)



T1-3 = sample location
DETAILED SKETCHES FOLLOW
(from west-to-east.....)



Massive to banded tuff, dark greenish gray,
intermediate to mafic composition
moderately sheared
quartz - calcite (?) - epidote veins
steeply plunging quartz rods

55W ←1 m→ 50W reference line 45W

massive tuff S_1 055/N, mm quartz veinlets in S_1
late fractures ~ 155/vert.

massive tuff with mm quartz veinlets in S_1 – may be slightly transposed? good N-S late fractures 000/vert

felsic dyke with alteration "rim" ~// to S_1

felsic dyke ≠ above ~// to S_1

massive tuff, cm quartz - epidote - calcite(?) veinlets and lenses in S_1
S_1 ~ 060/N
late fractures at 110/vert : quartz-limonite breccia (?) (< cm)
late fractures at 015 (mm)

small "z" fold (10 cm.)
? 065
N50°?
transposed foliation

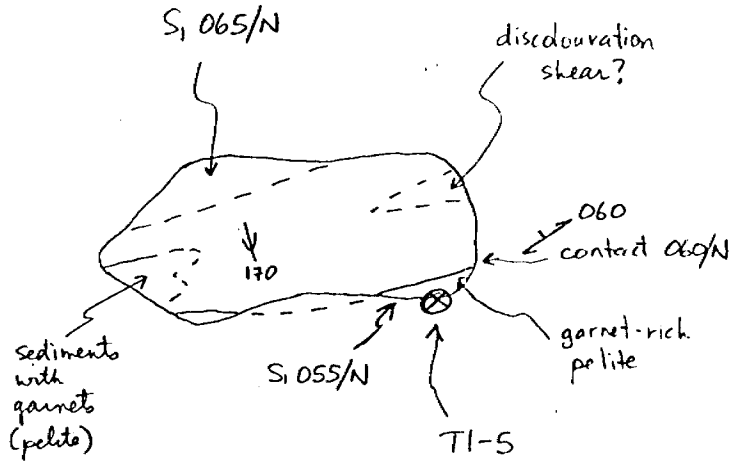
T1-6

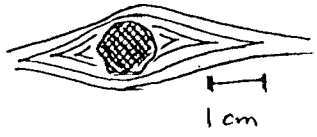
zone of sheared and brecciated tuff ±1m
quartz - chlorite - epidote(?) lenses 2cm
brecciated tuff given by inconsistent S_1 transposed S_1 (not measured), undulating foliation
lineation on quartz veinlets and lenses 55° to 60° at 000

massive tuff (as above)

lineation 45° @ 000

strong late fractures system
~ 010/vert

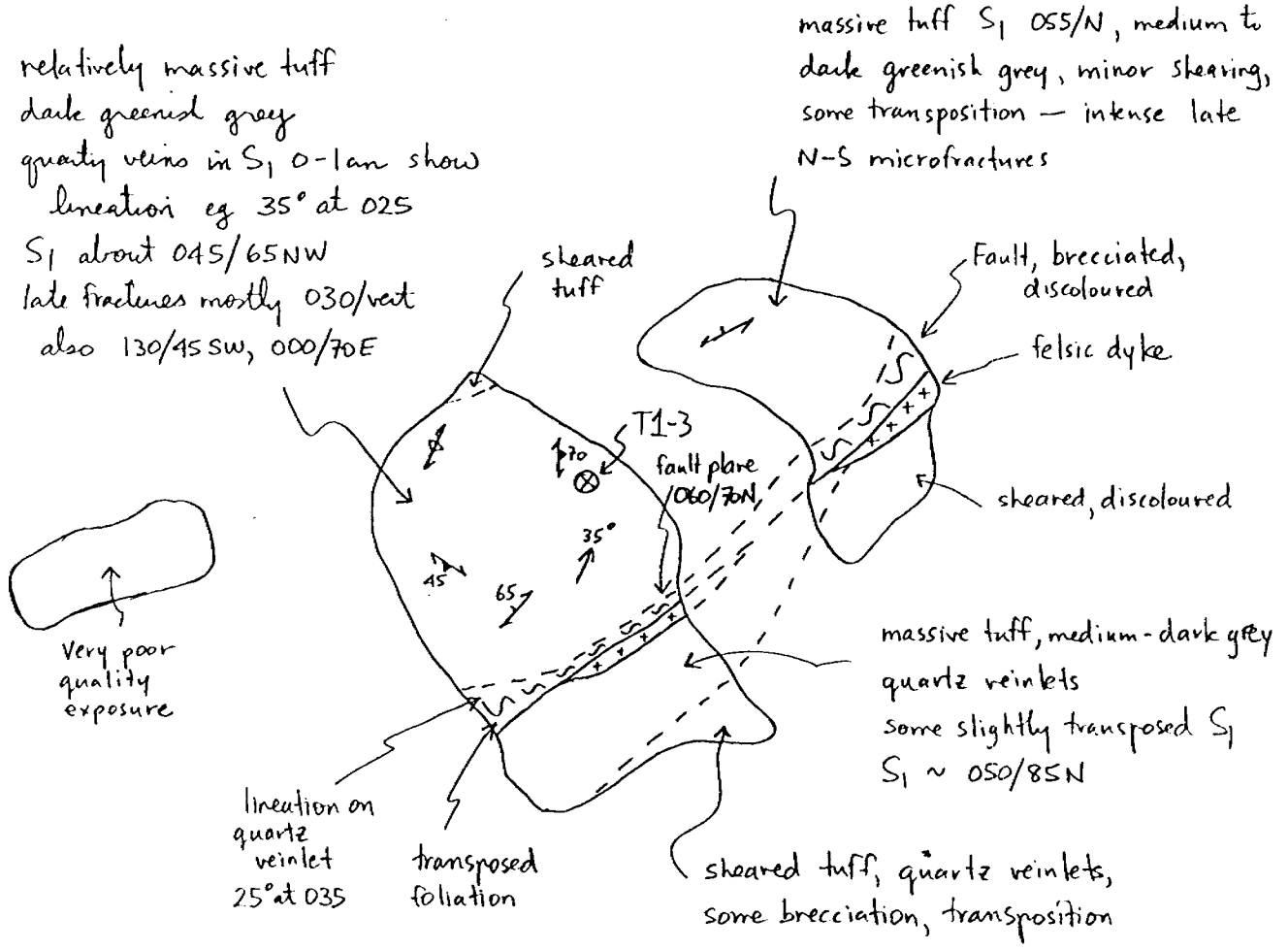


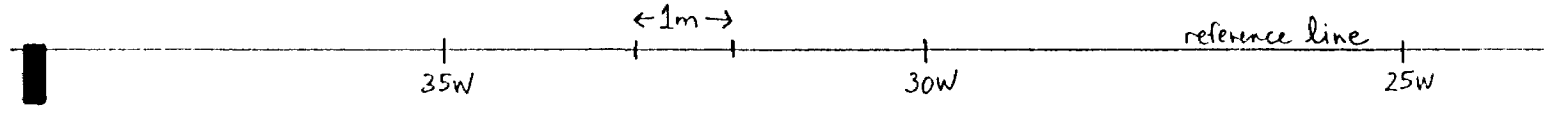


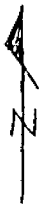
garnets
slow augen
texture but
are not stretched

Massive intermediate to mafic tuff
with mafic flow? (medium to dark grey - steel grey) greenish grey
some garnets (up to 1 cm) in mafic flow
very few quartz veins
very weakly sheared
some brecciation

FAULT (western part) 060/70N
cataclased rock rich in chlorite
5-10 cm wide
southern edge is felsic dyke 0-10 cm wide
foliation slightly different on N and S sides of fault
transposed S_1 in fault!

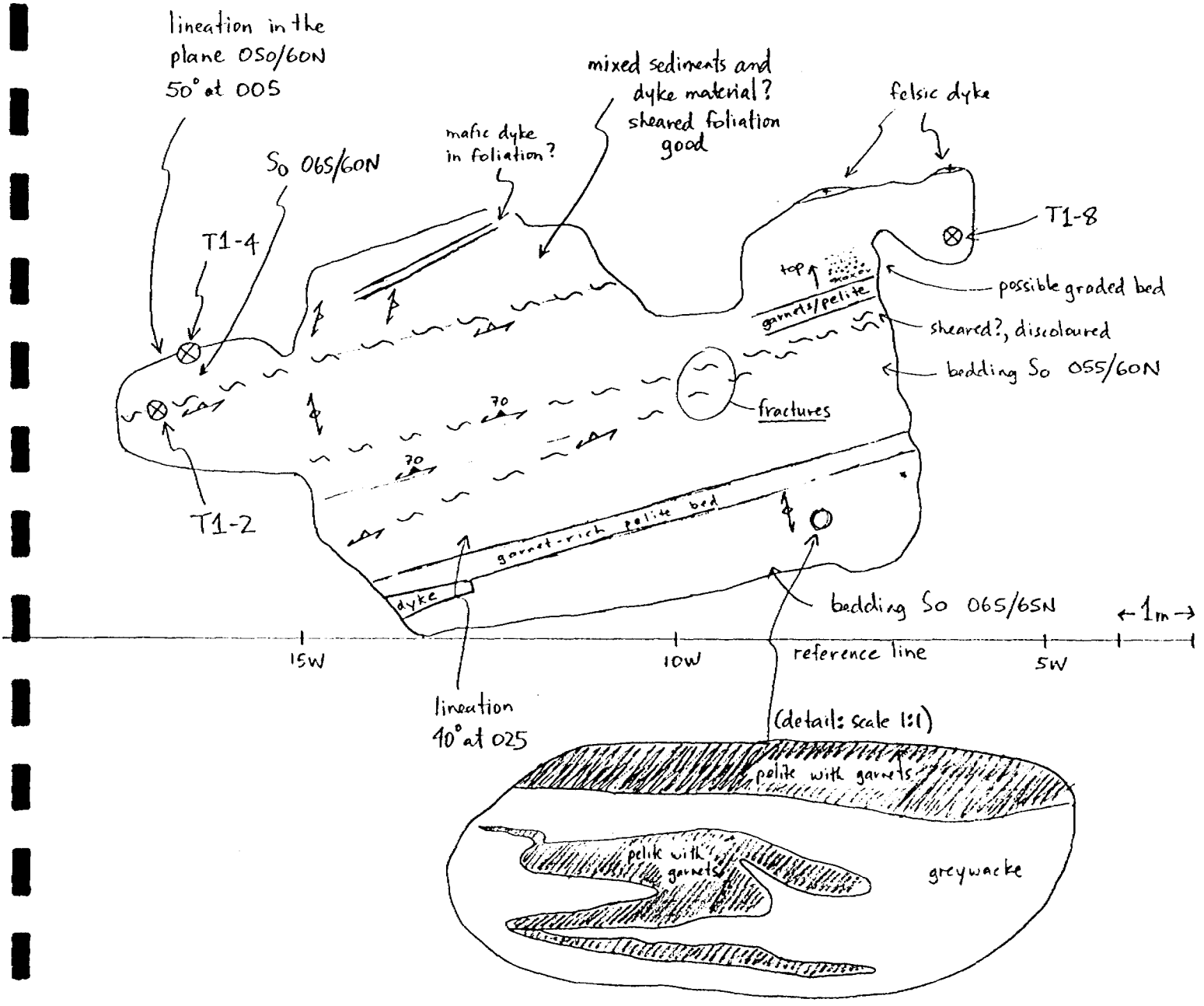






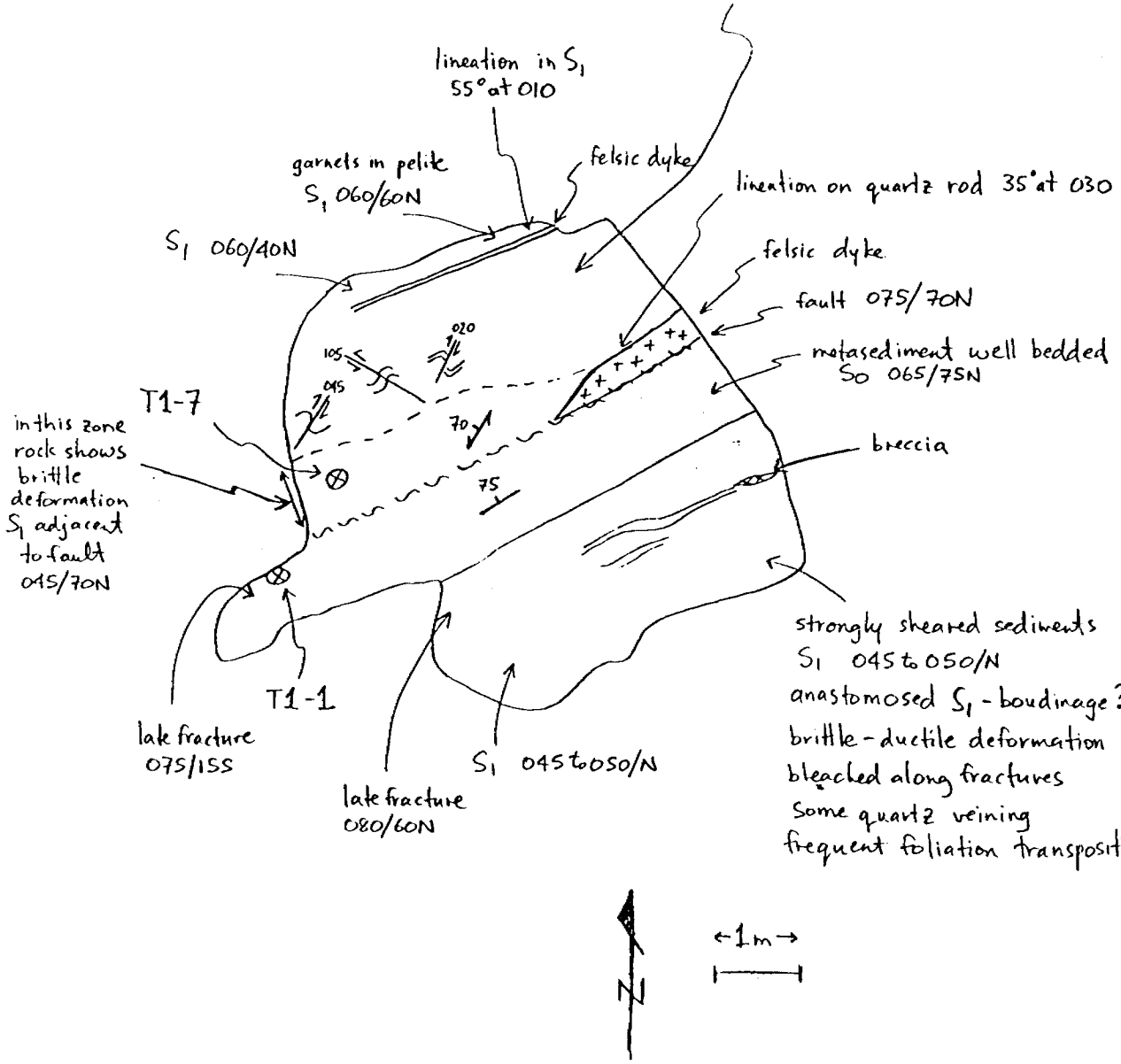
METASEDIMENTS → greywackes and pelites
pelite beds from cm to 30-35cm show darker colour
and abundant garnets
rapid interbedding → turbidite
stratification uniform / S_1 subparallel to S_0
few quartz veins, much calcite, surface is pitted

late fractures/minor faults at 060 to 070/N show discolouration
also limonite
other late fractures at 005/E, 170/vert



late fractures:
155 to 170/vert
050 to 070/N

sheared sediments, slightly folded
bedding S_0 // foliation S_1
mm to cm quartz vein
frequent transposition of S_1



COGEMA CANADA LIMITÉE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: R9

Photo No.:

Approximate dimensions and shape (sketch diagram over): 3 x 2 m

along Mikwam River outcrop OR subcrop

% Exposure: 100%

Rock Type(s & %): megacrystic biotite granite

(K feldspars to several cm)

Contact Zones and Relationships:

Structures: So, S1, S2, S3

Cleavages

Folds

Fracturation, Faulting, Veining-Density:

Jointing: well jointed, probably frost heaved

Alterations: epidote alteration on joints

Weathering:

Glacial Striae:

Sample No(s). if hand specimen(s) taken: R9

(Doc. #0003U - 12.06.86)

COGEMA CANADA LIMITÉE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: R10

Photo No.:

Approximate dimensions and shape (sketch diagram over): 3 x 1.5 m outcrop IN the MIKWAM River

% Exposure: say 100%

Rock Type(s & %): Metavolcanic or Metasediment euhedral garnets

outcrop very difficult to observe/map due to polished, stained surface (outcrop is IN river)

Contact Zones and Relationships:

Structures: So, S1, S2, S3

Cleavages

Folds

Fracturation, Faulting, Veining-Density:

Jointing:

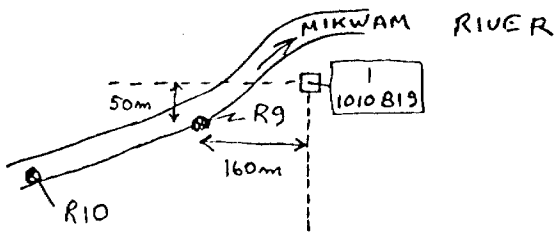
Alterations:

Weathering:

Glacial Striae:

Sample No(s). if hand specimen(s) taken: R10

(Doc. #0003U - 12.06.86)



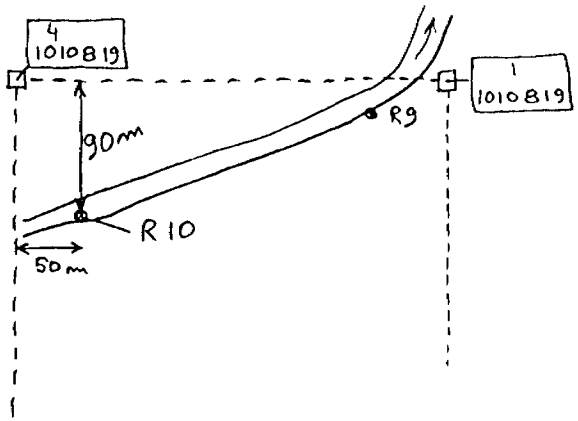
Outcrop R9
Traverse RS-6

T2

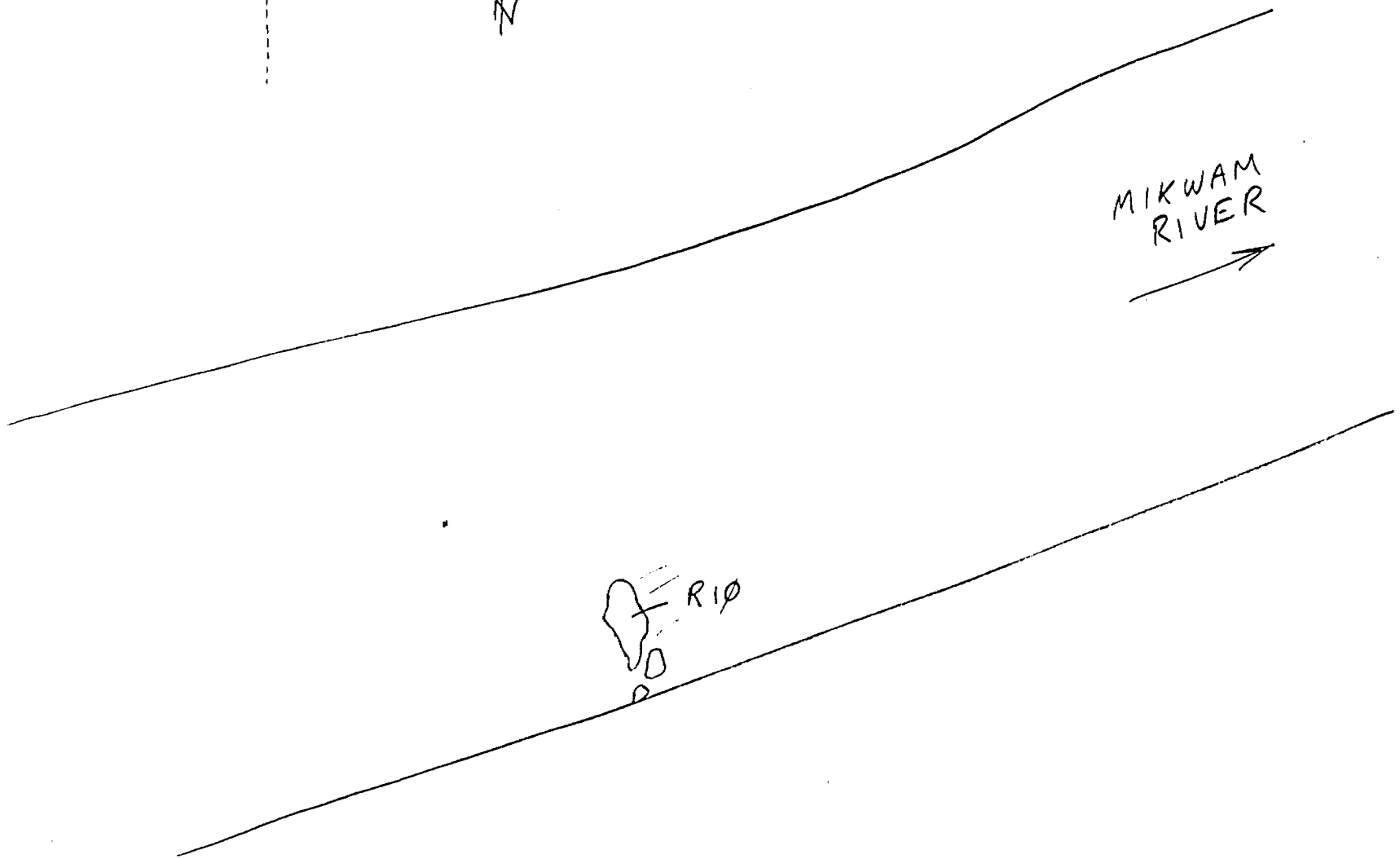
MIKWAM
RIVER

Rapids

R9
felsenmeer



Outcrop R10
Traverse RS-6



COGEMA CANADA LIMITÉE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: T2

Photo No.:

Approximate dimensions and shape (sketch diagram over): ~50 x ~10 m

% Exposure: say ~30% after 2 hrs of manual stripping

Rock Type(s & %): mafic metavolcanics - massive to pillowed metabasalt (and mafic tuffs?)
few felsic to intermediate dykes and granitic vein

Contact Zones and Relationships:

Structures: So, S1, S2, S3 So 120/80N ?
S1 120/40N

Cleavages

Folds

Fracturation, Faulting, Veining-Density: very strong N-S fracture system (faulting?) - with associated brecciation

Jointing:

Alterations: discolouration along fractures common
quartz - calcite? - chlorite - epidote veins

Weathering:

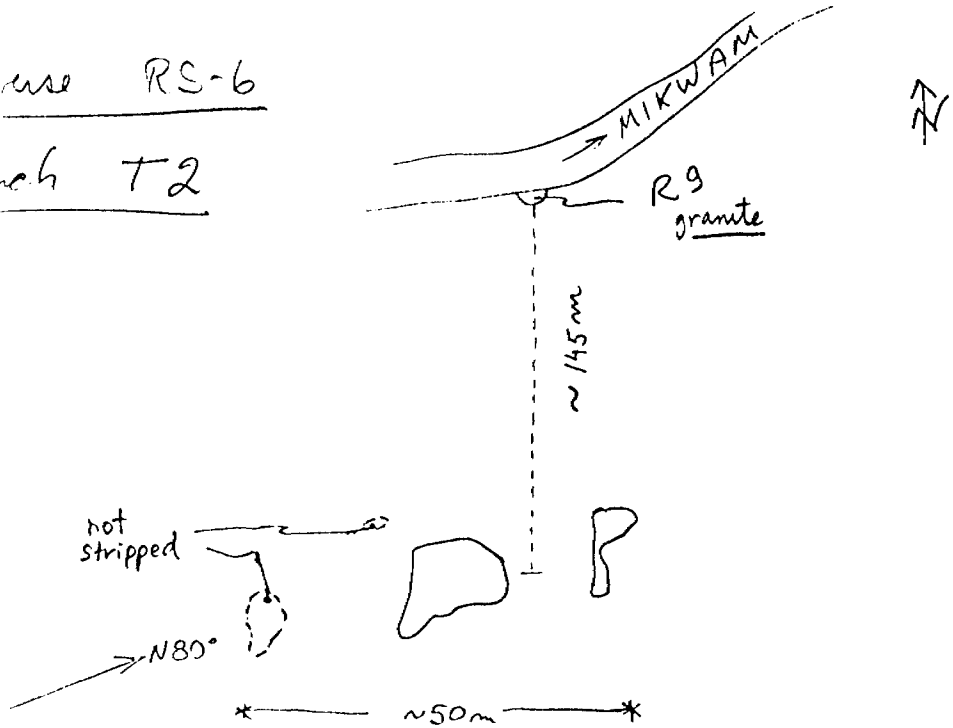
Glacial Striae: at 140°

Sample No(s). if hand specimen(s) taken: T2-R-11 to T2-R-14

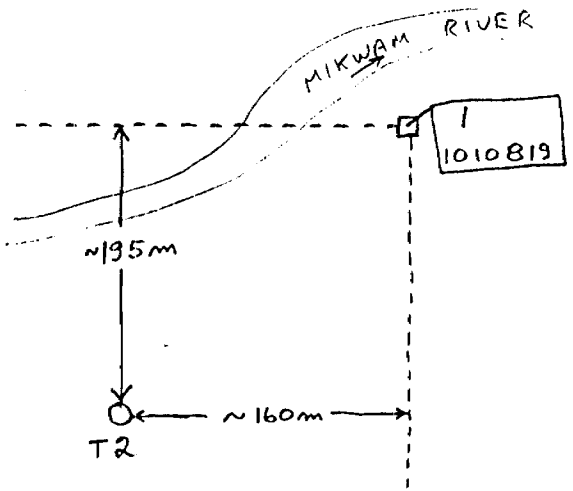
(Doc. #0003U - 12.06.86)

Traverse RS-6

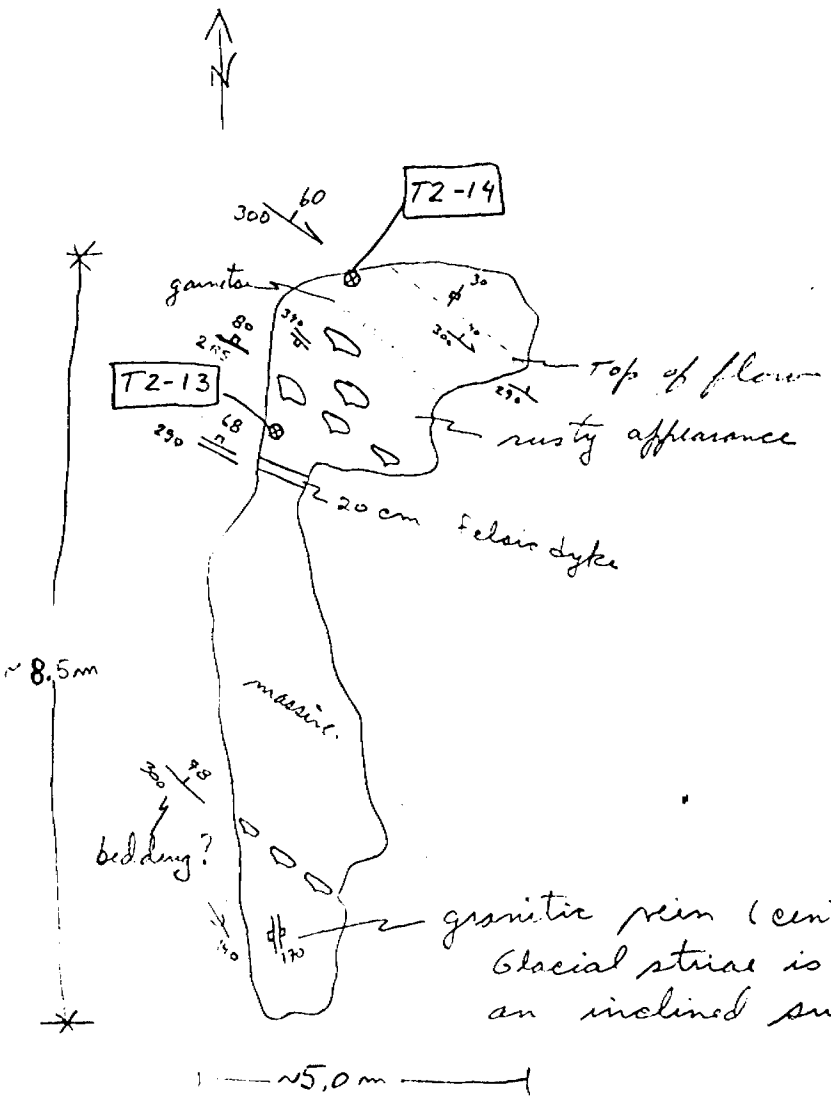
Trench T2



Location sketch



Trench. T2



Glacial striae is the horizontal projection of an inclined surface.

Pillow / Massive basaltic flow.

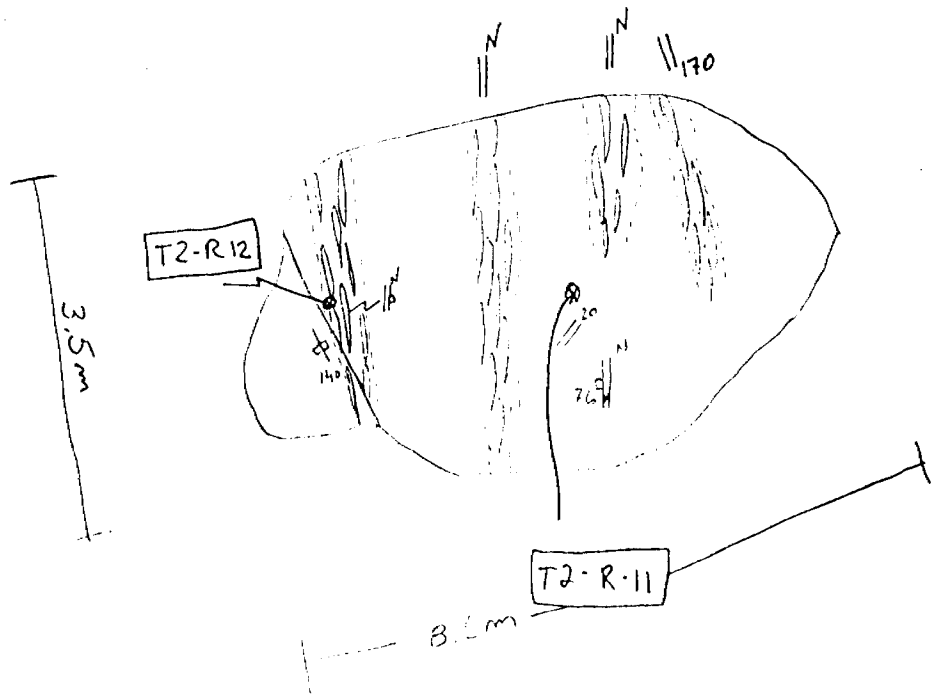
Beautiful decimetric to 40cm basalt pillows. Cooling rims show garnets, pedoncule, vacuoles. Some limonite alteration, Slightly stretched

Massive sections show uniform medium to coarse grain.

Northern part of outcrop show strong alteration and fracture silicification

Few felsic to intermediate dykes and granitic vein crosscut the outcrop.

Trench T2



Dark to medium gray to greenish gray, medium to coarse grained, poorly foliated meta volcanic or metasediment. Poorly foliated.
Strong N-S fracturation / faulting associated with brecciation - discoloration

Quartz, calcite?, epidote, chlorite veins

Several decimetric to centimetric, rounded to formless, pale green "pockets" dispersed on the outcrop. Possible epidote alteration and bondinage? of a very old felsic dyke?

COGEMA CANADA LIMITÉE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: R-15

Photo No.:

Approximate dimensions and shape (sketch diagram over): ~30 x 50m

% Exposure: about 20%

Rock Type(s & %): megacrystic biotite granite
(K feldspars to several cm)

Contact Zones and Relationships: several mafic metavolcanic xenoliths
- very altered, epidotized

Structures: So, S1, S2, S3

Cleavages

Folds

Fracturation, Faulting, Veining-Density: aplitic dykes

Jointing:

Alterations: strong epidote alteration along fractures
very altered xenoliths

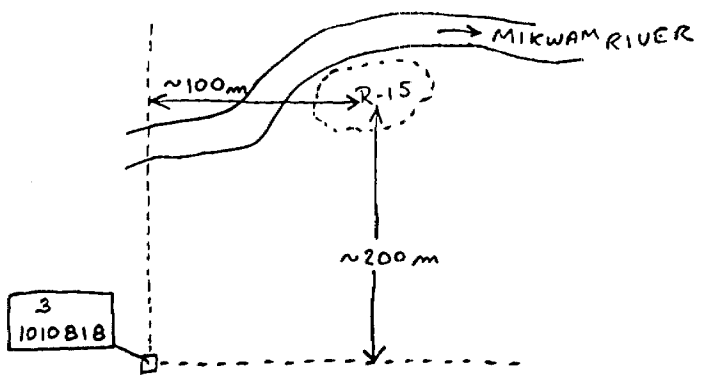
Weathering:

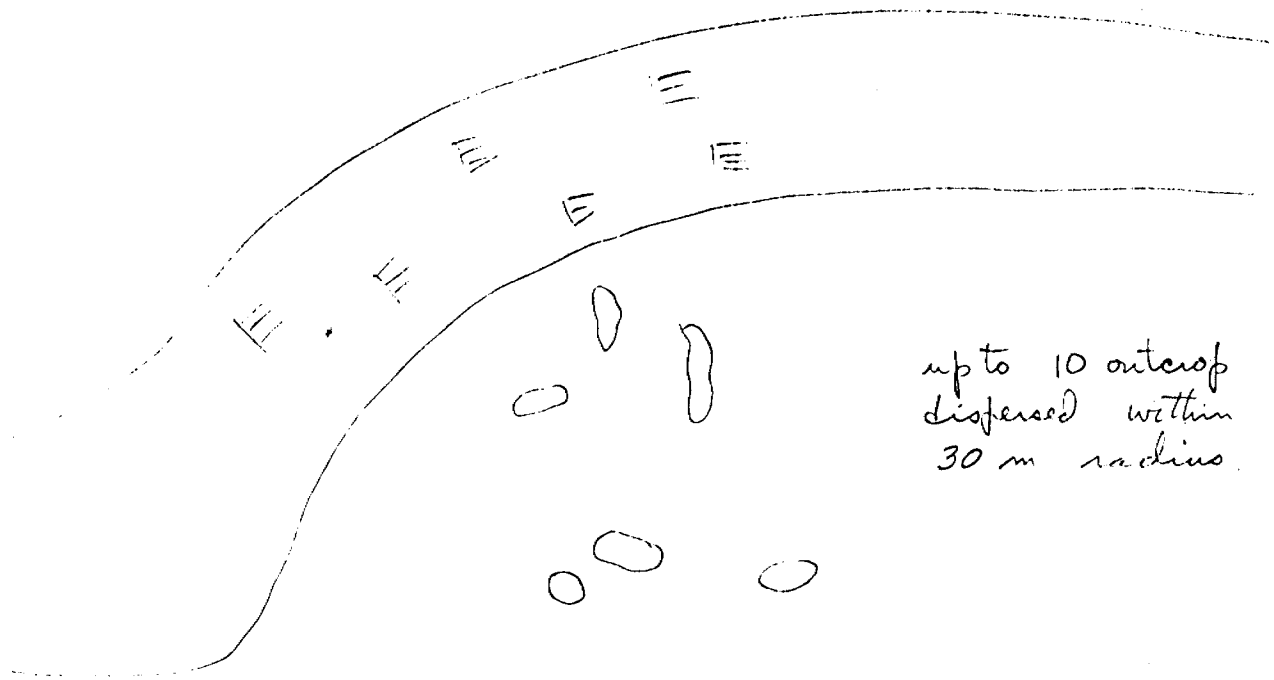
Glacial Striae:

Sample No(s). if hand specimen(s) taken:

(Doc. #0003U - 12.06.86)

Outcrop R15
Traverse RS-7





up to 10 outcrop dispersed within 30 m radius

COGEMA CANADA LIMITEE

PORPHYRY CREEK PROJECT

OUTCROP DESCRIPTION

Outcrop No.: JL-1

Photo No.:

Approximate dimensions and shape ~~(sketch diagram over)~~: ~50m x ~100m outcrop/subcrop in Mikwam River

% Exposure: ~20%

Rock Type(s & %): mega crystic biotite/muscovite granite (K feldspar to several cm)

Contact Zones and Relationships:

Structures: So, S1, S2, S3

Cleavages

Folds

Fracturation, Faulting, Veining-Density: aplite dykes

Jointing: well jointed perpedicular to river flow

Alterations:

Weathering:

Glacial Striae:

Sample No(s). if hand specimen(s) taken:

(Doc. #0003U - 12.06.86)

HAND SPECIMEN DESCRIPTIONS

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-1

1. Mineralogy: %, habit, grain size:

granular, fine grained

mica, feldspar, quartz?

2. Rock Texture, Colour, Hardness, etc.: medium grey

3. Structures: thinly bedded

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): mica schist (metasediment)

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-2

1. Mineralogy: %, habit, grain size:

slightly siliceous, fine grained

mica, feldspar, quartz?

2. Rock Texture, Colour, Hardness, etc.: light to medium grey
mica schist texture → well foliated
thinly bedded

3. Structures:

4. Alterations: discoloured, medium strong limonite

5. Magnetism:

6. Rock name (Field Designation): mica schist (metasediment)

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-3

1. Mineralogy: %, habit, grain size:

medium grained

amphibole, feldspar ?

2. Rock Texture, Colour, Hardness, etc.: homogeneous, dark greenish grey,

3. Structures: slightly sheared ?

4. Alterations:

5. Magnetism: no

6. Rock name (Field Designation): massive tuff or fine grained mafic dyke

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-4

1. Mineralogy: %, habit, grain size: medium to fine grained, uniform grain size rapidly alternating to pelite

mica, feldspar, quartz?

2. Rock Texture, Colour, Hardness, etc.: homogeneous, medium grey

3. Structures: good foliation, slightly sheared

4. Alterations:

5. Magnetism: no

6. Rock name (Field Designation): mica schist (metasediment)

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-5

1. Mineralogy: %, habit, grain size: very fine grained with garnets

mica, feldspar, quartz ? ~90%
garnets up to a few cm ~10%

2. Rock Texture, Colour, Hardness, etc.: dark to medium grey

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): mica schist - metapelite

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-6

1. Mineralogy: %, habit, grain size: medium grained, uniform hornblende - feldspar schist

2. Rock Texture, Colour, Hardness, etc.: dark greenish grey - uniform

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): massive tuff or massive mafic dyke

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-7

1. Mineralogy: %, habit, grain size: granular, fine to medium grained mica, feldspar, quartz?

2. Rock Texture, Colour, Hardness, etc.: medium grey, uniform

3. Structures: brittle deformation

4. Alterations: possible discolouration

5. Magnetism:

6. Rock name (Field Designation): mica schist – metasediment

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T1-R-8

1. Mineralogy: %, habit, grain size: granular, fine to medium grained
rapidly alternating grain size

mica, feldspar, quartz?

a few garnets

2. Rock Texture, Colour, Hardness, etc.: light to dark grey

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): mica schist - pelite to greywacke

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: R9

1. Mineralogy: %, habit, grain size: biotite granite coarse grained (2mm)
K feldspar phenocrysts up to 3cm
(quartz)

2. Rock Texture, Colour, Hardness, etc.: porphyritic, light to medium pink

3. Structures:

4. Alterations: some epidote alteration

5. Magnetism:

6. Rock name (Field Designation): megacrystic granite

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: R-10

1. Mineralogy: %, habit, grain size: fine to medium grained amphibole (pyroxene?) and garnets abundant, feldspar

2. Rock Texture, Colour, Hardness, etc.: porphyroblastic dark greenish grey

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): mafic metavolcanic or metasediment (greywacke?)

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T2-R-11

1. Mineralogy: %, habit, grain size: medium grained
amphibole / pyroxene?
feldspar

2. Rock Texture, Colour, Hardness, etc.: dark to medium greenish grey, uniform

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): massive metabasalt or mafic tuff

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T2-R-12

1. Mineralogy: %, habit, grain size: quartz - calcite - chlorite - epidote vein

2. Rock Texture, Colour, Hardness, etc.: granoblastic - relatively coarse grained

3. Structures:

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): vein in mafic metavolcanic

(Doc. #0004U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T2-R-13

1. Mineralogy: %, habit, grain size: medium to fine grained, very mafic
   - amphibole/pyroxene
   - feldspar
   mineralogic segregation near pillow rims

2. Rock Texture, Colour, Hardness, etc.: dark greenish grey

3. Structures: pillows

4. Alterations:

5. Magnetism:

6. Rock name (Field Designation): pillow basalt

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

HAND SPECIMEN DESCRIPTION

Sample No.: T2-R-14

1. Mineralogy: %, habit, grain size: fine to medium grained amphibole-feldspar schist

2. Rock Texture, Colour, Hardness, etc.: massive, light to medium greenish grey

3. Structures:

4. Alterations: K,Na alteration? silicification

5. Magnetism:

6. Rock name (Field Designation): strongly altered massive metabasalt

(Doc. #0004U - 12.06.86)

THIN SECTION DESCRIPTIONS

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 3

Field Rock Name: massive tuff or fine grained mafic dyke

Major Minerals: (% - habit, grain size):

feldspar > quartz	~49%	fine grained
hornblende	~49%	mostly fine grained
opaques	~2%	fine grained

- generally too fine grained to optically distinguish quartz / feldspar, some feldspar grains show plagioclase twinning
- a few coarser hornblende porphyroblasts present
- more or less uniform distribution of minerals

Minor Minerals:

Veins, Fractures: a few late weakly chloritic fractures perpendicular to foliation

Alterations: fresh, except for late fractures, very weak sericitization of feldspar adjacent to fractures

Rock Texture: weakly sheared: orientation of minerals clearly shows two subparallel foliations

Rock Name: weakly sheared mafic metavolcanic

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 5

Field Rock Name: micaschist - metapelite

Major Minerals: (% - habit, grain size):

hornblende	~65%	fine grained
feldspar > quartz	~25%	fine grained
garnet	~9%	porphyroblasts up to 5 mm
opaques	~1%	fine grained

Minor Minerals:

Veins, Fractures: a few injections of i) coarse and ii) cryptocrystalline quartz parallel / subparallel to foliation
a few very thin "veinlets" of leucoxene subparallel and oblique to foliation

Alterations: fresh; opaques have partially to completely altered to leucoxene

Rock Texture: porphyroblastic: may be very weakly sheared, garnets show rotation, foliation "wraps" around garnets

Rock Name: this is not a classical metapelite - hornblende is too abundant - probably a water lain mafic tuff

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 6

Field Rock Name: massive tuff or massive mafic dyke

Major Minerals: (% - habit, grain size):

feldspar >> quartz	~65%	fine grained
hornblende	~34%	fine grained, few porphyroblasts
opaques	~1%	fine grained

Minor Minerals:

Veins, Fractures:

Alterations: feldspars turbid to locally strongly sericitized
minor leucoxene derived from opaques
rock relatively fresh

Rock Texture: weakly sheared: orientation of minerals clearly shows two subparallel foliations

Rock Name: weakly sheared mafic metavolcanic

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 7

Field Rock Name: micaschist - metasediment

Major Minerals: (% - habit, grain size):

feldspar > quartz	~65%	very fine to fine grained
hornblende	~34%	fine grained
opaques	~1%	fine grained

Minor Minerals:

Veins, Fractures: several thin coarse calcite > quartz and quartz > calcite veinlets subparallel and oblique to foliation

Alterations: most of the feldspar altered to a cloudy mass of relict feldspar, sericite, and calcite
about one third of the hornblende is completely altered to chlorite
rock in general quite strongly altered: calcite, chlorite

Rock Texture: grain size variations and subparallel truncating foliations suggest rock is strongly sheared

Rock Name: sheared mafic volcanic or mafic volcanic derived metasediment

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 9

Field Rock Name: megacrystic granite

Major Minerals: (% - habit, grain size):

feldspar (orthoclase > microcline > plagioclase)	~55 %
quartz	~30 %
biotite	~10 %
clinopyroxene	~2 %
hornblende	~2 %

all of the minerals are coarse grained and there is no preferred orientation — good intrusive texture

Minor Minerals:

sphene	nearly 1%
opaques	<1 %
apatite	<1 %

most sphene are tiny grains, many euhedral, but a few attain length of 1 mm and are quite large.

Veins, Fractures:

Alterations: some biotite may be alteration of clinopyroxene, but most biotite is primary.
feldspars are locally sericitized but generally fresh
cores may be sericitized, sericitization within grains suggests compositional zoning of feldspar

Rock Texture: equigranular

Rock Name: granite

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 10

Field Rock Name: mafic metavolcanic or metasediment (greywacke?)

Major Minerals: (% - habit, grain size):

hornblende	~ 45 %	fine grained
feldspar > quartz	~ 40 %	very fine to fine grained
garnet	~ 10%	poikiloblastic to 5mm
sphene	~ 5%	very fine grained

Minor Minerals:

muscovite	<1%	fine grained
clinozoisite	<1%	fine grained
opaques	<1%	
fluorite	trace.	

Veins, Fractures: few hairline microfractures perpendicular to foliation

Alterations: sphene may be derived from amphibole and is generally spatially, but not intimately, associated with the microfractures - generally fresh rock.
coarser feldspar grains generally sericitized

Rock Texture: porphyroblastic well foliated (nematoblastic foliation)

Rock Name: mafic to intermediate metavolcanic, tuff?

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 11

Field Rock Name: massive metabasalt or mafic tuff

Major Minerals: (% - habit, grain size):

feldspar > quartz	~ 55%	fine grained
hornblende	~ 44%	fine grained
opaques	~ 1%	tiny grains

foliation is very poorly developed, manifested more so by compositional means than by orientation of grains, eg can follow hornblende rich bands more or less across slide

Minor Minerals:

Veins, Fractures: a few hairline fractures perpendicular to foliation

Alterations: sericitized feldspar only adjacent to fractures rock is fresh.

Rock Texture: granoblastic

Rock Name: massive metabasalt

(Doc. #0005U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 12

Field Rock Name: quartz - calcite - chlorite - epidote vein

Major Minerals: (% - habit, grain size):

hornblende	~ 65%	fine grained
feldspar > quartz	~ 34%	fine grained
opaques	~ 1%	tiny grains

moderately well foliated both in terms of orientation of amphiboles, and as compositional banding.

Minor Minerals:

Veins, Fractures: coarse band of quartz with minor epidote and garnet (also feldspar, hornblende) probably the vein material (parallel to foliation) - also thin quartz rich microveinlet oblique to foliation

Alterations: large masses (to 4 mm) of completely altered material, now mostly clinozoisite and sericite may have been vesicles, shape is incorrect for plagioclase phenocrysts

Rock Texture: foliated - nematoblastic

Rock Name: most of slide is mafic metavolcanic wall rock to vein

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 13

Field Rock Name: pillow basalt

Major Minerals: (% - habit, grain size):

hornblende	~70%	very fine to fine grained
feldspar > quartz	~29%	very fine to fine grained
opaques	~1%	

grain size variations present but these do not define a foliation, very fine grain patches less common (set within fine grained rock)

Minor Minerals: sphene <1%
epidote <1%
sphene, epidote found together as rare interstitial grains

Veins, Fractures:

Alterations: very local sericitization of feldspar fresh rock.

Rock Texture: granoblastic

Rock Name: metabasalt

(Doc. #0005U - 12.06.86)

COGEMA Canada Ltée/Ltd.

PORPHYRY CREEK PROJECT

THIN SECTION DESCRIPTION Sample No.: 14

Field Rock Name: strongly altered massive metabasalt

Major Minerals: (% - habit, grain size):

clinopyroxene ~55%
feldspar > quartz ~44%
opaques ~1%

euhedral to subhedral clinopyroxene with interstitial feldspar, quartz

Minor Minerals:

Veins, Fractures: few hairline fractures

Alterations: fresh
minor alteration of opaques to leucoxene

Rock Texture: granoblastic

Rock Name: metabasalt is district from previous samples in that clinopyroxene is main ferromagnesian rather than amphibole - but, it is not altered

(Doc. #0005U - 12.06.86)

ANALYTICAL PROCEDURES AND CHEMISTRY RESULTS

CHIMITEC LTÉE
Ste-Foy, Québec

LABORATORY PROCEDURES - ROCK GEOCHEMISTRY

1) MAJOR ELEMENTS

SiO_2, TiO_2, Al_2O_3, Fe_2O_3 (total iron), MnO, MgO, CaO, Na_2O:

fraction	:	-150 mesh (two stage crushing, grinding)
extraction	:	metaborate fusion
method	:	emission - plasma
detection limit	:	0.01%

K_2O, P_2O_5:

fraction	:	-150 mesh
extraction	:	metaborate fusion
method	:	emission - plasma
detection limit	:	0.03%

LOI:

fraction	:	-150 mesh
method	:	gravimetry
detection limit	:	0.01%

CO_2:

fraction	:	-150 mesh
extraction	:	H_3PO_4
method	:	gravimetry
detection limit	:	0.05%

2) MINOR ELEMENTS

fraction	:	-150 mesh
method	:	neutron activation
detection limits :		
Au	:	2 ppb
Sm	:	0.05 ppm
Sb	:	0.1 ppm
Sc, Th, U, Lu	:	0.2 ppm
As, Cs, Ta, Tb, Br	:	0.5 ppm
Eu, Hf, Mo, W	:	1 ppm
La, Ag, Yb	:	2 ppm
Cd, Co, Rb, Se, Ce	:	5 ppm
Te	:	10 ppm
Cr, Ni	:	20 ppm
Ba, Ir	:	50 ppm
Zn, Sn	:	100 ppm
Zr	:	200 ppm
Fe, Na	:	0.02%

 PORPHYRY CREEK Outcrops >> MAJOR ELEMENTS << [88/10/26]

Line	Sample	SiO2 %	TiO2 %	Al2O3%	Fe2O3%	MnO %	MgO %	CaO %	Na2O %	K2O %	P2O5 %	LOI %	TOTAL%	CO2 %
1	T1-01	49.75	0.77	15.33	11.64	0.31	4.08	12.18	2.46	0.79	0.21	2.60	100.12	1.44
2	T1-02	54.81	0.52	14.63	10.70	0.43	3.15	8.79	1.09	0.66	0.23	2.70	97.71	0.37
3	T1-03	52.05	1.37	16.01	14.81	0.22	4.25	9.88	2.48	0.38	0.33	1.00	102.78	0.70
4	T1-04	51.69	0.82	17.25	8.99	0.23	4.27	9.92	3.12	0.69	0.32	1.30	98.60	0.60
5	T1-05	49.26	1.22	13.82	18.90	0.51	2.17	7.94	1.81	0.51	0.25	1.10	97.48	-0.05
6	T1-06	50.42	1.33	15.96	14.50	0.22	4.87	8.22	3.10	0.62	0.28	1.40	100.92	-0.05
7	T1-07	55.66	0.83	17.17	8.27	0.19	3.58	6.46	3.88	1.07	0.21	2.30	99.62	0.65
8	T1-08	46.86	0.99	16.78	12.83	0.33	3.28	13.03	1.05	0.88	0.29	1.80	98.12	0.81
9	09	64.37	0.55	16.34	3.41	0.04	1.39	3.22	5.24	2.35	0.33	0.60	97.84	-0.05
10	10	49.97	1.32	15.19	14.07	0.43	2.44	10.31	1.39	0.78	0.30	1.20	97.40	0.09
11	T2-11	51.91	0.93	15.78	12.21	0.27	7.43	8.37	4.67	0.33	0.25	0.50	102.65	0.12
12	T2-12	53.64	0.38	13.58	10.12	0.18	3.11	15.41	1.15	0.23	0.19	1.00	98.99	0.71
13	T2-13	46.33	0.75	13.58	14.53	0.35	8.05	10.55	2.35	0.61	0.15	0.80	98.05	0.07
14	T2-14	52.84	0.79	14.26	12.31	0.24	9.81	6.09	3.20	0.24	0.24	0.30	100.32	0.13

Line	Sample	Au ppb	As ppm	Sb ppm	Ba ppm	Cd ppm	Cs ppm	Cr ppm	Co ppm	Eu ppm	Hf ppm	Ir ppm
1	T1-01	-2	-0.5	0.1	140	-5	-0.5	190	39	-1	2	-50
2	T1-02	-2	-0.5	0.1	95	-5	1.6	190	27	-1	2	-50
3	T1-03	-2	-0.5	0.1	65	-5	-0.5	110	45	1	2	-50
4	T1-04	3	-0.5	-0.1	190	-5	1.2	320	50	1	2	-50
5	T1-05	-2	-0.5	0.2	87	-5	-0.5	120	38	-1	2	-50
6	T1-06	-2	0.6	-0.1	200	-5	-0.5	130	56	1	3	-50
7	T1-07	-2	-0.5	-0.1	192	-5	1.7	251	47	1	-1	-50
8	T1-08	-2	0.6	-0.1	100	-5	0.8	210	68	1	-1	-50
9	09	-2	-0.5	-0.1	1700	-5	1.4	200	11	2	5	-50
10	10	-2	-0.5	-0.1	150	-5	-0.5	88	38	1	2	-50
11	T2-11	-2	-0.5	-0.1	-50	-5	1.3	300	69	-1	1	-50
12	T2-12	2	0.6	-0.1	-50	-5	-0.5	250	25	-1	-1	-50
13	T2-13	-2	-0.5	-0.1	56	-5	-0.5	250	49	-1	1	-50
14	T2-14	4	-0.5	-0.1	-50	-5	-0.5	280	54	-1	-1	-50

Line	Sample	Fe %	La ppm	Mo ppm	Ni ppm	Rb ppm	Sc ppm	Se ppm	Ag ppm	Ta ppm	Tb ppm	Th ppm	W ppm
1	T1-01	7.20	6	-1	110	28	23.2	-5	-2	-0.5	0.5	0.3	-1
2	T1-02	8.60	12	-1	48	32	20.0	-5	-2	-0.5	0.8	0.9	-1
3	T1-03	10.00	7	-1	47	-5	26.0	-5	-2	-0.5	0.9	0.4	-1
4	T1-04	7.20	8	-1	93	18	31.6	-5	-2	-0.5	0.6	0.3	-1
5	T1-05	17.00	6	-1	-20	16	27.0	-5	-2	0.6	0.7	0.7	-1
6	T1-06	12.00	4	-1	62	29	33.2	-5	-2	-0.5	0.8	0.4	-1
7	T1-07	6.60	7	-1	72	52	33.7	-5	-2	-0.5	-0.5	0.4	-1
8	T1-08	11.00	9	-1	120	32	35.4	-5	-2	-0.5	1.1	0.2	-1
9	09	2.50	60	-1	-20	38	5.1	-5	-2	-0.5	-0.5	3.9	-1
10	10	12.00	10	-1	21	14	26.3	-5	-2	-0.5	0.8	0.8	-1
11	T2-11	8.80	4	-1	86	-11	46.0	-5	-2	-0.5	0.7	0.3	-1
12	T2-12	8.20	-2	-1	52	7	18.0	-5	-2	-0.5	-0.5	-0.2	-1
13	T2-13	12.00	6	-1	47	25	40.7	-5	-2	-0.5	0.5	-0.2	-1
14	T2-14	8.90	3	-1	54	-5	39.5	-5	-2	-0.5	-0.5	0.4	-1

Line	Sample	U ppm	Yb ppm	Zn ppm	Ce ppm	Na %	Sn ppm	Te ppm	Zr ppm	Br ppm	Lu ppm	Sm ppm
1	T1-01	-0.2	-2	-100	13	1.50	-100	-10	280	2.9	-0.2	1.90
2	T1-02	0.3	-2	140	12	0.83	-100	-10	-200	-2.0	0.4	3.00
3	T1-03	0.2	3	170	14	1.80	-100	-10	-200	-2.0	0.3	2.50
4	T1-04	-0.2	-2	200	17	2.55	-100	-10	-200	-2.0	0.3	2.40
5	T1-05	-0.2	2	200	7	1.60	-100	-10	350	-2.0	0.4	2.40
6	T1-06	-0.2	2	130	-5	2.45	-100	-10	-200	-2.0	0.3	2.30
7	T1-07	-0.2	-2	170	11	3.10	-100	-10	-200	-2.0	0.3	2.30
8	T1-08	-0.2	-2	200	19	0.91	-100	-10	-200	-2.0	0.4	3.10
9	09	0.5	-2	-100	94	4.13	-100	-10	-200	-2.0	-0.2	7.00
10	10	0.3	3	160	26	1.10	-100	-10	-200	-2.0	0.4	3.40
11	T2-11	-0.2	-2	150	-5	3.38	-100	-10	-410	-2.0	0.2	1.90
12	T2-12	-0.2	-2	-100	-5	0.86	-100	-10	-200	-2.0	-0.2	0.85
13	T2-13	-0.2	-2	180	6	1.80	-100	-10	-200	-2.0	0.3	1.90
14	T2-14	-0.2	-2	210	-5	2.40	-100	-10	-200	-2.0	0.2	1.60

W8908.00005

Ministry of Northern Development and Mines

Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

2.11978

42H12SW0035 2.11978 HOBLITZELL

900

Type of Survey(s): Geological, Rock Geochemistry, Thin sections	Township or Area: Hoblitzell, Blakelock
Claim Holder(s): COGEMA CANADA LTD	Prospector's Licence No.: T-4677
Address: 2000 Mansfield, Suite 400, Montreal, Quebec, H3A 2Z1	
Survey Company: COGEMA CANADA LTD	Date of Survey (from & to): 08 07 88 – 21 07 88 (Day Mo. Yr.) — Total Miles of line Cut: Nil
Name and Address of Author (of Geo-Technical report): John Learn, 2000 Mansfield, Suite 400, Montreal, Quebec, H3Z 2Z1	

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	20
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed: Rock geochemistry, thin sections

Performed on Claim(s): See attached list

Calculation of Expenditure Days Credits

Total Expenditures: $ 874.50 ÷ 15 = Total Days Credits: 58

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Number	Expend. Days Cr.
	see attached list	
	one list covers special provisions	
	one list covers expenditures	

Total number of mining claims covered by this report of work:

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE FEB 14 1989 RECEIVED

RECEIVED 1989 MINING LANDS SECTION

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
1058	Dec 29, 1988	M. G. Wegrmeir
	Date Approved as Recorded: 6 Feb 89	Branch Director

Date: Dec 16, 1988 — Recorded Holder or Agent (Signature): Denis Lesage, V.P ADMIN

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: John Learn, 2000 Mansfield, Suite 400, Montreal, Quebec, H3A 2Z1

Date Certified: 15 Dec 1988 — Certified by (Signature): John Learn

1362 (85/12)

FOR: EXPENDITURES CREDITS

1) ROCK GEOCHEMISTRY PERFORMED ON THE FOLLOWING CLAIMS:

Samples T1-R-1 to T1-R-8: L1025523

R-9, R-10 and
T2-R-11 to T2-R-14: L1010819

2) THIN SECTIONS PERFORMED ON THE FOLLOWING CLAIMS:

Samples T1-R-3, 5, 6, 7: L1025523

R-9, R-10 and
T2-R-11, 12, 13, 14: L1010819

3) DISTRIBUTION OF EXPENDITURES CREDITS:

L1025522	6 days
L1025523	6 days
L1025524	40 days
L1025525	6 days

Total: 4 claims

(Doc.: 1609c)

FOR: SPECIAL PROVISIONS CREDITS:

(20 days per claim)

LIST OF CLAIMS TRAVERSED

L1010783	L1025489
L1010784	L1025490
L1010785	L1025491
L1010786	L1025492
L1010787	L1025493
L1010788	L1025494
	L1025495
L1010790	L1025496
L1010791	L1025497
L1010792	L1025498
L1010793	L1025499
L1010794	L1025500
L1010795	L1025501
L1010796	L1025502
L1010797	L1025503
L1010798	L1025504
L1010799	L1025505
L1010800	L1025506
L1010801	L1025507
L1010802	L1025508
L1010803	L1025509
L1010804	L1025510
L1010805	L1025511
L1010806	L1025512
L1010807	L1025513
L1010808	L1025514
L1010809	L1025515
L1010810	L1025516
L1010811	L1025517
L1010812	L1025518
L1010813	L1025519
L1010814	L1025520
L1010815	L1025521
L1010816	L1025522
L1010817	L1025523
L1010818	L1025524
L1010819	L1025525
L1010820	L1025526
L1010821	L1025527
L1010822	L1025528
L1010823	

Total: 80 claims
(Doc.: 1609c)

Ministry of Northern Development and Mines

Ontario

Geophysical-Geological-Geochemical Technical Data Statement

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOLOGICAL

Township or ~~Area~~ HOBLITZELL, BLAKELOCK

Claim Holder(s) COGEMA CANADA LTD

Survey Company COGEMA CANADA LTD

Author of Report JOHN LEARN

Address of Author 2000 Mansfield, Suite 400, Montreal

Covering Dates of Survey July 8 to July 21, 1988
(linecutting to office)

Total Miles of Line Cut NIL

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	
--Radiometric	
--Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: 15 Dec 1988 SIGNATURE: John Learn
Author of ~~Report~~ or Agent

Res. Geol. _____ Qualifications 2.9701

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

See attached list
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 80

OFFICE USE ONLY

837 (85/12)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION / RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time _____ Frequency _____

-- Off time _____ Range _____

-- Delay time _____

-- Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

NAMES AND ADDRESSES OF EMPLOYEES

All of the employees worked on the project for the full duration of the field program (July 8 to 21, 1988).

1. JOHN LEARN
   Project Geologist

   2000 Mansfield, Suite 400
   Montreal, Quebec H3A 2Z1

   2350 Melrose Avenue, NDG
   Montreal, Quebec H4A 2R8

   Hon BSc Brock University 1977
   M. Sc. (App.) McGill University 1981
   12 years experience

2. ROBERT ST-JEAN
   Permanent Geologist

   2000 Mansfield, Suite 400
   Montreal, Quebec H3A 2Z1

   1050 boul. Desaulniers, #304
   Longueuil, Quebec J4K 1K4

   BSc Université de Montréal 1978
   11 years experience

3. BILL GOLDBECK
   Temporary Geological Technician

   5720 boul. Décarie, #311
   Montreal, Quebec H3H 2J4

   B.A.Sc University of British Columbia 1985
   7 years experience

4. MICHEL PARENT
   Temporary Field Assistant

   24 des Conifères
   Lac Guindon, Comté Provost
   Quebec J0R 1B0

   No experience

(Doc.: 1609c)

Montreal, December 12, 1988

To whom it may concern:

I do hereby certify that the following expenditures have been spent in 1988, and that these expenditures relate to the Porphyry Creek project as indicated in the accompanying documentation.

Rock geochemistry:

14	sample preparations at 4,00$	56,00$	
14	major elements at 25,00$	350,00$	
14	CO_2 at 9,25$	129,50$	
14	Au + 33 at 18,50$	259,00$	
			794,50$

Thin sections:

10	thin sections at 8,00$	80,00$
TOTAL:		874,50$

As Vice-President Finance of COGEMA CANADA LTD, I am dully authorized to make this certification.

Dated at Montreal, in the Province of Quebec, this 15 day of Dec 1988.

COGEMA CANADA LIMITED

Gilles Daoust
Vice-President Finance

GD/lrdc
Doc.: 1609c

COGEMA Canada Ltée/Ltd.

December 19, 1988

Ref.: 881388
Doc.: 1609c

Mining Lands Section
MINISTRY OF NORTHERN
DEVELOPMENT AND MINES
880 Bay Street
3rd Floor
Toronto, Ontario
M5S 1Z8

Dear Sir:

This letter is to inform you that assessment credits have been reported to the Mining Recorder at Kirkland Lake for our Porphyry Creek project in Hoblitzell and Blakelock Townships of northeastern Ontario.

Enclosed are two reports describing the work performed, as well as the additional required documentation (eg names and addresses of employees, and a sworn statement of expenditures incurred). We also include a copy of the report of work which was sent to the Mining Recorder in Kirkland Lake.

In the event that you require any additional information, please contact John Learn of our company.

Yours truly,

COGEMA CANADA LIMITED

Denis Lesage
Vice-President
Administration

DL/JL/lrdc
Encls.

2000, RUE MANSFIELD, SUITE 400, MONTRÉAL (QUÉBEC) CANADA H3A 2Z1 - TÉL.: (514) 282-9369 TÉLEX: 05-25274 TÉLÉCOP: (514) 282-9462

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File

46 M 48 M 49 M 50 M 51 M 52 M 53 M 54 M

Soucie Cr
Soucie Lake
East Soucie Lake
Soucie Creek
Soucie
Mikwam River
Burntbush R
Porphyry Creek
Porphyry West Creek
Porphyry L
Little Porphyry L
Porphyry L

576268
576269
576270

BLAKELOCK TOWNSHIP PROJECTED

NOSEWORTHY TOWNSHIP PROJECTED

TOMLINSON TOWNSHIP PROJECTED

NO OPEN GROUND

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES: TOWNSHIPS, BASE LINES, ETC. / LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES: LOT LINES / PARCEL BOUNDARY / MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◓
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◧
" , MINING RIGHTS ONLY	◨
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	⊕
CANCELLED	⊗
SAND & GRAVEL	⊕

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

SCALE
500 Metres 0 1000 Metres
1:20 000

TOWNSHIP
HOBLITZELL

M.N.R. ADMINISTRATIVE DISTRICT
COCHRANE
MINING DIVISION
LARDER LAKE
LAND TITLES / REGISTRY DIVISION
COCHRANE

Ministry of Natural Resources
Ontario

Date OCTOBER 1986
Map G-3513

200

EAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M. + S. – MINING AND SURFACE RIGHTS

ption	Order No.	Date	Disposition	File

37M 38M 39M 40M 41M 42M 43M 44M 45M

6M 7M 6M 4M 3M 2M 1M

North Tweed Blakelock Tweed River Cr. Lower Tweed Lake River Blakelock Lake Mikwam River Mikwam Little Mikwam Lake Mikwam River Broyley Lake Floodwood River Floodwood Lake Mikwam Mikwam River Mikwam Lake Magiskan Lake Little Magiskan Lake Mikwam Mikwam River Mego L.

TWEED TOWNSHIP

HOBLITZELL TOWNSHIP

NEWMAN TOWNSHIP

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	◒
" MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	◧
" MINING RIGHTS ONLY	◨
LICENCE OF OCCUPATION	▼
ORDER IN COUNCIL	OC
RESERVATION	(R)
CANCELLED	⊘
SAND & GRAVEL	(S)

NOTE MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

100 0 100
Metres

SCALE 1:20 000

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE IROQUOIS FALLS MANAGEMENT UNIT
AND MAY BE SUBJECT TO FORESTRY OPERATIONS.
THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 730
2 THIRD AVE.
COCHRANE, ONT.
P0L 1C0
705-272-4365

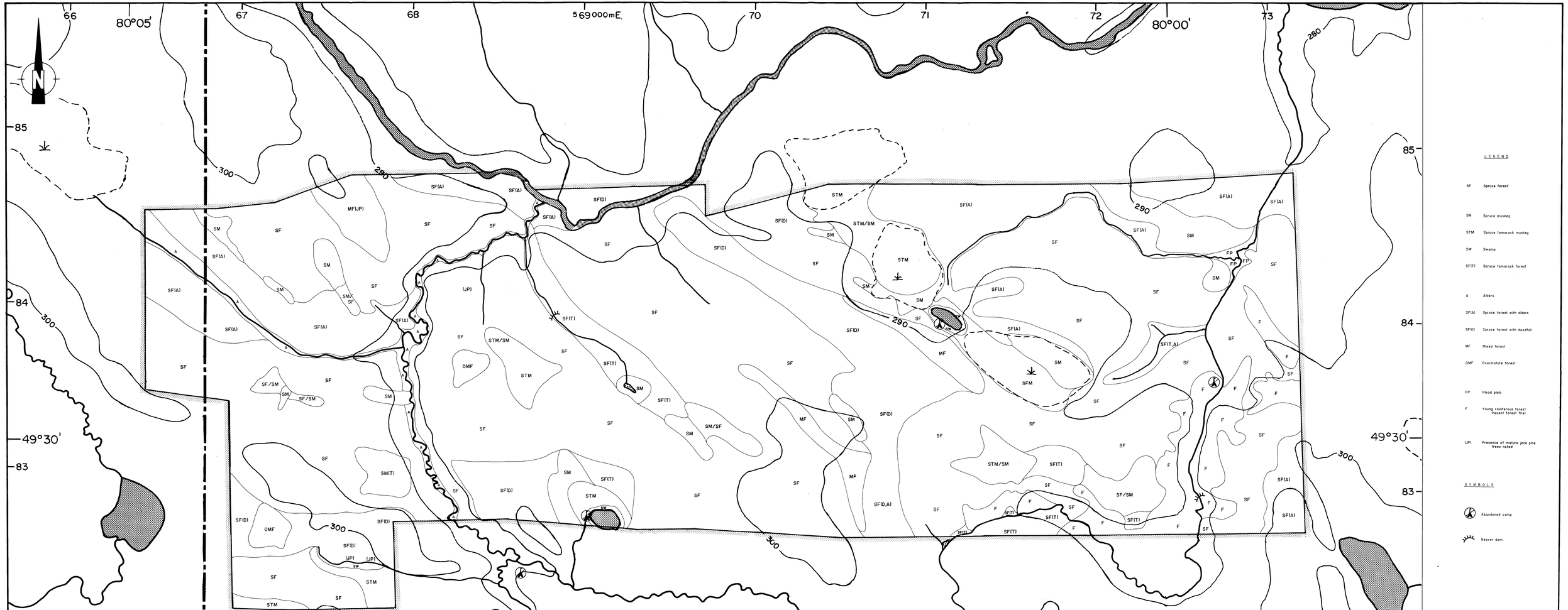
DATE OF ISSUE
AUG 19 1988
LARDER LAKE MINING RECORDER'S OFFICE

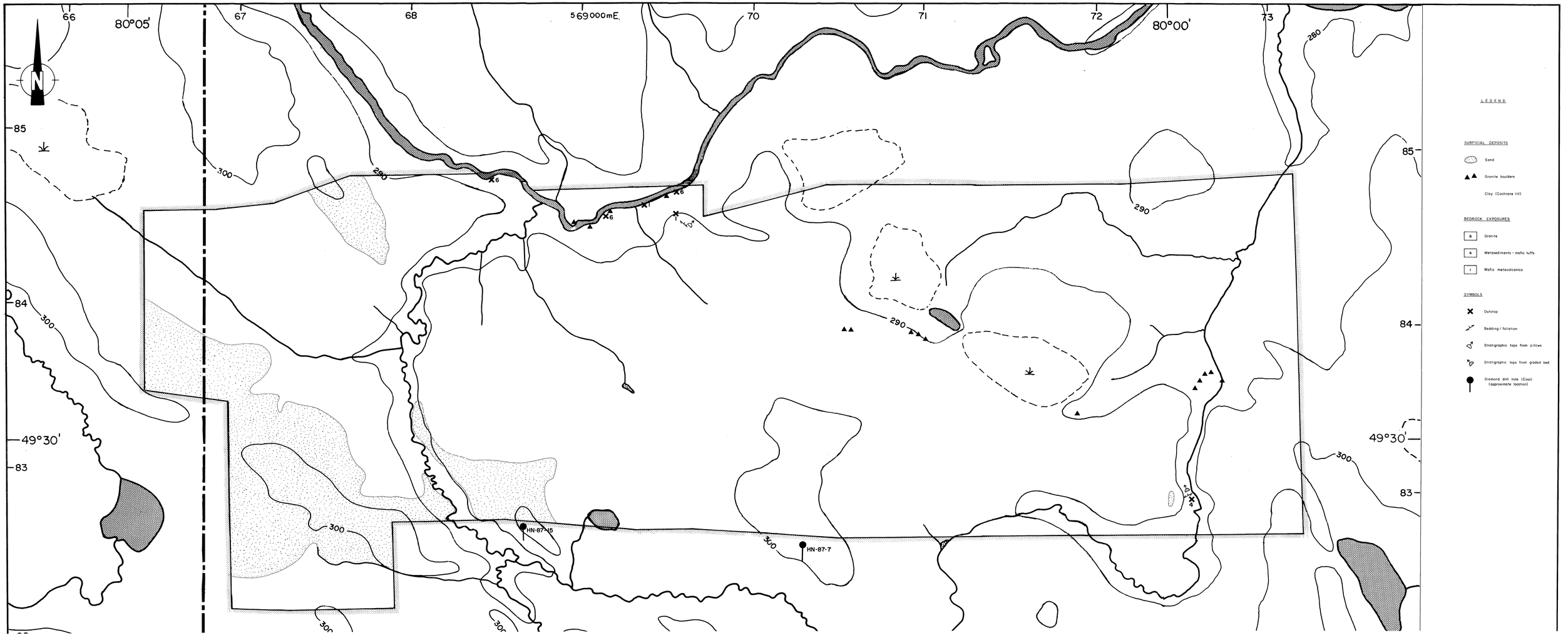
TOWNSHIP
BLAKELOCK

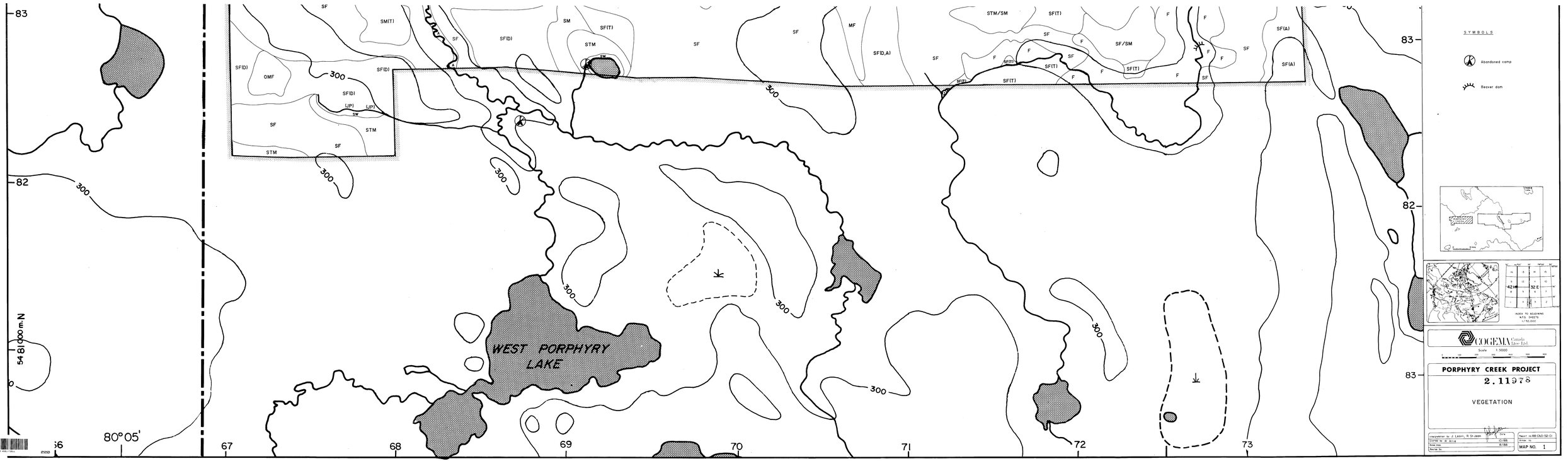
M.N.R. ADMINISTRATIVE DISTRICT
COCHRANE
MINING DIVISION
LARDER LAKE
LAND TITLES / REGISTRY DIVISION
COCHRANE

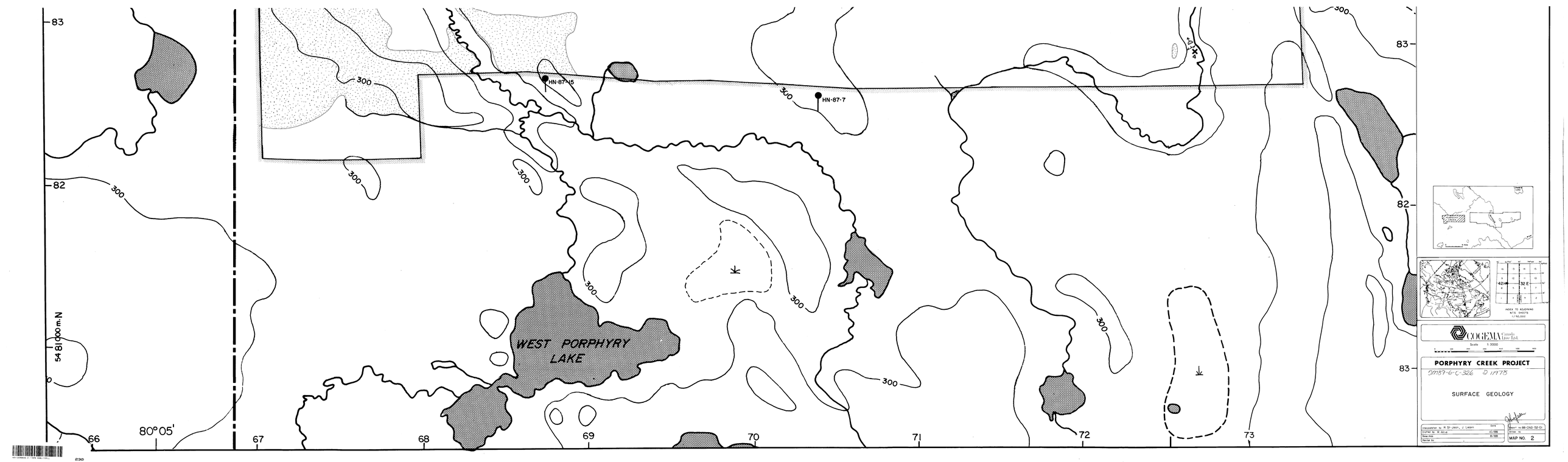
Ontario Ministry of Natural Resources
Ministry of Northern Development and Mines

Date OCTOBER/1986
Number G-3474


66
80°05'
67
68
569000mE.
70
71
72
80°00'
73
85
84
83
49°30'
300
290
280
SF(A)
SF(D)
MF(JP)
SF
SM
STM
STM/SM
SF(T)
SF(T,A)
SM/SF
SF/SM
SM(T)
OMF
MF
SFM
SF(D,A)
(JP)
A
FP
F
SW
LEGEND
SF Spruce forest
SM Spruce muskeg
STM Spruce tamarack muskeg
SW Swamp
SF(T) Spruce tamarack forest
A Alders
SF(A) Spruce forest with alders
SF(D) Spruce forest with deadfall
MF Mixed forest
OMF Overmature forest
FP Flood plain
F Young coniferous forest (recent forest fire)
(JP) Presence of mature jack pine trees noted
SYMBOLS
Abandoned camp
Beaver dam


66
80°05'
67
68
569000mE.
70
71
72
80°00'
73
N
85
84
49°30'
83
300
290
HN-87-15
HN-87-7
LEGEND
SURFICIAL DEPOSITS
Sand
Granite boulders
Clay (Cochrane till)
BEDROCK EXPOSURES
6 Granite
4 Metasediments - mafic tuffs
1 Mafic metavolcanics
SYMBOLS
Outcrop
Bedding / foliation
Stratigraphic tops from pillows
Stratigraphic tops from graded bed
Diamond drill hole (Esso) (approximate location)


SF
SM(T)
SF(D)
OMF
SM
SF(T)
STM
SF(D,A)
MF
STM/SM
SF/SM
SF(A)
(JP)
SW
300
WEST PORPHYRY LAKE
83
82
54 81 000 m.N
80°05'
66
67
68
69
70
71
72
73
SYMBOLS
Abandoned camp
Beaver dam
42 H
32 E
INDEX TO ADJOINING N.T.S. SHEETS 1:50,000
COGEMA Canada Ltée Ltd.
Scale 1:5000
PORPHYRY CREEK PROJECT
2.11978
VEGETATION
Interpretation by J. Lebrn, R. St-Jean
Drafted by M. Aird
Base map
Revised by
DATE
12/88
8/88
Report no 88-CNO-52-01
Folder no
MAP NO. 1


HN-87-15
HN-87-7
300
WEST PORPHYRY LAKE
83
82
54 81 000 m.N
80°05'
66
67
68
69
70
71
72
73
INDEX TO ADJOINING N.T.S. SHEETS 1/50,000
42H
32 E
COGEMA Canada Inc.
Scale 1:5000
PORPHYRY CREEK PROJECT
SURFACE GEOLOGY
Interpretation by R St-Jean, J Lesm
Drafted by M. Gica
Base map
Vector by
Date
10/88
8/88
Datum: NAD-83 CAN-SZ-01
Area: NL
MAP NO. 2