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PRELIMINARY GEOLOGY REPORT
DUNLAP MINERAL CLAIM GROUP
BIG SILVER CREEK, HARRISON LAKE AREA
NEW WESTMINSTER MINING DIVISION
N.T.S. 92H/12W
Latitude 49'33'N Longitude 121'48'W

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,147

JAMES M. LOGAN
GEOLOGIST
JEFFREY A. FILLIPONE
GEOLOGIST

APRIL, 1984

PRELIMINARY GEOLOGY REPORT
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SUMMARY

The Dunlap mineral claim group is located 32 km north of Harrison Hot Springs, B.C., on the east shore of Harrison lake. Late Paleozoic metasedimentary rocks of the Chilliwack Group underlie the claim group. These rocks have been affected by; two stages of deformation, regional metamorphism to upper greenschist facies, and major northwest trending regional faulting. Post second phase deformation, fracturing and joint development controlled intrusions of Cretaceous dykes and quartz veins.

No precious or base metal sulphide mineralization has been located within the claims. Low gold and copper values located on adjacent claims suggest the likelihood of similar mineralization within the Dunlap claim group.

Geological mapping should be extended to complete coverage of the claims. Soil geochemical sampling and concomitant magnetometer survey are proposed to outline massive sulphide skarn(?) horizons.

INTRODUCTION

On March 25th and 26th, 1984, reconnaissance geological mapping and sampling were carried out over the Dunlap claim group. The purpose being, a structural analysis of the claims area, to elucidate fracture and fault patterns which, in turn, are believed potentially favourable hosts for economic mineralization.

The Dunlap claim group consists of five reverted crown-granted mineral claims, acquired by the author April 5, 1982. From southeast to northwest the claims are:

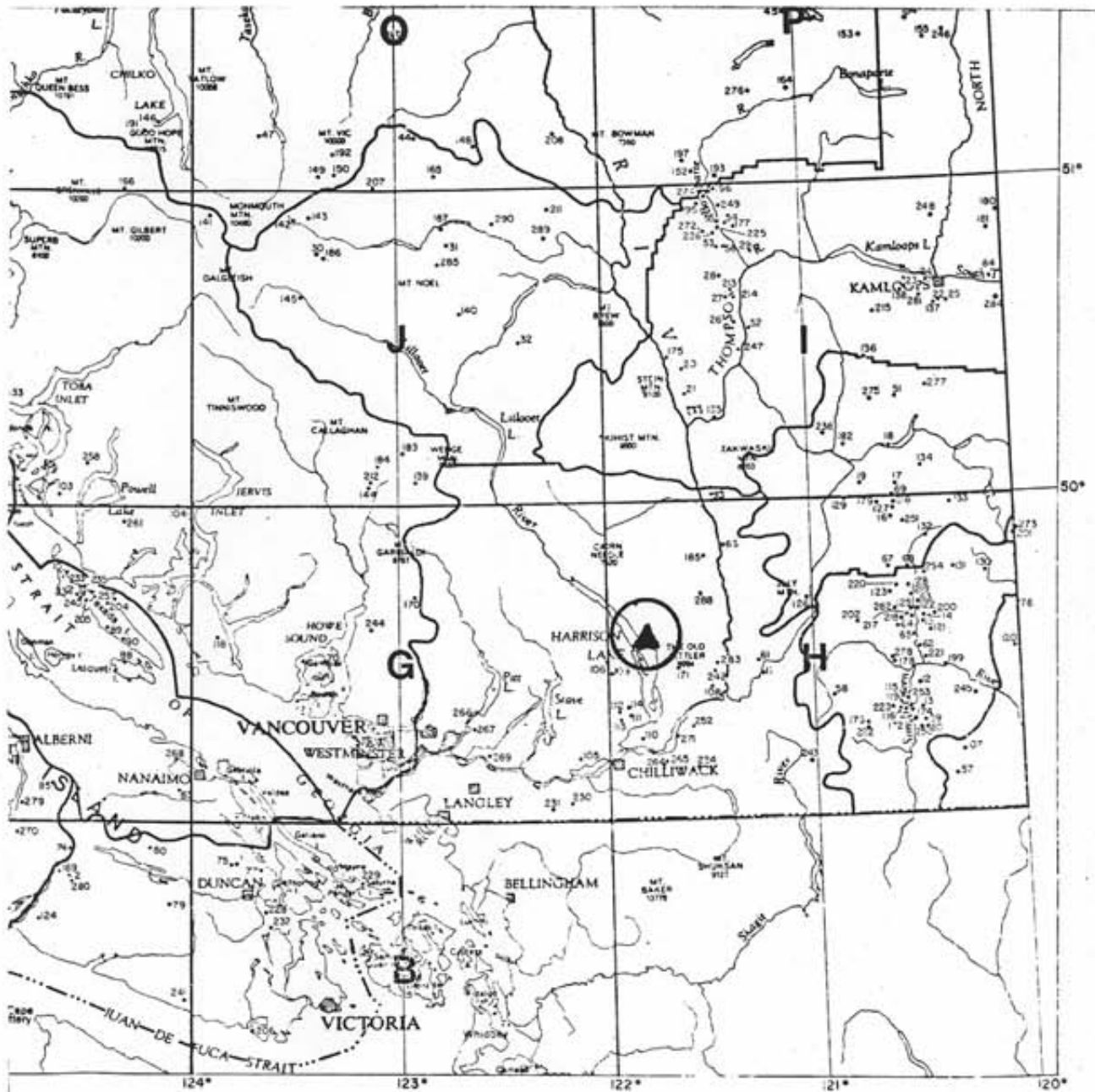
James McKenzie	771	1424 (4)
John Lougheed	772	1425 (4)
Cecil Dunlap	773	1426 (4)
Alex Crawford	774	1427 (4)
Wm. Alexander	775	1428 (4)

The claims are located about 32 km north of Harrison Hot Springs, B.C. and strung out in a northwesterly direction along the east shore of Harrison lake midway between Big Silver and Cogburn Creeks. The claims extend from the shore of the lake at an elevation of less than 100 ft a.s.l. up a steep wooded southwest-facing slope to 1,000 ft a.s.l..

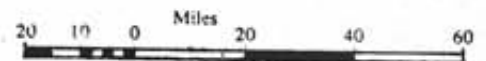
Situated 49°33'N latitude, 121°48'W longitude the claim group lies in the New Westminister Mining Division, N.T.S. 92H /12W.

Access

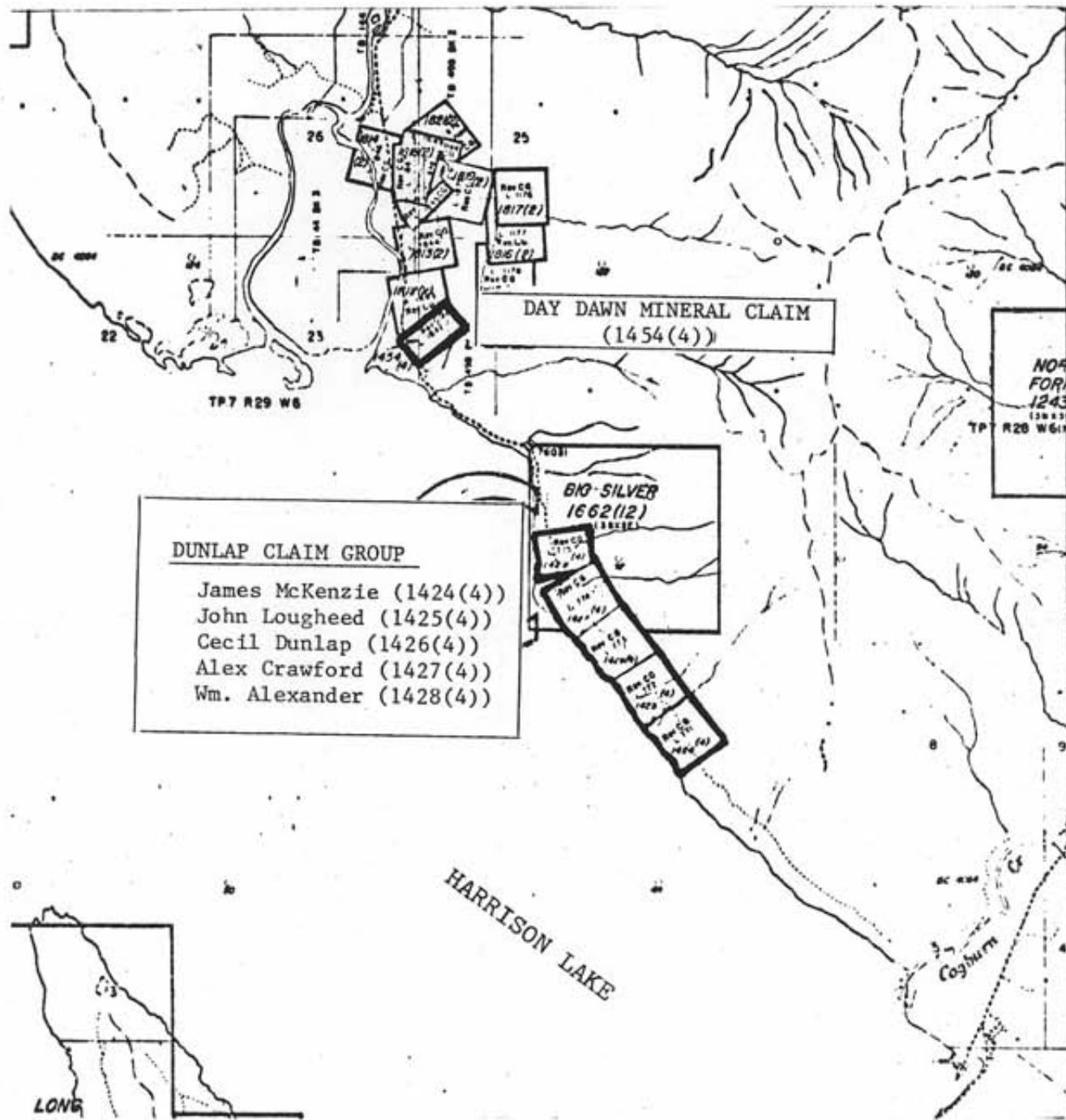
Access to the claims is via logging roads which follow the east side of Harrison Lake north, crossing the claim group 32 km from Harrison Hot Springs. Two secondary, 4-wheel drive (passable) roads provide access to the northeastern and northwestern portions of the claim group. These depart the main access road on the Alex Crawford and Wm. Alexander claims.



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 N.T.S. 92H/12W
 Latitude 49°33'N Longitude 121°48'W



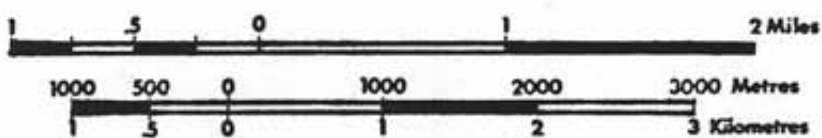
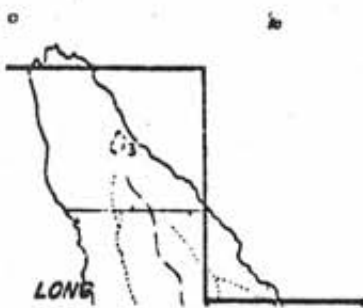
LOCATION MAP



DUNLAP CLAIM GROUP
 James McKenzie (1424(4))
 John Lougheed (1425(4))
 Cecil Dunlap (1426(4))
 Alex Crawford (1427(4))
 Wm. Alexander (1428(4))

DAY DAWN MINERAL CLAIM
 (1454(4))

BIG SILVER
 1662(12)



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CLAIM MAP

GEOLOGY

Map 12-1969 indicates the claims to be underlain by rocks of Late Paleozoic Chilliwack Group. The regional geological relationships have been discussed by Monger (1969), summarized in the 1983 Assessment Report and will not be reiterated here. A Geology and Sample Location Map, showing property geology is located in the back pocket.

Stratigraphy

The claims and surrounding area are underlain by a fining-upwards sequence of predominantly pelitic sediments. Stratigraphically lowest (assuming beds face up), are pin-striped pyritic argillites and slates, with lesser amounts of intercalated lenses of grit. Repetitive black slates and phyllites, containing biotite and garnet porphyroblasts overlie this unit, which in turn is overlain by garnetiferous phyllites and schists. Interbedded throughout the package, but more ubiquitous in the upper-most unit are garnet-amphibole rich layers. This suggests some volcanic affinities. These are generally less than 10 cm thick, lenticular and discontinuous (at outcrop scale) horizons, and are thought to represent metamorphosed tuffaceous layers. Float samples of sericite-chlorite-quartz phyllite also attest to volcanic horizons within the claims.

Dykes and sills of Late Cretaceous (Monger, 1969) dioritic composition intrude sediments immediately east and south of the claim group. The diorite is a medium grained, light greenish-white colour, and contains hornblende as the chief mafic constituent. The relationship of these small (generally no wider than 1 m) bodies to the larger stock located on Cogburn Creek is unknown.

Regional Metamorphism

The area is underlain by metasedimentary rocks of low to upper greenschist regional metamorphic grade.

Black shales and siltstones have been metamorphosed to slate and phyllite with growth of fine to medium grained

porphyroblasts of biotite and chlorite. Idiomorphic garnet porphyroblasts up to 3 mm are common in these rocks. More siliceous shales and repetetively laminated and colour banded shale and silty shale are metamorphosed into garnet bearing phyllites and schists. Calc-silicate bands containing amphibole porphyroblasts are present in places.

The growth of garnet and other metamorphic reactions are clearly compositionally controlled. However, the coarsening of micas and recrystallized to produce schistose textures intensifies in the higher stratigraphic/structural levels.

Contact Metamorphism

Contact metamorphic assemblages are developed proximal to dykes and plugs of Cretaceous (Monger, 1969) hornblende diorite intruded into the Chilliwack group country rocks.

Medium grained dykes are common and intrude along steep south dipping fracture trends and nearly vertical northeast striking orientations. Minor offshoots and apophyses of these dykes have intruded along adjacent bedding and cleavage surfaces.

Hornfels and skarnified country rocks are developed adjacent to these intrusives. The width of the zones varies from 3 to 5 m and contains a variety of contact mtamorphic products. Typically a 1 to 2 m wide zone of hornblende and chlorite bearing schist is developed adjacent to the intrusive. In places massive sulphide, skarn-like bodies have developed replacing the sediments with an assemblage of dominantly pyrrhotite, pyrite and minor chalcopyrite, with later quartz and calcite.

Structure

Large scale tight folding of bedding (F_1) characterizes the early phase of deformation in the area. Asymmetric, south-east verging folds with limb lengths of several km, transpose the compositional layering (S_0) and frequently overturns the stratigraphy. Axial plane orientations are generally $130^\circ/40$ NE.

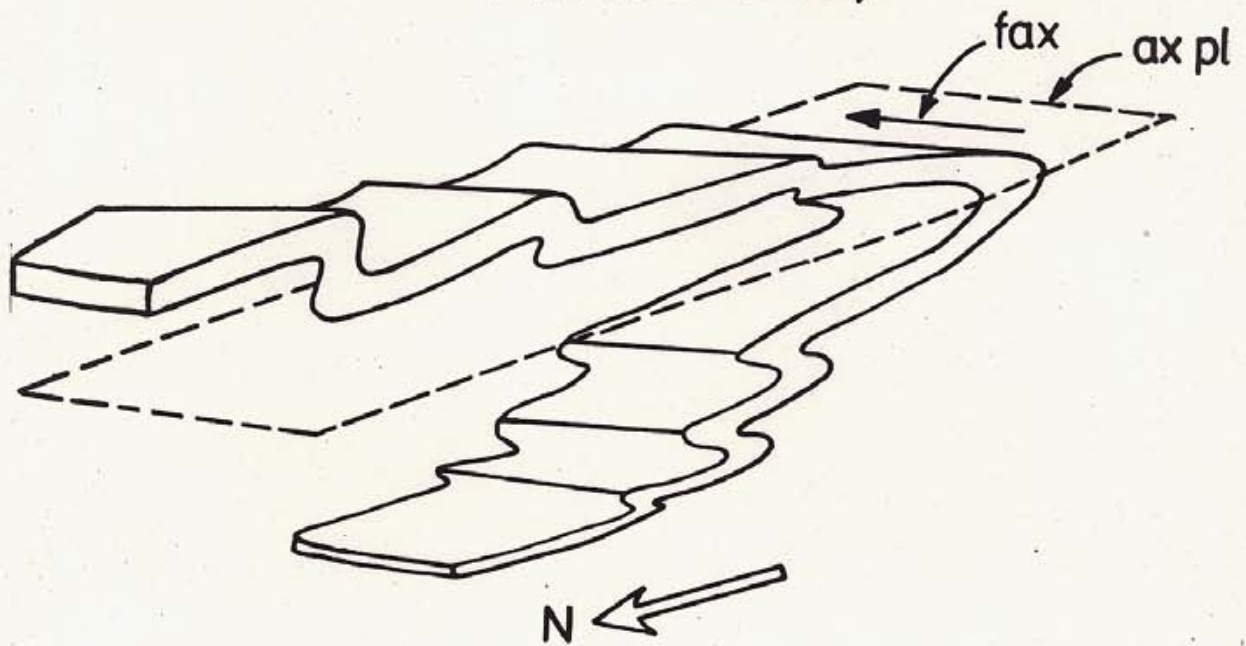
F₁ Fold Geometry

Figure 1



Plate 1: F₁ fold in black pyritic slate
(view towards east)

A well developed regional slaty cleavage (S_1) or schistosity is often the main planar feature seen in outcrop with bedding subordinate. Fold axes (F_1) plunge moderately to the northeast, typically 40-60°/60°NE. A well developed mineral lineation parallel to F_1 fold axes is often observed. This phase of folding is coeval with the regional metamorphism.

Post metamorphic folds and kinks are superimposed upon the F_1 folds and are responsible for variation in orientation of S_1 slaty cleavage. F_2 folds are typically upright with axial planes oriented 110°/50°NE. Kink bands are the latest feature related to the post folding, fracturing and jointing period, and show kink band boundaries typically dipping 50°S-SE. In the central portion of the John Loughheed claim, imbrication by northeast dipping thrusts and reverse faults has disrupted earlier structures. Cleavage plane slip and crosscutting shear planes are accompanied by fault related minor folds on the scale of cm to tens of cm across. The inferred direction of fault motion from the vergence and orientation of these folds and associated lineations is towards 320°Az. Subsidiary steep faults dissect the rocks in the hangingwall and footwall of the thrusts.

Joints and conjugate joint sets are locally well developed in the claim area. These range from SC type joints whose strike is approximately parallel to F_1 fold axes, to conjugate joints symmetrically disposed about the F_1 axes. All of these joints postdate folding and can be related to the late vein and dyke intrusion network(s).

Mineralization

Seven (7) rock and two (2) silt samples were collected and analyzed geochemically for Au and Ag and selectively for the following: Pb, Zn, Cu, As, and W. The results are appended.

Pyrite and pyrrhotite (syn-diagenetic sulphides) occur as streaks and bedding parallel laminations, locally to 3% in slates and argillites of unit 1 (Geology and Sample Location Map, in back pocket). Analysis of samples 2601 and 2606 indicate



Plate 2: Early quartz vein folded by F_1 fold
(view to east)

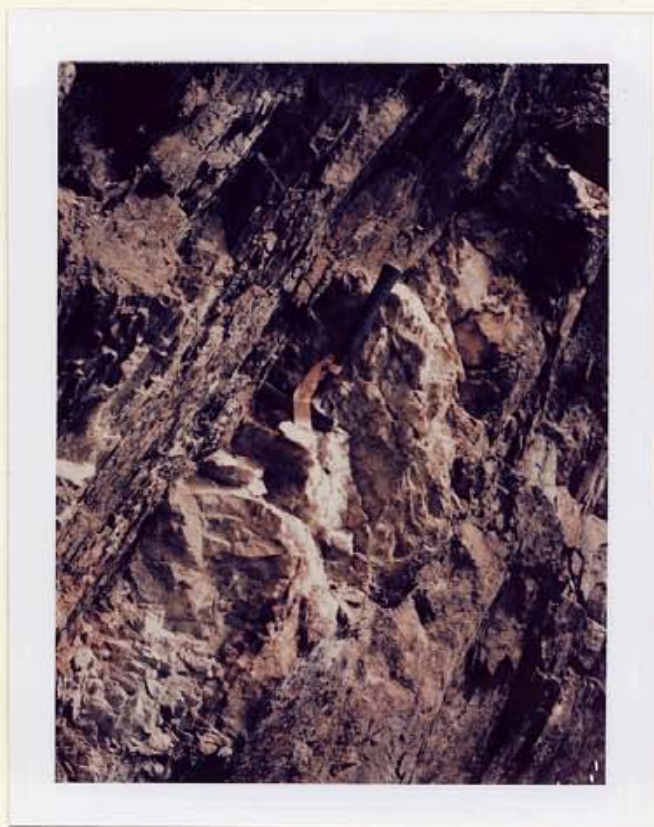


Plate 3: Barren quartz vein parallel
to steep bedding (view to S)



Plate 4: Post F_1 thrust fault and associated late fold (left of pencil). Quartz vein filling fault plane

no associated precious or base metal sulphide concentrations.

Bedding-parallel quartz veins, bullish in character and generally devoid of visible sulphides are common throughout the claims. These veins vary in thickness from 5cm to about 1 m., are pre-folding and appear to be metamorphic in origin. Samples 2603 and 2605A both from these segregation-type(?) quartz veins contain negligible amounts of Au and Ag.

Skarnified metasediments adjacent to diorite dykes, located south of the claim group, contain anomalous Au and high Cu values. Sulphides in order of abundance are: pyrrhotite, pyrite and chalcopyrite. The sulphides are characteristically massive and have replaced a zone up to 0.6 m wide of sediments adjacent to an intrusive dyke. The massive sulphide horizon/zones trend 138°/78°NE, and appear to depart from the general trend of the dykes (60°/80°SE). This seems to suggest that mineralization is controlled more by fracture and cleavage surface permeability than by distance from the individual dyke. The relationship of gold values to the massive sulphide skarn is unknown. At Doctors Point (Ray, 1984) gold-quartz veins are later and cut the hornfels and intrusives. Gold values are spatially related to the diorite-country rock contact, although both events are separated by a long time span.

CONCLUSIONS

Intrusive dykes and their related contact aureoles present on claims adjacent to the Dunlap mineral claim group contain anomalous values of gold and copper. The likelihood of similar intrusive-related mineralization to occur on the property, while none have been encountered to-date, is thought to be good.

Quartz veins are ubiquitous on the claim group. Both geochemical results and structural analysis have differentiated between those which are typically barren and those more likely to host mineralization.

Massive sulphide skarn zones within the country rocks (adjacent intrusives) contain predominantly pyrrhotite. If a

magnetic signature is present over these known occurrences a magnetometer survey could be utilized to delineate these zones in outcrop poor areas. This would facilitate exploration along the western portion of the claims where overburden and wooded slopes prevail.

RECOMMENDATIONS

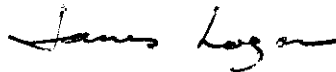
1. Geological mapping to complete coverage of the claim area. Emphasis should be directed on locating and tracing intrusive bodies, their contact aureoles and additional quartz veins which cut the main NW regional trend.
2. Soil geochemical sampling, proposed in the 1983 report, is still warranted.
3. A geophysical survey utilizing both magnetics (magnetometer) and electromagnetics (VLF) is recommended and could be implemented subsequent to the soil geochemical survey.

STATEMENT OF QUALIFICATIONS

JAMES M. LOGAN

1. I, James M. Logan, of 4651 West 16 th Street, Vancouver, B.C., V6R 3E9, am a graduate of Brock University, Ontario with a B.Sc. (Honours) degree in geology, and am undertaking graduate study in Geology at the University of British Columbia.
2. I have been engaged in mining exploration for 7 years.
3. I have co-authored the report entitled, "Preliminary Geology Report, Dunlap Mineral Claim Group Big Silver Creek, Harrison Lake Area, New Westminster Mining Division" dated April 1984. The report is based on fieldwork conducted by the author.
4. I control, 100% interest in the property.
5. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted,



James M. Logan
Geologist

Vancouver, B.C.
April, 1984

STATEMENT OF QUALIFICATIONS

JEFFREY A. FILLIPONE

1. I, Jeffrey A. Fillipone, of 4651 West 16 th Street, Vancouver, B.C., V6R 3E9, am a graduate of State University of New York, Albany with a B.Sc. (Honours) degree in geology, and am undertaking graduate study in Geology at the University of British Columbia.
2. I have been engaged in structural and regional geological mapping for 5 years.
3. I have co-authored the report entitled, "Preliminary Geology Report, Dunlap Mineral Claim Group Big Silver Creek, Harrison Lake Area, New Westminster Mining Division" dated April 1984. The report is based on fieldwork conducted by the authors.
4. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted,

Jeffrey A. Fillipone
GeologistVancouver, B.C.
April, 1984

REFERENCES

- Cochrane, B.A., 1980. Prospecting Assessment Report on the Big Silver Group for Assessment (Rpt. #8490).
- Logan, J.M., 1983. Preliminary Prospecting Report on the Dunlap Group for Assessment .
- Monger, J.W.H., 1969. Hope map-area, west half, B.C. Geol. Surv. Can., Pp 69-47.
- Ray, G.E., Coombe, S., and White, G., 1984. Harrison Lake Project in Geological Fieldwork 1983, B.C. Ministry of Energy, Mines and Petroleum Resources, Pp 1984-1.

COST STATEMENT, 1984 PROGRAM

Personnel

<u>Name</u>	<u>Position</u>	<u>Rate</u>	<u>Days</u>	<u>Cost</u>
J.M. Logan	Geologist	\$250/day	25th, 26th April	\$500.00
J.A. Fillipone	Geologist	\$250/day	25th, 26th April	\$500.00

Camp Cost

2 days @ 20.00	40.00
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Transportation

4-wheel drive, mileage fuel	117.50
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Analysis

2 stream sediment samples analysed for Au, Ag, Pb, Zn, and As @ 13.90/sample	27.80
10 rock samples analysed for Au, Ag, W, Pb, Zn, As @ 15.36/sample	153.65

Report

1 day, materials, drafting, typing	300.00
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TOTAL	<u>1639.15</u>
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APPENDIX

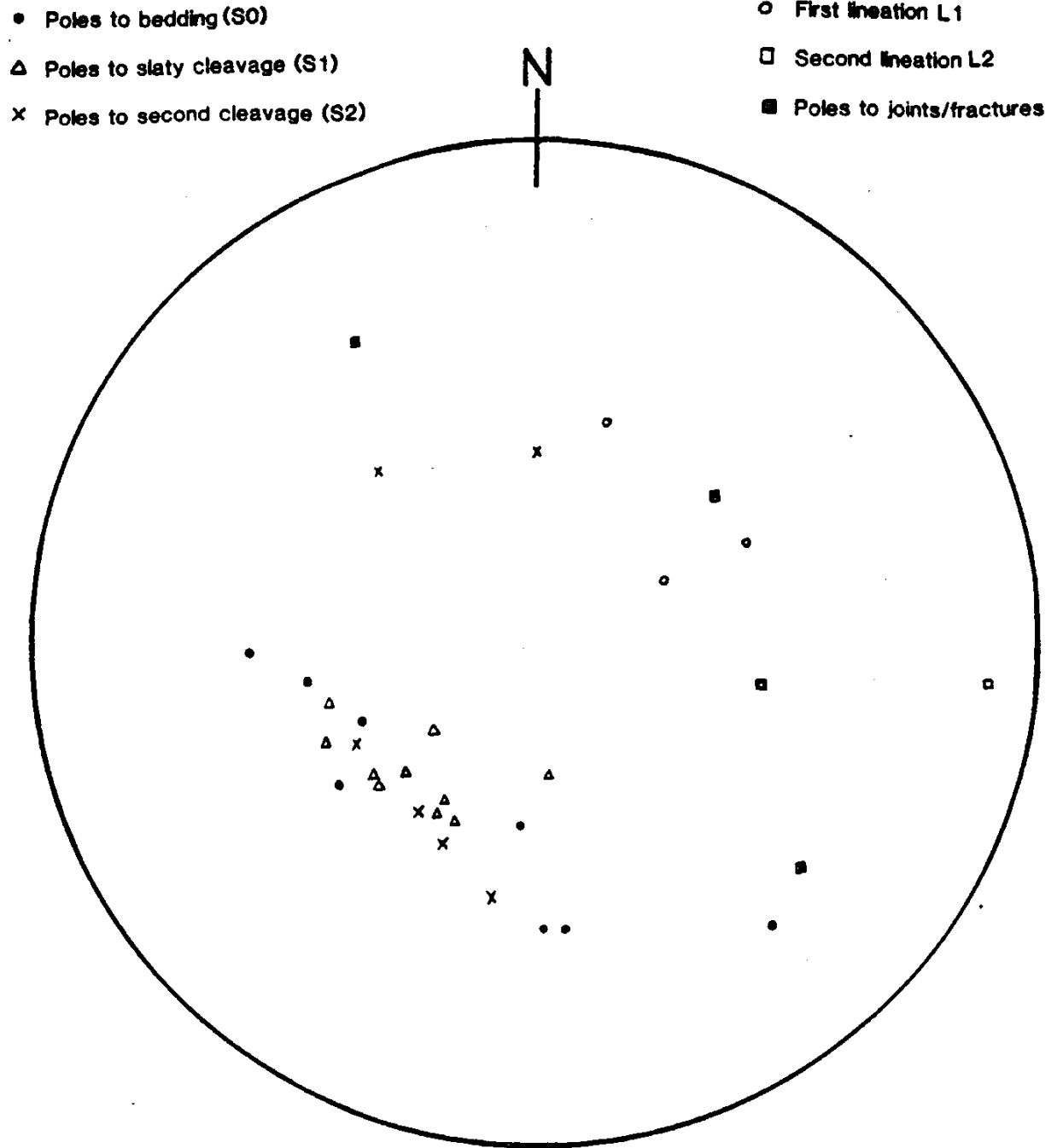


Figure 2: Steronet plot of structural data

SAMPLE DESCRIPTION

- 2502 - Silicified, fine grained leucocratic quartzitic sediment(?) and/or felsic cherty tuffaceous unit. Located south of claims along road.
- 2503 - Massive pyrite and pyrrhotite skarn zone, contains traces of chalcopyrite and later quartz veinlets (appear unmineralized). Moderately to completely oxidized by surface waters.
- 2504 - Float sample located in area of sample 2503. Sericite-quartz-pyrite volcanic phyllite rock, pyrite to 3%, chloritic and talcose alteration.
- 2601 - Fine-grained black, carbonaceous slate, containing up to 4% disseminated pyrite blebs and streaks. Pyrite remobilized locally into foliation parallel clots
- 2603 - Fractured, granular to vuggy vein quartz containing traces of oxidized pyrite. Narrow vein and/or lense (8 cm) cuts cleavage, possibly fracture controlled.
- 2605A- Massive (bullish) to vuggy oxidized quartz vein/ segregation(?) from imbricate shear zone(Plate 4). Quartz is hematite and limonite stained but contains no visible sulphides.
- 2606 - Black, pyrite and pyrrhotite bearing slate. Sulphides parallel bedding and have been metamorphosed/hornfelsed.



General Testing Laboratories

A Division of SGS Supervision Services Inc.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
 PHONE (604) 254-1847 TELEX 04-607514 CABLE SUPERVISE

TO:

MR. J. M. LOGAN
 1451 West 16th Street
 Vancouver, B.C.
 V6R 3R9

CERTIFICATE OF ASSAY

No.: **8104-0251**

DATE: **Apr. 12/84**

We hereby certify that the following are the results of assays on: **submitted rock and silt samples**

MARKED	GOLD		SILVER	Arsenic	Tungsten	Copper	Lead	Zinc	IRI
	Au (ppm)	Ag (ppm)	As (ppm)	W (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)		
<u>Rock samples</u>									
2502	0.06	0.10	12	2	3	-	-		
2503	0.22	0.70	5	2	3056	-	-		
2504	0.06	0.45	18	2	20	-	-		
2601	0.03	0.66	-	-	163	9	132		
2606	0.03	0.83	-	-	54	10	151		
2603	0.06	0.30	5	2	-	-	-		
2605 A	0.03	0.22	6	2	-	-	-		
2701	0.06	0.10	51	2	-	-	-		
2702	0.03	0.21	10	2	-	-	-		
2703	0.06	0.10	5	2	-	-	-		
<u>Silt samples</u>									
2605	0.06	0.50	16	-	-	13	99		
2609	0.06	0.33	6	-	-	23	131		

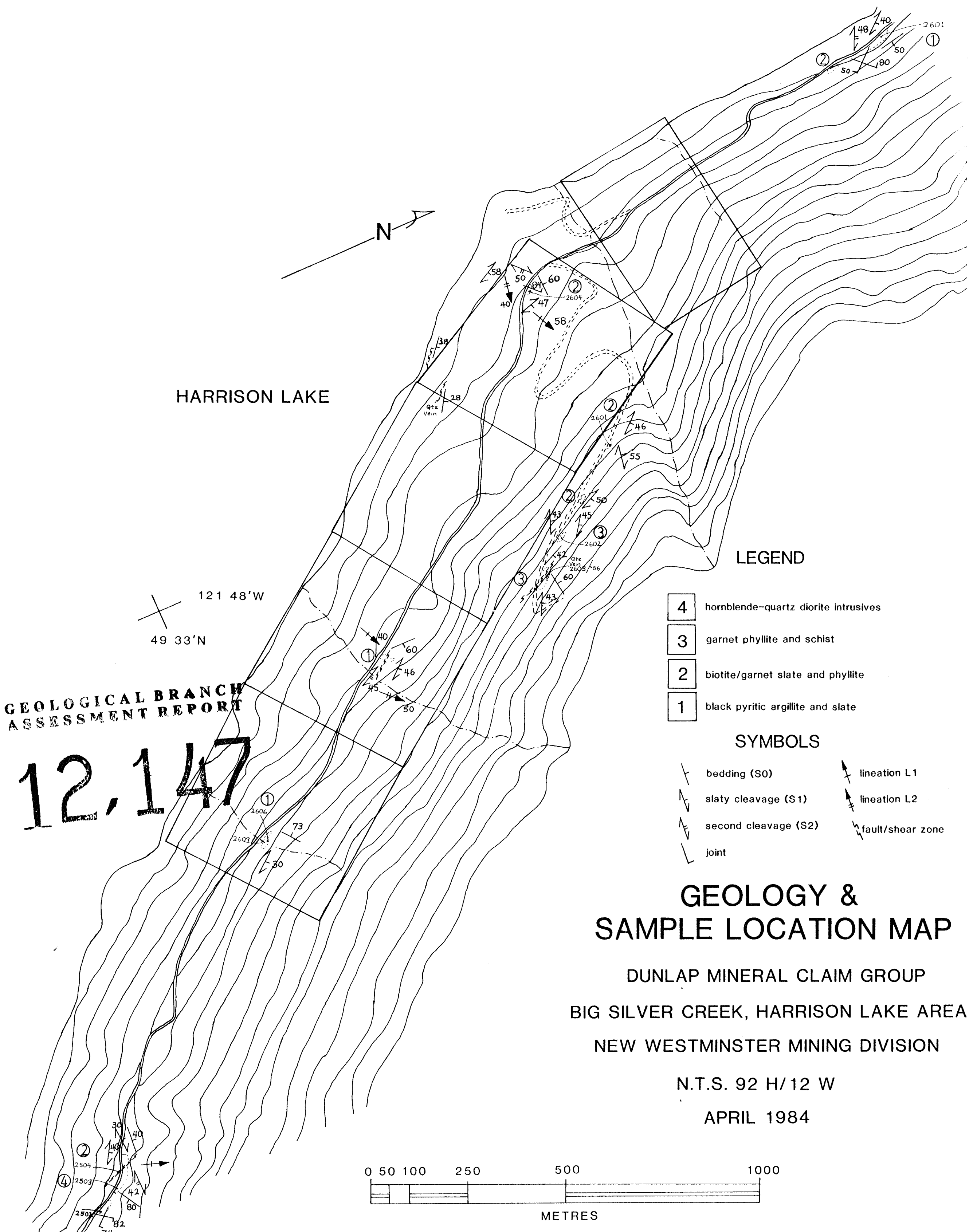
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HARRISON LAKE



121 48'W
49 33'N

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,147

LEGEND

- 4 hornblende-quartz diorite intrusives
- 3 garnet phyllite and schist
- 2 biotite/garnet slate and phyllite
- 1 black pyritic argillite and slate

SYMBOLS

- bedding (S0)
- slaty cleavage (S1)
- second cleavage (S2)
- joint
- lineation L1
- lineation L2
- fault/shear zone

GEOLOGY &
SAMPLE LOCATION MAP

DUNLAP MINERAL CLAIM GROUP
BIG SILVER CREEK, HARRISON LAKE AREA
NEW WESTMINSTER MINING DIVISION

N.T.S. 92 H/12 W

APRIL 1984

