MineQuest Report #212(a)
Ref. No. RM5202

GEOLOGY, ROCK CHIP SAMPLING AND LINE CUTTING

on the

MAHWITTI PROPERTY

Nanaimo Mining Division

N.T.S. 92L/12W

Latitude 50° 43' N
Longitude 127° 52' E

by

Linda J. Lee

of

MineQuest Exploration Associates Ltd.

for

QPX Minerals Inc.

Claim Name	Record Number	Number of Units	Record Date
Lake	17810	1	Mar. 29, 1965
Jean No. 1	18101	1	July 20, 1965
Jean No. 2	18102	1	July 20, 1965
Jean No. 3	18103	1	July 20, 1965
Jean No. 4	18104	1	July 20, 1965
Jean No. 5	18426	1	Feb. 28, 1966
Jean No. 7	18428	1	Feb. 28, 1966
F.T.R. No. 2	21370	1	Nov. 30, 1967
F.T.R. No. 4	21372	1	Nov. 30, 1967
F.T.R. No. 6	21374	1	Nov. 30, 1967
Lake No. 2	24670	1	May 2, 1968
Lake No. 3	24671	1	May 2, 1968
F.T.R. #8	33598	1	Mar. 22, 1971

Vancouver, B.C.

February, 1989

ARIS SUMMARY SHEET

District Geologist, Victoria — Off Confidential: 89.11.08

ASSESSMENT REPORT 18502 — MINING DIVISION: Nanaimo

PROPERTY: Nahwitti
LOCATION: LAT 50 43 00 LONG 127 52 00
UTM 09 5618711 580010
NTS 092L12W

CAMP: 031 Island Copper Area

CLAIM(S): Jean 1-5,Lake 1-3
OPERATOR(S): QPX Min.
AUTHOR(S): Lee, L.J.
REPORT YEAR: 1989, 46 Pages
COMMODITIES
SEARCHED FOR: Copper,Zinc,Silver
KEYWORDS: Triassic,Karmutsen Formation,Quatsino Formation,Limestone,Basalt
Skarn,Chalcopyrite,Galena,Sphalerite,Magnetite
WORK
DONE: Geological,Geochemical,Physical
GEOL 50.0 ha
Map(s) - 1; Scale(s) - 1:2000
LINE 9.7 km
PETR 8 sample(s)
ROCK 71 sample(s) ;ME
RELATED
REPORTS: 01610,05951
MINFILE: 092L 077,092L 098

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Jean No. 5	18426	1	Feb. 28, 1966
Jean No. 7	18428	1	Feb. 28, 1966
F.T.R. No. 2	21370	1	Nov. 30, 1967
F.T.R. No. 4	21372	1	Nov. 30, 1967
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Vancouver, B.C.

February, 1989

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LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Location, Access and Terrain

The Nahwitti property is located about 30 kilometres west of Port Hardy, B.C. on the north shore of Nahwitti Lake, as shown in Figure 1. The claims are centered at about 50° 43'N, 127° 52'E in N.T.S. 92L/12W. Access to the property is by the Holberg Road west from Port Hardy to the bridge over the Nahwitti River just west of the lake. From this point, a well marked trail leads to the Lake Zone showings, a distance of about one kilometre. The eastern portion of the property and the Raven Zone showings are best reached by boat. Small boats can be launched at the Forest Service campsite on Nahwitti Lake.

The topography is generally very rugged with mature forests and thick underbrush. The eastern portion of the property was previously logged and underbrush is very thick in these areas. Richmond Plywood holds the timber rights for this region and plans to log the remainder of the property in 1989.

1.2 Claim Status

The Nahwitti property consists of 13 two-post mineral claims as listed below and shown in Figure 2. The claims are held by Mr. F.T. Russell of Heffley Creek, B.C. and are under option to QPX Minerals Inc.

Claim Name	Record Number	Number of Units	Record Date	Due Date Before Submission of This Report
Lake	17810	1	Mar. 29, 1965	Mar 29, 1992
Jean No. 1	18101	1	July 20, 1965	July 20, 1992
Jean No. 2	18102	1	July 20, 1965	July 20, 1992
Jean No. 3	18103	1	July 20, 1965	July 20, 1992
Jean No. 4	18104	1	July 20, 1965	July 20, 1992
Jean No. 5	18426	1	Feb. 28, 1966	Feb. 28, 1990
Jean No. 7	18428	1	Feb. 28, 1966	Feb. 28, 1990
F.T.R. No. 2	21370	1	Nov. 30, 1967	Nov. 30, 1991
F.T.R. No. 4	21372	1	Nov. 30, 1967	Nov. 30, 1991
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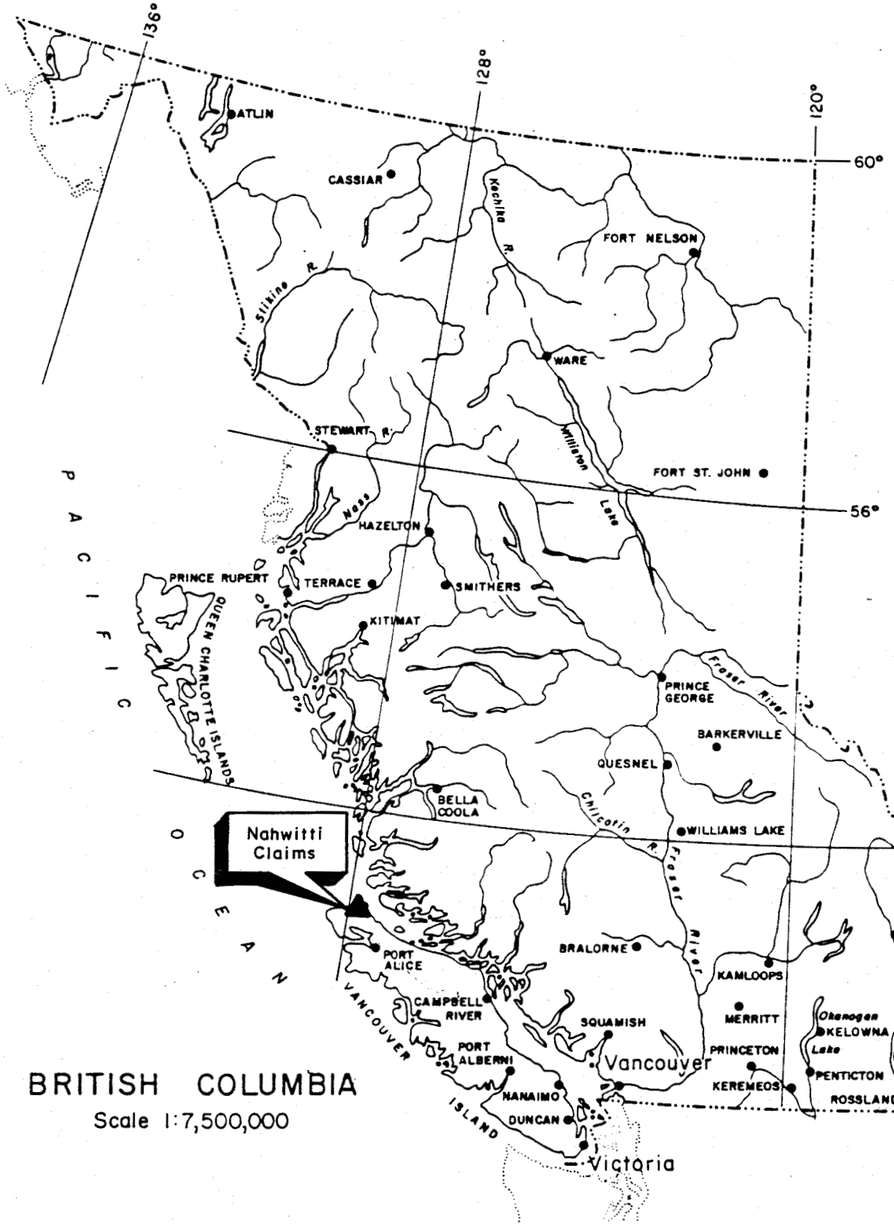
F.T.R. #8	33598	1	Mar. 22, 1971	Mar 22, 1991



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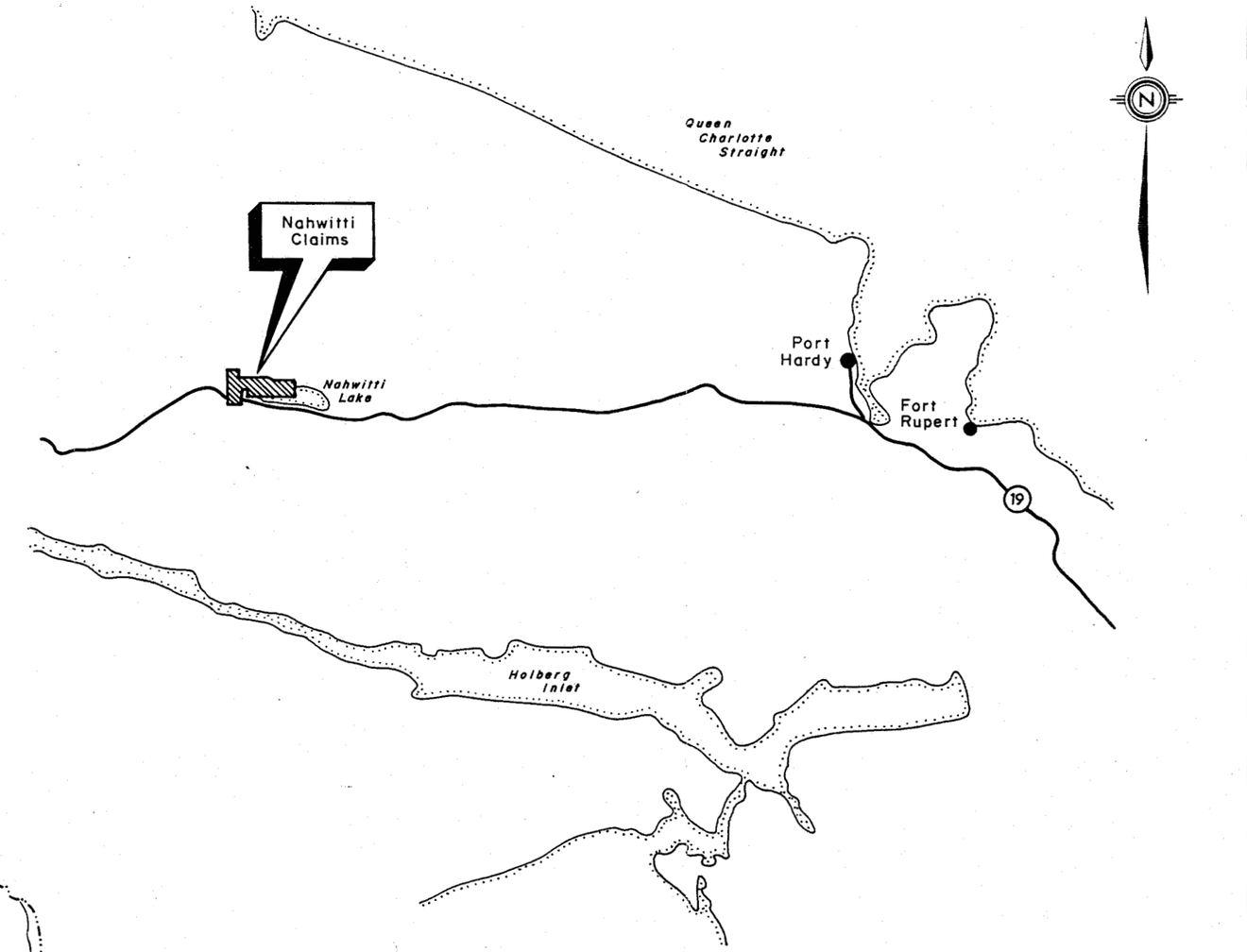
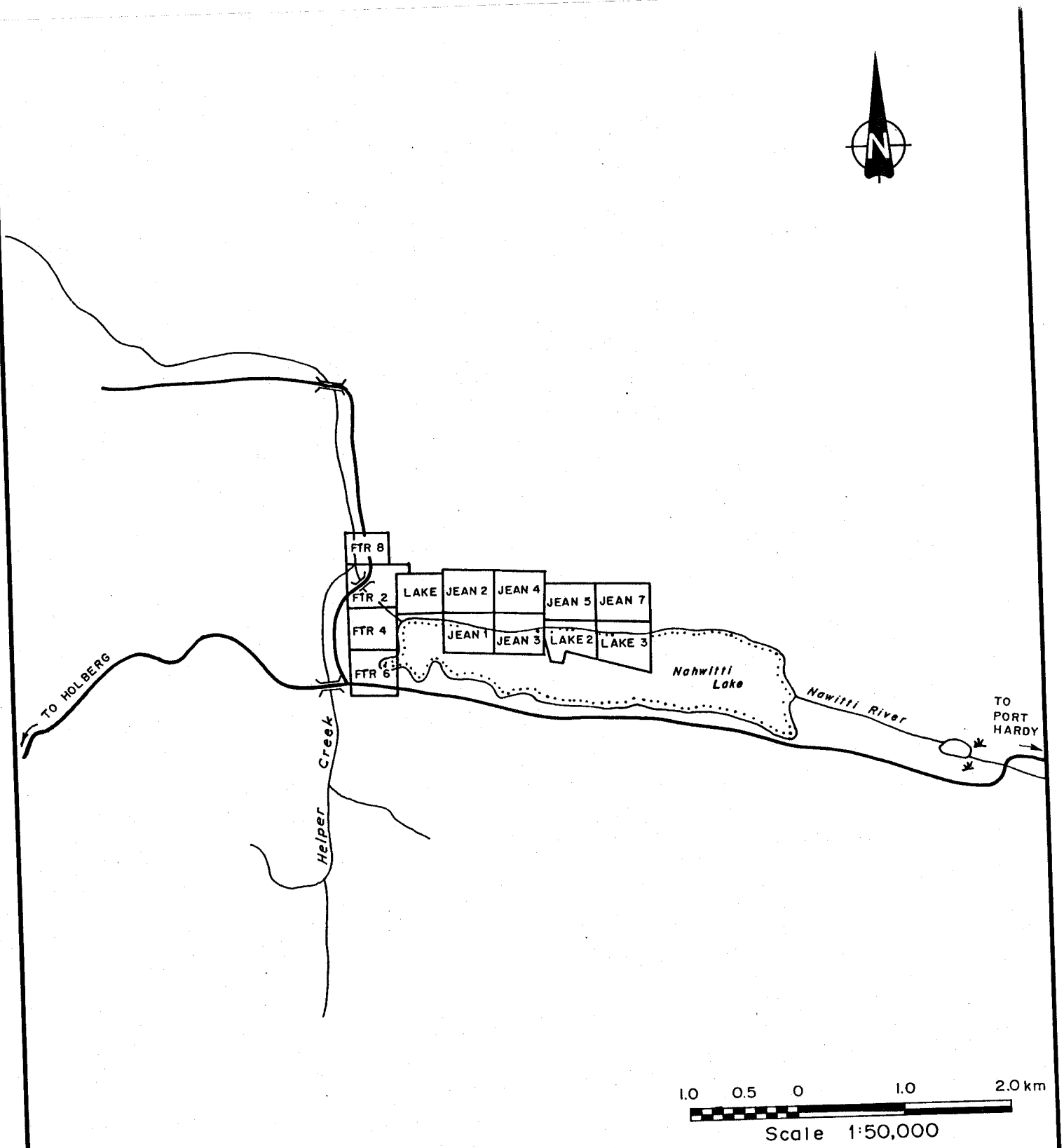


Scale 1:250,000

5 0 5 10 15km

QPX MINERALS INC.			
Nahwitti Project, Nanaimo M.D., B.C.			
LOCATION MAP			
PLAN No. ES-111	DRAWN	DATE Jan / 89	FIGURE 1
Revised		N.T.S. 92 L/12W	



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Nahwitti Project, Nanaimo M.D., B.C.

CLAIM MAP

Originator LJL	Drawn	Plan No.	FIG. 2
Revised	Date Jan/89	NTS 92L/12W	

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1.3 Property Definition and History

The Nahwitti Lake area has been actively prospected since the early 1900's and a large number of showings are known in the region. The majority of these showings are copper-magnetite skarns and silver-lead-zinc replacement lenses hosted in the Quatsino limestone (Minister of Mines Annual Report, 1936 p. F47 - F52, Sutherland, 1966).

The present claims were staked in 1965 to cover several showings described in the above annual report (The North Shore showings). Since this time the claims have been worked by several different companies and individuals with the main emphasis on copper potential. In 1965, Silver Standard Mines Ltd. did geological mapping and magnetometry over the Lake Zone showings. Naylor (1965) summarizes this work. Falconbridge Nickel optioned the property in 1966 and did a program consisting of geological mapping, soil sampling, magnetometer and SP surveys, as well as 59 metres of packsack diamond drilling. Again, the work, which is summarized by McDougall (1967), was restricted to the Lake Zone. In 1968, Kodiak Mines Ltd. optioned the property and completed geological mapping, and magnetic and geochemcial surveys over much of the property. In addition, eighty-seven metres of diamond drilling was done on the Raven Zone (Stevenson, 1968). Nippon Mining Ltd. drilled an additional three diamond drill holes on the Raven Zone in 1971 (Ichihara, 1971) and in 1978, Riocanex completed a small IP survey (Walcott, 1976). The reader is referred to Westervelt (1988) for a thorough summary of previous work on the property.

1.4 Summary of Work Done, 1988

Work covered in this report includes line cutting, geological mapping and rock chip sampling. Twelve hundred metres of cut baseline were established on the property, with 8.5 kilometres of flagged cross-lines. Line cutting was done by B. Miller, C. O'Neill, G. Vernon and A. Young. Detailed geological mapping and rock chip sampling of the grid area was done by L. Lee and G. Vernon. The project was under the direction of R.V. Longe; G.R. Peatfield provided technical advice. Field work was done from September 27th to October 15th, 1988.

2.0 GEOLOGY

2.1 Regional Geology

The geology of the Nahwitti Lake area is covered by Open file 463 (Muller, 1977). The property occurs within a westerly trending belt of Middle to Upper Triassic volcanics and sediments of the Karmutsen and Quatsino Formations. A large grantic intrusive of Jurassic age is situated to the north of the claims.

2.2 Claim Group Geology

The claim group geology was mapped at a scale of 1:2000 as shown in Figure 3. Upper Triassic limestones of the Quatsino Formation overly Middle Trassic Karmutsen volcanics. The limestone - volcanic contact is not well exposed but the contorted nature of the contact suggests an irregular despositional surface. Dips are moderate to the south with the Quatsino limestones forming a dip slope to the lake. Skarn-type mineralization is common near the volcanic-limestone contact.

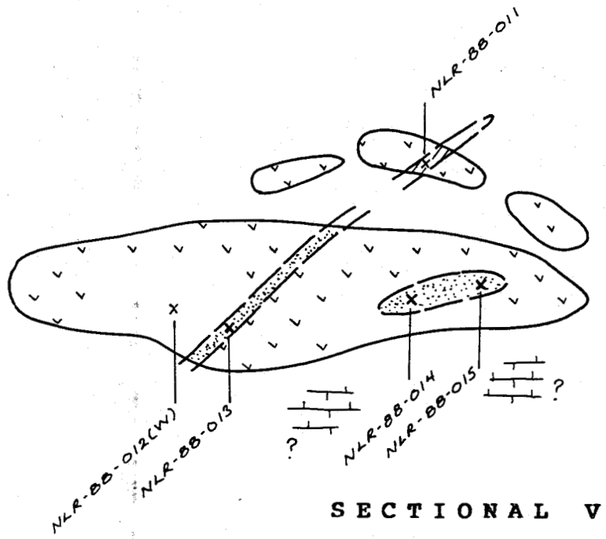
The limestones are generally dark grey and very fine grained but may locally be coarsely crystalline or crudely banded. Underlying the limestones is a thick succession of basaltic volcanics of the Karmutsen Formation. The basalts are typically very fine grained but may be locally porphyritic with phenocrysts of olivine or plagioclase. Feeder zones (or possibly dykes) distinguished by a coarser grain size to the basalt are common. Narrow, buff-grey, very fine grained felsic volcanic flows occur within the basalt, near the limestone contact. Several exposures of this felsite occur spatially within the limestone. This may represent a later flow, contemporaneous with the deposition of the limestone but more likely indicates a window of earlier volcanics through the limestone skin.

A series of near vertical north-south trending faults with left lateral movement cut the above sequence of rocks. Less prominent northwest-southeast trending faults are also present.

2.3 Alteration and Mineralization

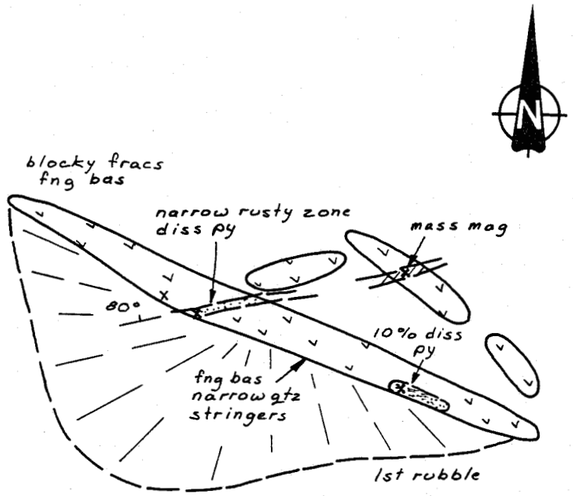
Skarn-type mineralization occurs at the Karmutsen-Quatsino contact and consists of disseminated and locally massive pyrite, chalcopyrite, sphalerite and minor galena in a magnetite, epidote host with local garnet. Two main zones are recognized, the Lake Zone, which is exposed in a series of pits and trenches over a strike length of about 300 metres, and the Raven Zone which is exposed almost continually over a strike length of 150 metres. Westervelt (1988) summarizes the results of previous sampling on these showings. All known trenches and exposures of mineralization on the property were mapped and sampled in detail, as shown in Figures 4 - 13. Although a number of anomalous samples resulted from this program the mineralization appears to be very limited in extent. The lack of suitable textures and alteration regates a volcanogenic massive sulphide origin to the mineralization and suggests that mineralization is strictly of a skarn nature.

W



E

SECTIONAL VIEW



PLAN VIEW

LEGEND

Quatsino Formation :

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

STRIKE/DIP OF FRACTURES

STRIKE/DIP OF BEDDING

STRIKE/DIP OF VEINING

GEOLOGICAL CONTACT ; DEFINED, ASSUMED

NLR-88-012 ROCK SAMPLE LOCATION

TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-011	76	84	11	0.1	34
NLR 88-013	25	39	7	0.1	12
NLR 88-014	779	111	18	1.3	106
NLR 88-015	768	57	18	0.4	91

QPX MINERALS INC.

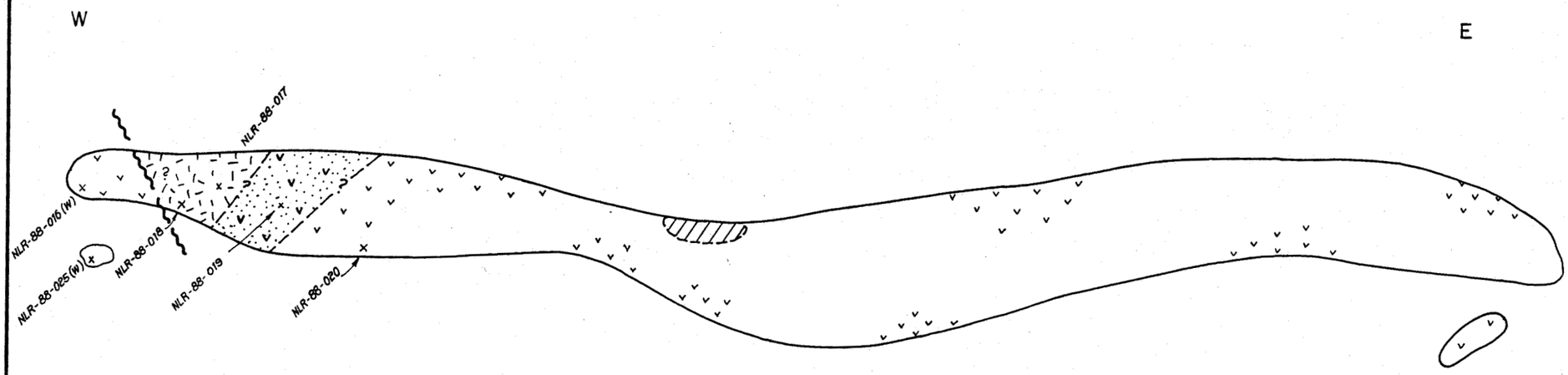
NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 1

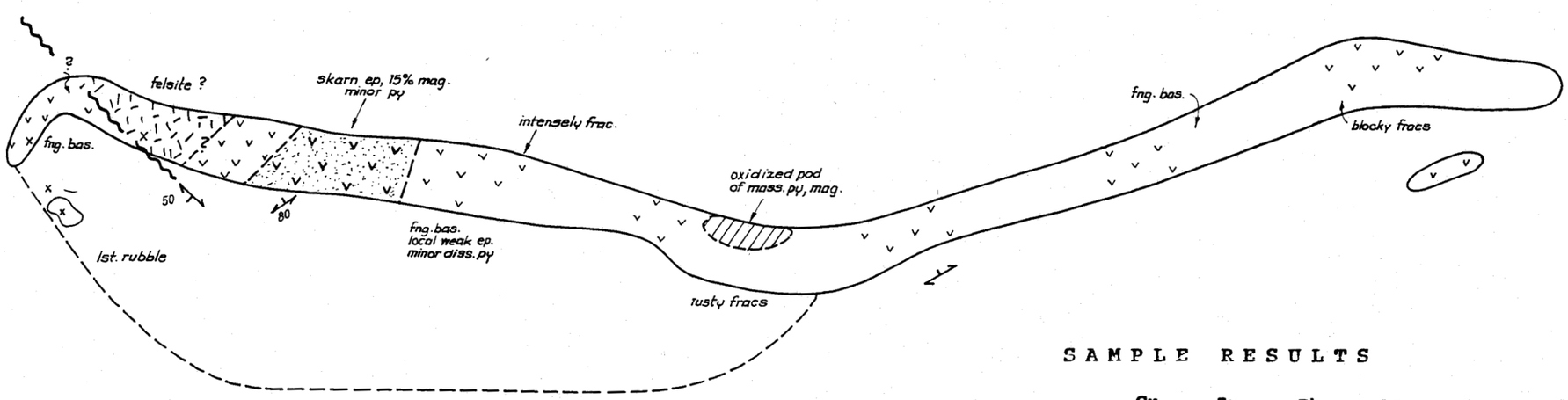
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92 L/12W	FIG. 4
ES #	ES-101	Date Feb.'89		

MINEQUEST EXPLORATION ASSOCIATES LTD.



SECTIONAL VIEW



PLAN VIEW

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-017	521	64	18	0.7	44
NLR 88-018	2213	36	24	1.1	532
NLR 88-019	761	35	2	0.6	156
NLR 88-020	5882	147	7	10.2	25

LEGEND

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STRIKE/ DIP OF VEINING

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NLR-88-012 ROCK SAMPLE LOCATION

TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

QPX MINERALS INC.

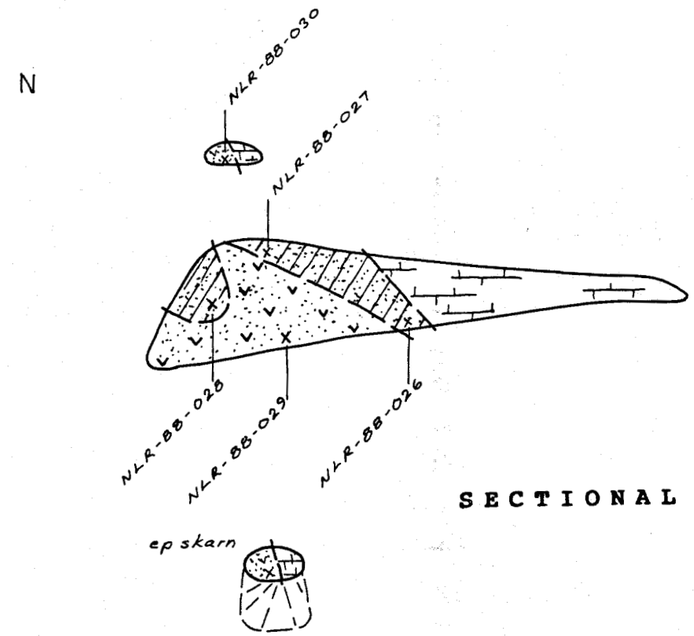
NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 2

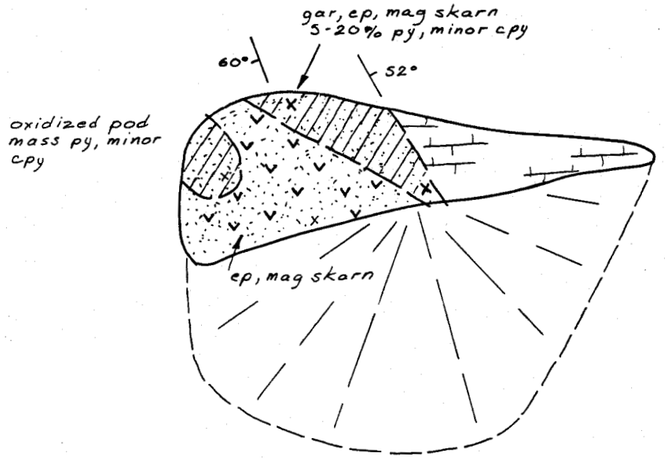
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	C.D.	N.T.S.	FIG.
ES #	ES 102	Date Feb.'89	92 L/12W	5

MINEQUEST EXPLORATION ASSOCIATES LTD.



SECTIONAL VIEW



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py	pyrite	gal	galenc
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-026	5578	1556	44	6.4	37
NLR 88-027	572	360	30	0.8	22
NLR 88-028	11,617	6974	89	5.5	115
NLR 88-029	3771	1878	22	2.6	43
NLR 88-030	2617	892	16	1.1	21

QPX MINERALS INC.

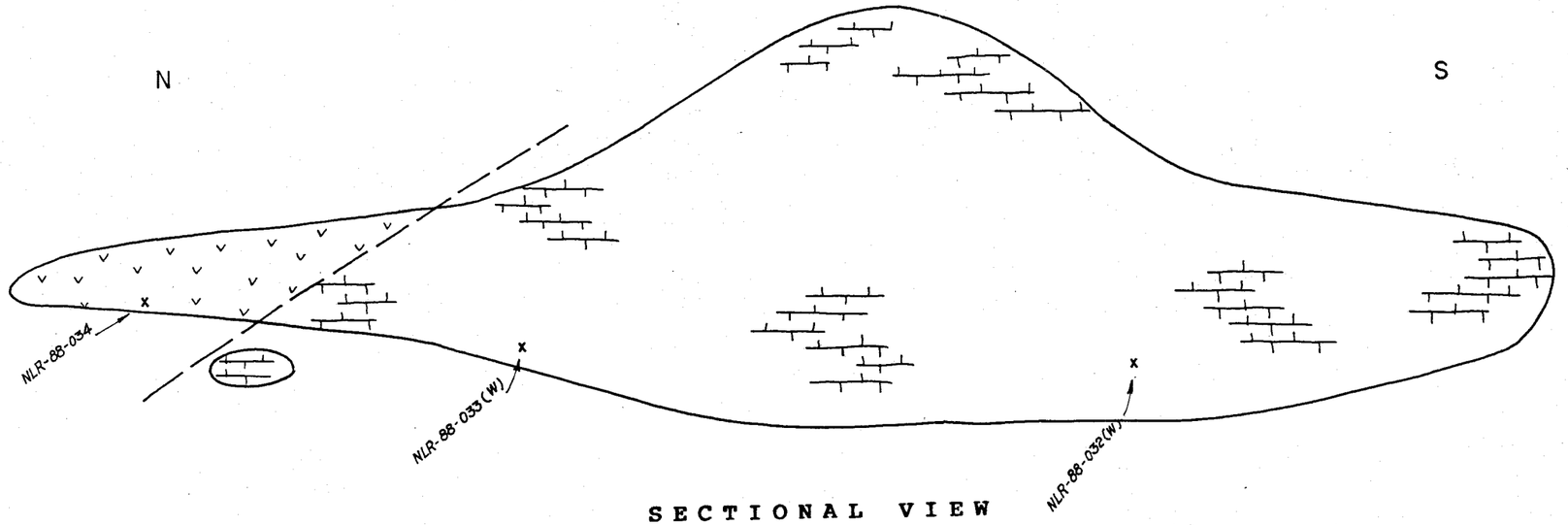
NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 3

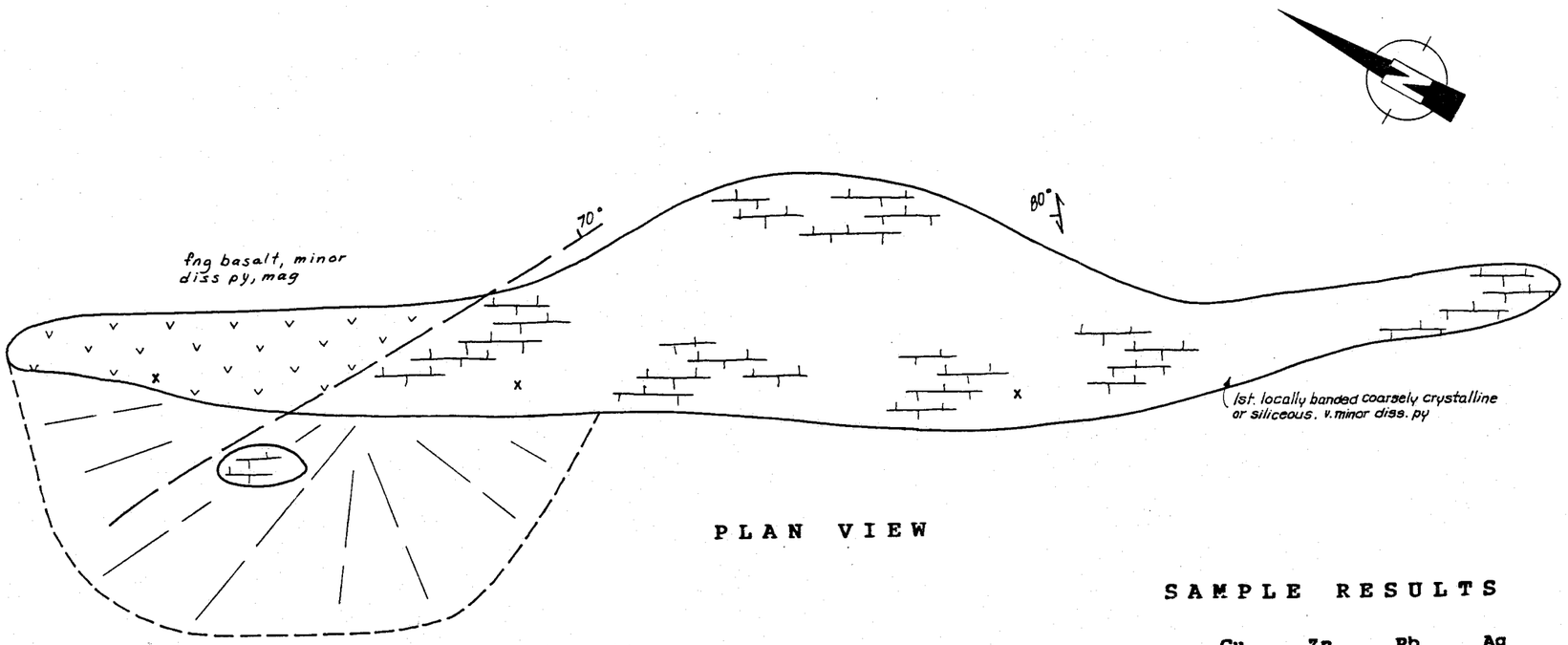
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92L/12W	FIG. 6
ES #	ES 103	Date Feb.'89		

MINEQUEST EXPLORATION ASSOCIATES LTD.



SECTIONAL VIEW



PLAN VIEW

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-034	3227	319	13	6.3	418

LEGEND

Quatsino Formation :

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Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

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MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

- STRIKE/DIP OF FRACTURES
- STRIKE/DIP OF BEDDING
- STRIKE/DIP OF VEINING
- GEOLOGICAL CONTACT ; DEFINED, ASSUMED
- × NLR-88-012 ROCK SAMPLE LOCATION
- TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

QPX MINERALS INC.

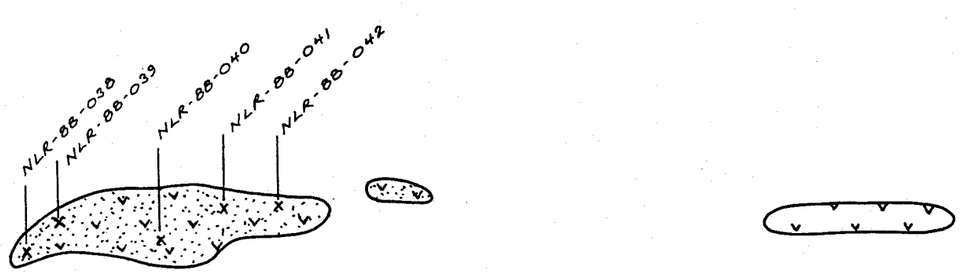
NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 4

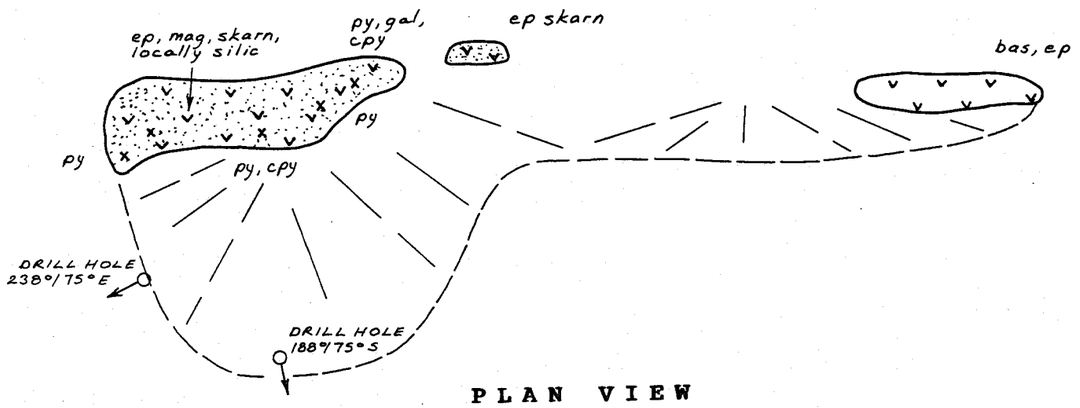
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	C.D.	N.T.S.	FIG.
ES #	ES 104	Date Feb.'89	92 L/12W	7

MINEQUEST EXPLORATION ASSOCIATES LTD.



SECTIONAL VIEW



PLAN VIEW

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SYMBOLS and ABBREVIATIONS

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fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-038	11,895	303	16	8.4	183
NLR 88-039	15,273	339	16	11.4	294
NLR 88-040	8,163	234	30	6.6	138
NLR 88-041	11,330	453	74	12.1	131
NLR 88-042	8,705	239	16	5.7	115

QPX MINERALS INC.

NAHWITTI PROJECT, NANAIMO M.D. B.C.

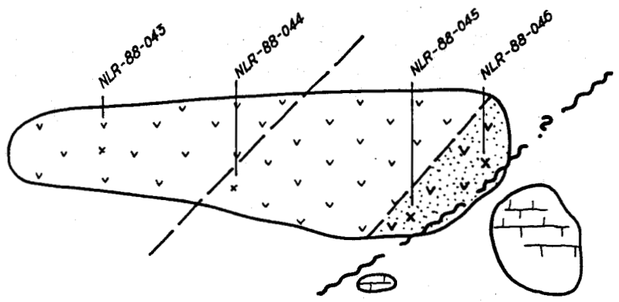
TRENCH 5

GEOLOGY and SAMPLE LOCATIONS

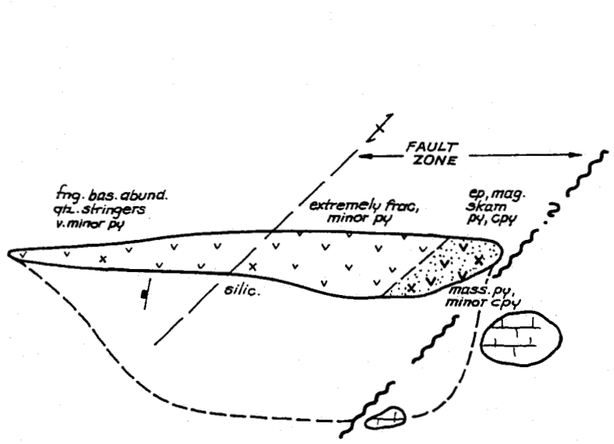
Originator	L.J.L.	Drawn B.M.	N.T.S. 92L/12W	FIG. 8
ES #	ES 105	Date Feb.'89		

MINEQUEST EXPLORATION ASSOCIATES LTD.

W E



SECTIONAL VIEW



PLAN VIEW

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-043	162	115	10	0.1	10
NLR 88-044	153	74	5	0.1	5
NLR 88-045	481	31	9	1.0	96
NLR 88-046	163	12	5	0.1	4

LEGEND

Quatsino Formation :

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

STRIKE/DIP OF FRACTURES

STRIKE/DIP OF BEDDING

STRIKE/DIP OF VEINING

GEOLOGICAL CONTACT ; DEFINED, ASSUMED

NLR-88-012 ROCK SAMPLE LOCATION

TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mgg	magnetite		
ep	epidote		

Scale: 1 : 100 m

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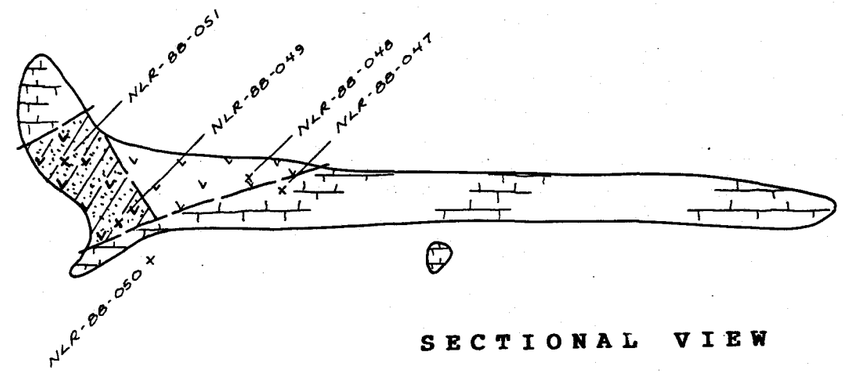
NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 6

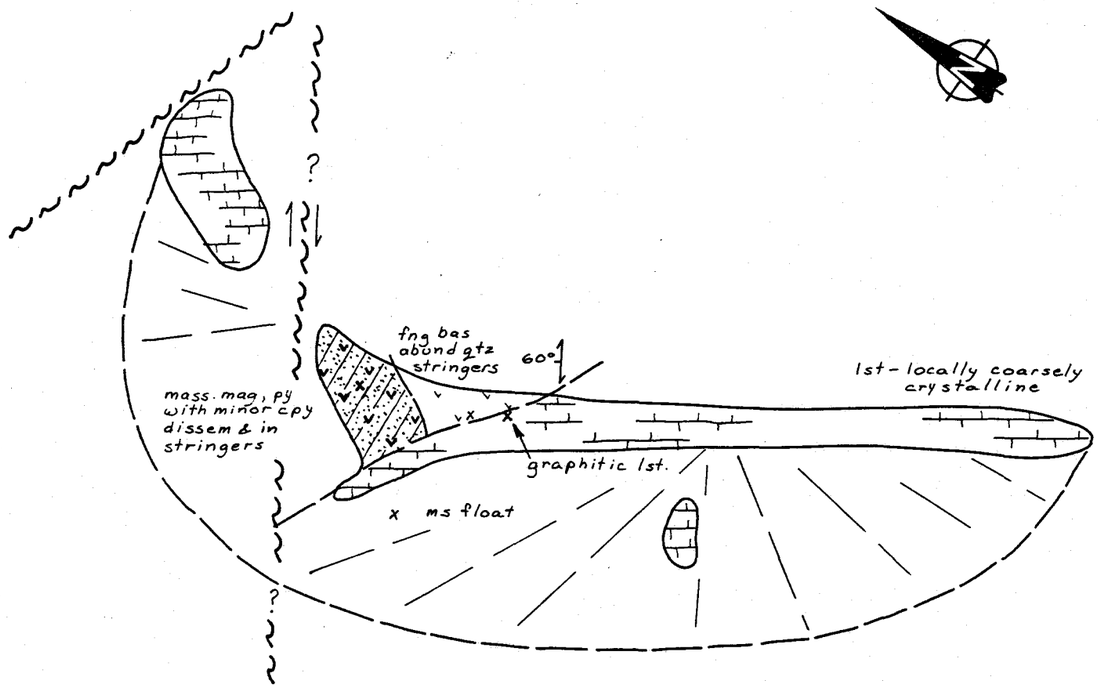
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	C.D.	N.T.S.	FIG. 9
ES #	ES 106	Date Feb.'89	92 L/12W	

MINEQUEST EXPLORATION ASSOCIATES LTD.



SECTIONAL VIEW



PLAN VIEW

LEGEND

Quatsino Formation :

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

- STRIKE/DIP OF FRACTURES
- STRIKE/DIP OF BEDDING
- STRIKE/DIP OF VEINING
- GEOLOGICAL CONTACT ; DEFINED, ASSUMED
- × NLR-88-012 ROCK SAMPLE LOCATION
- TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-047	700	402	572	3.5	91
NLR 88-048	32	57	7	0.1	8
NLR 88-049	1032	85	43	0.7	105
NLR 88-050	2541	51	12	0.7	1133
NLR 88-051	1765	113	14	1.5	44

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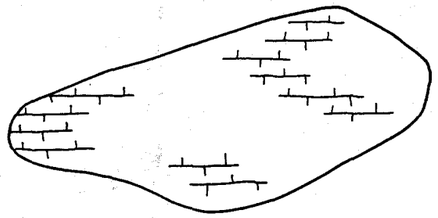
TRENCH 7

GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92 L/12W	FIG. 10
ES #	ES 107	Date Feb.'89		

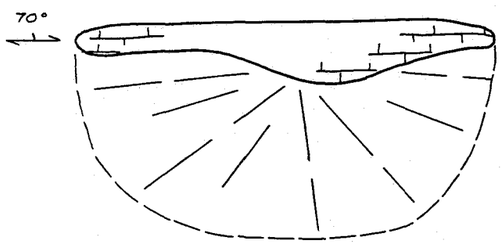
MINEQUEST EXPLORATION ASSOCIATES LTD.

W E



SECTIONAL VIEW

1st - dark grey, aphanitic; locally coarsely crystalline



PLAN VIEW

NO SAMPLES

LEGEND

Quatsino Formation :

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

STRIKE/DIP OF FRACTURES

STRIKE/DIP OF BEDDING

STRIKE/DIP OF VEINING

GEOLOGICAL CONTACT ; DEFINED, ASSUMED

NLR-88-012 ROCK SAMPLE LOCATION

TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

QPX MINERALS INC.

NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 8

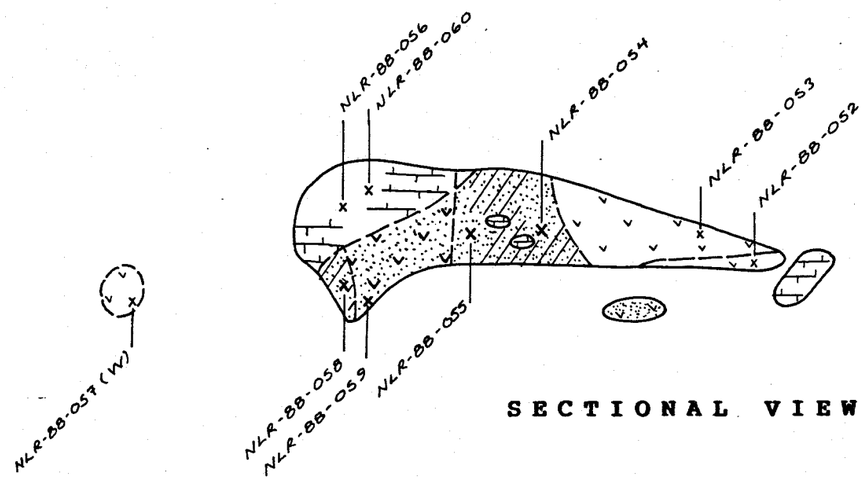
GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92 L/12W	FIG. 11
ES #	ES 108	Date Feb.'89		

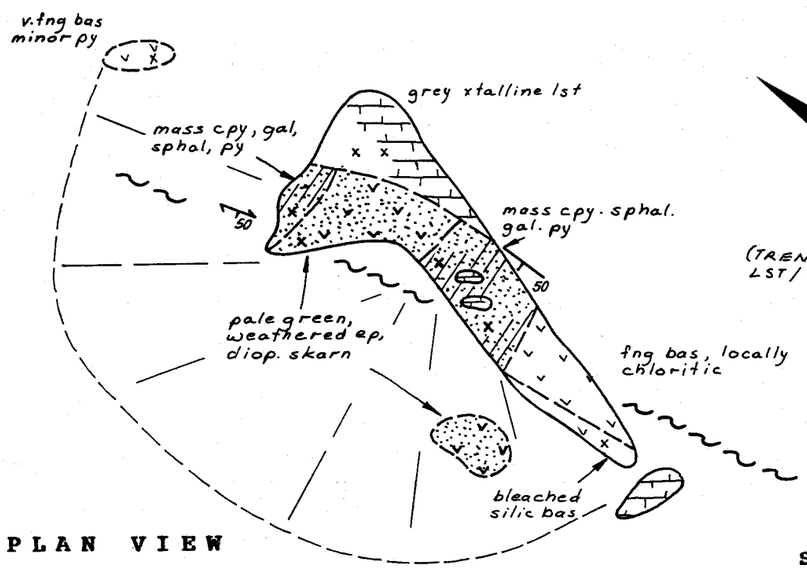
MINEQUEST EXPLORATION ASSOCIATES LTD.

N

S



SECTIONAL VIEW



(TRENCH SURFACE IS LST/VOLC CONTACT)

PLAN VIEW

LEGEND

Quatsino Formation :

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation :

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

- STRIKE/DIP OF FRACTURES
- STRIKE/DIP OF BEDDING
- STRIKE/DIP OF VEINING
- GEOLOGICAL CONTACT ; DEFINED, ASSUMED
- × NLR-88-012 ROCK SAMPLE LOCATION
- TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-052	64	126	23	0.1	15
NLR 88-053	93	144	23	0.3	14
NLR 88-054	93,947	99,999	431	150.4	645
NLR 88-055	31,571	99,999	4775	60.9	246
NLR 88-056	191	1721	67	0.4	2
NLR 88-058	33,565	75,214	158	15.7	150
NLR 88-059	5317	3795	503	3.3	21
NLR 88-060	5057	41,600	5516	20.0	10

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NAHWITTI PROJECT, NANAIMO M.D. B.C.

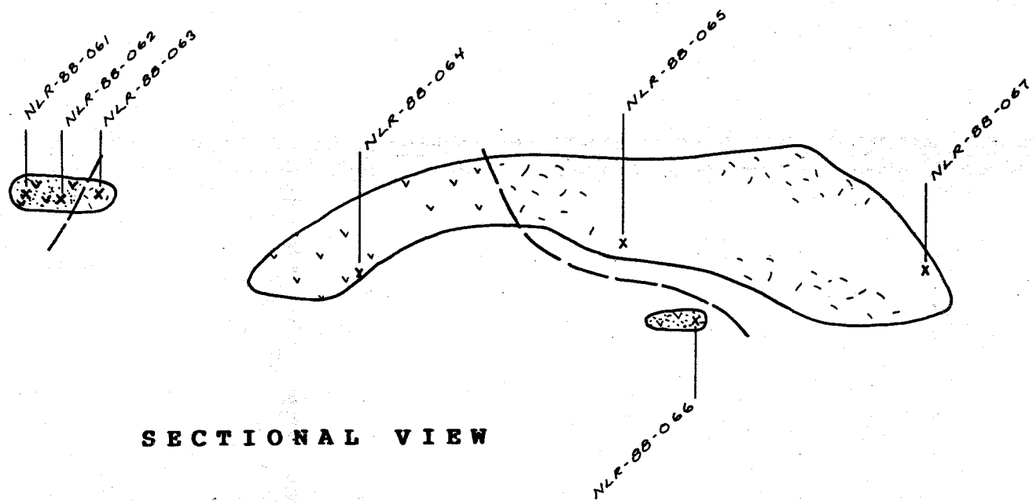
TRENCH 9

GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92L/12W	FIG. 12
ES #	ES 109	Date Feb.'89		

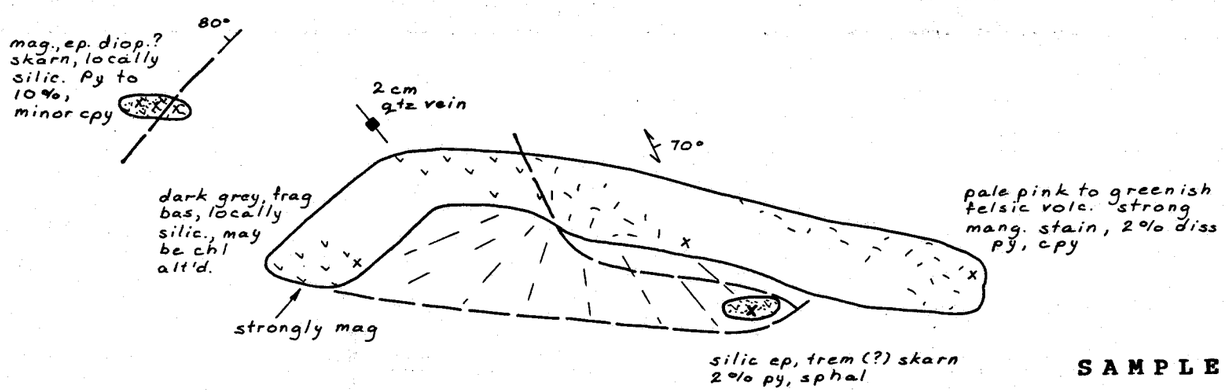
MINEQUEST EXPLORATION ASSOCIATES LTD.

W



E

SECTIONAL VIEW



PLAN VIEW

LEGEND

Quatsino Formation:

LIMESTONE, GENERALLY FINE GRAINED BUT MAY BE COARSELY CRYSTALLINE OR CRUDELY BANDED

Karmutsen Formation:

BASALT, COMMONLY FINE GRAINED BY LOCALLY MED. GRAINED (FEEDER ZONES OR DYKES) OR PORPHYRITIC (OLIV, PLAG.)

PALE BUFF-GREY COLORED, FINE GRAINED FELSIC VOLCANIC

SKARN ASSEMBLAGE (EPIDOTE, GARNET, MAGNETITE, DIOPSIDE, TREMOLITE ...)

DISSEMINATED MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

MASSIVE SULPHIDE AND MAGNETITE MINERALIZATION (± PY, CPY, GAL, SPHAL, MAG.)

SYMBOLS and ABBREVIATIONS

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STRIKE/DIP OF BEDDING

STRIKE/DIP OF VEINING

GEOLOGICAL CONTACT ; DEFINED, ASSUMED

NLR-88-012 ROCK SAMPLE LOCATION

TRENCH DUMP

bas	basalt	diop	diopside
lst	limestone	garn	garnet
fng	fine grained	trem	tremolite
fracs	fractures	cpy	chalcopyrite
qtz	quartz	sphal	sphalerite
py	pyrite	gal	galena
mag	magnetite		
ep	epidote		

Scale: 1 : 100 m

SAMPLE RESULTS

Sample Number	Cu (ppm)	Zn (ppm)	Pb (ppm)	Ag (ppm)	Co (ppm)
NLR 88-061	1809	2372	169	1.6	18
NLR 88-062	1483	2008	66	0.9	28
NLR 88-063	169	576	20	0.1	5
NLR 88-064	2482	1648	172	2.8	47
NLR 88-065	1270	5918	23	0.9	34
NLR 88-066	28,629	6058	38	13.2	201
NLR 88-067	284	2186	503	1.2	14

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NAHWITTI PROJECT, NANAIMO M.D. B.C.

TRENCH 10

GEOLOGY and SAMPLE LOCATIONS

Originator	L.J.L.	Drawn B.M.	N.T.S. 92L/12W	FIG. 13
ES #	ES 110	Date Feb.'89		

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3.0 ROCK SAMPLING

3.1 Sampling Procedure

Seventy-one rock samples of outcrop and float material were collected for analysis. Sample loctions are shown on Figures 3 - 13. Eight samples were collected for petrographic study.

3.2 Analytical Techniques

Rock samples were sent to Acme Analytical Laborities Ltd., in Vancouver, for preparation and analysis. Samples were crushed to -3/16" and then pulverized to minus-100 mesh. A 30 element ICP analysis of all samples was conducted after digesting samples for one hour at 95°C in 3:1:2 $HCl:HNO_3:H_2O$. Gold analyses were conducted by hot aqua regia digestion and MIBK extraction, followed by analysis by graphite furance atomic absorption.

Thin sections and polished sections were prepared and described by C. Leitch, P.Eng. of Vancouver, B.C.

3.3 Results and Interpretation

The analytical results for the rock samples are included in Appendix I. Results for copper, zinc, lead, silver, and cobalt are shown on Figures 3 - 13.

A number of samples anomalous in copper, zinc and silver occurred in known showings as detailed on the figures. The extent of the mineralization has not been increased by the current program and samples have done no more than confirm earlier sampling of the same showings. No further description of the current program is deemed necessary in lieu of the lack of new information.

4.0 SUMMARY

1.0 The Nahwitti property overlies the contact of Upper Triassic limestones of the Quatsino Formation and the volcanics of the Middle Triassic Karmutsen Formation.

2.0 Skarn-type mineralization occurs in the volcanic rocks near the volcanic-limestone contact. The mineralization consists of disseminated and locally massive pyrite, chalcopyrite, sphalerite and minor galena in a magnetite-epidote host.

3.0 Mineralization is very limited in extent and lack of suitable textures and alteration negate a possible volcanogenic massive sulphide origin to the mineralization.

5.0 RECOMMENDATIONS

1.0 No further work is recommended on the Nahwitti property.

6.0 REFERENCES

ICHIHARA, S. and K. SHUTO, 1971. Core logs for Nippon Mining Ltd.

MULLER, J.E., 1977. Geology of Vancouver Island, GSC Open File 463.

STEVENSON, W., 1968. Geological, geochemical and geophysical report on the Lake, FTR, Jean, Ken, Hill and Frank Mineral Claims, Assessment Report 1610.

SUTHERLAND, R. 1966. Report on the Reconnaissance Exploration Program of Giant Explorations in the Nahwitti Lake Area, Vancouver Island, Assessment Report 870.

WALCOTT, P., 1976. A report on an Induced Polarization Survey, Nahwitti Lake, B.C., Assessment Report 5951.

WESTERVELT, R.D., 1988. Summary Review Report on the Nahwitti Lake Property, Port Hardy Area, Vancouver Island, B.C.

APPENDIX I

Analytical Results

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: OCT 17 1988 DATE REPORT MAILED: Oct 20/88 SIGNED BY. C. Leong ..D.TOYE, C.LEONG, B.CHAN, J.WANG; CERTIFIED B.C. ASSAYERS

c NLR Nawhtti
ATTN

MINEQUEST EXPLORATION PROJECT NLR File # 88-5234 Page 1

SAMPLE#	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	U PPM	Au PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	Au* PPB
NLR-88-001	1	126	21	35	.1	23	10	243	2.35	2	5	ND	1	58	1	2	3	61	4.15	.023	2	46	.98	4	.16	3	4.39	.10	.03	1	1
NLR-88-002	1	17	11	10	.2	6	3	154	.79	8	5	ND	2	45	3	12	3	19	5.64	.005	2	17	.28	2	.03	6	2.16	.01	.02	7	15
NLR-88-003	1	197	2	26	.1	23	11	164	2.30	2	5	ND	1	204	1	2	2	65	1.75	.055	3	52	1.01	7	.19	4	2.82	.28	.03	1	4
NLR-88-004	1	15	8	30	.1	11	7	147	3.59	4	5	ND	1	108	1	2	2	169	2.36	.062	3	16	.28	12	.13	3	3.21	.32	.03	1	1
NLR-88-006	4	120	10	13	.1	3	7	17	3.86	4	5	ND	4	3	1	2	2	4	.04	.025	7	3	.24	35	.01	2	.70	.01	.12	1	12
NLR-88-007	3	45	2	6	.1	4	10	2	3.95	4	5	ND	2	2	1	2	2	3	.03	.010	2	1	.01	3	.01	4	.30	.01	.01	1	11
NLR-88-009	1	97	2	31	.1	83	18	127	4.58	4	5	ND	2	37	2	2	2	149	.58	.054	3	142	.35	14	.14	6	.74	.07	.04	1	37
NLR-88-011	1	76	11	84	.1	81	34	607	38.60	5	5	ND	5	18	1	2	2	28	.36	.020	2	29	.25	8	.04	2	.50	.01	.01	1	2
NLR-88-013	1	25	7	39	.1	73	12	391	2.96	2	5	ND	1	83	1	2	2	53	2.06	.059	2	166	1.81	30	.08	4	3.06	.18	.12	1	1
NLR-88-014	1	779	18	111	1.3	174	106	663	11.88	60	5	ND	1	22	1	9	2	72	1.73	.087	2	204	2.46	33	.12	2	3.35	.21	.14	1	9
NLR-88-015	1	768	18	57	.4	207	91	349	8.77	16	5	ND	2	140	1	5	2	58	2.43	.095	2	180	1.11	29	.08	3	3.49	.21	.12	1	2
NLR-88-017	3	521	18	64	.7	27	44	84	5.56	57	5	ND	1	18	1	2	2	10	.25	.011	2	16	.16	16	.05	4	.85	.03	.13	1	18
NLR-88-018	1	2213	24	36	1.1	193	533	356	21.77	31	5	ND	2	80	1	11	2	107	1.33	.138	2	85	.44	16	.18	3	3.66	.15	.06	1	56
NLR-88-019	1	761	2	35	.6	42	156	183	20.98	22	5	ND	2	27	1	5	2	125	.86	.108	2	83	.11	6	.36	2	.94	.01	.02	1	80
NLR-88-020	2	5882	7	147	10.2	29	25	153	11.09	30	5	ND	2	35	1	2	2	83	1.00	.079	2	35	.15	4	.40	2	.68	.01	.01	1	27
NLR-88-021	1	75	13	30	.1	18	9	180	2.67	17	5	ND	1	97	1	3	2	60	3.64	.031	2	36	.39	8	.07	2	4.48	.02	.05	1	12
NLR-88-022	1	54	7	43	.1	12	7	221	.98	7	5	ND	1	152	1	4	2	69	3.84	.029	2	21	.10	2	.19	6	2.56	.01	.01	2	1
NLR-88-023	1	20	5	13	.1	9	2	359	.93	2	5	ND	1	115	1	5	3	51	3.90	.017	2	28	.11	7	.23	7	2.63	.01	.01	1	1
NLR-88-026	4	5578	44	1556	6.4	34	37	1779	15.54	18	5	ND	1	3	6	2	2	8	3.66	.003	2	11	.06	2	.02	2	.17	.01	.01	1	16
NLR-88-027	1	572	30	360	.8	19	22	1753	24.36	34	5	ND	3	2	1	9	2	8	3.70	.002	2	13	.05	2	.01	3	.12	.01	.01	3	30
NLR-88-028	1	11617	89	6974	5.5	74	115	1568	38.12	12	5	ND	5	4	10	4	2	49	.26	.015	2	19	.18	9	.02	7	.27	.01	.02	18	1
NLR-88-029	1	3771	22	1878	2.6	16	43	1517	8.38	8	5	ND	1	48	6	2	2	80	1.84	.101	2	35	.38	2	.30	2	.91	.01	.01	1	2
NLR-88-030	1	2617	16	892	1.1	27	21	4074	7.41	15	5	ND	1	18	3	2	2	45	9.15	.011	2	25	.21	2	.14	2	.82	.01	.01	2	1
NLR-88-031	1	121	2	85	.1	1	4	203	.70	2	5	ND	4	9	2	2	2	7	.19	.012	7	5	.18	17	.05	6	.41	.04	.04	1	1
NLR-88-034	1	3227	13	319	6.3	63	45	418	8.89	26	5	ND	1	87	1	5	2	81	2.07	.052	2	145	.74	40	.07	2	2.50	.13	.08	1	62
NLR-88-035	1	26	6	15	.1	1	1	366	.10	2	5	ND	1	212	2	2	2	2	38.66	.003	2	1	.06	1	.01	2	.06	.01	.01	1	1
NLR-88-036	1	145	2	35	.3	31	9	354	3.39	4	5	ND	1	73	1	2	2	95	3.83	.083	3	50	.75	17	.29	8	1.97	.17	.10	1	8
NLR-88-037	1	456	16	49	.1	83	66	156	6.89	9	5	ND	1	11	1	2	2	127	.49	.088	3	98	3.11	9	.24	2	2.76	.03	.06	1	16
NLR-88-038	5	11895	16	303	8.4	99	183	626	19.50	9	5	ND	1	23	1	2	2	78	.58	.045	2	43	.09	8	.25	2	.48	.01	.01	1	7
NLR-88-039	5	15273	16	339	11.4	235	294	753	19.99	11	5	ND	3	30	1	4	2	77	.67	.078	2	60	.11	16	.29	2	.49	.01	.01	1	8
NLR-88-040	2	8163	30	234	6.6	39	138	730	22.19	11	5	ND	3	17	1	2	2	69	.40	.033	2	34	.04	7	.22	2	.40	.01	.01	1	9
NLR-88-041	2	11330	74	453	12.1	64	131	777	15.83	7	5	ND	2	28	1	2	2	70	.77	.096	2	33	.06	6	.33	5	.74	.01	.01	1	4
NLR-88-042	5	8705	16	239	5.7	69	115	551	15.37	7	5	ND	1	28	1	2	2	73	.87	.066	2	31	.10	5	.32	2	.54	.01	.01	1	3
NLR-88-043	1	162	10	115	.1	30	10	380	2.91	2	5	ND	1	47	1	2	2	74	1.31	.118	3	62	.82	20	.18	2	1.80	.04	.04	1	1
NLR-88-044	1	153	5	74	.1	12	5	200	1.80	5	5	ND	1	90	1	2	2	77	2.09	.134	6	31	.17	4	.51	5	1.10	.01	.01	1	2
NLR-88-045	1	481	9	31	1.0	53	96	366	9.36	84	5	ND	1	45	1	2	2	88	1.50	.134	2	44	.17	38	.46	2	1.38	.01	.10	1	14
STD C/AU-R	19	58	41	132	6.7	67	30	1022	4.02	43	18	8	39	48	19	17	23	60	.47	.098	40	55	.85	181	.07	34	1.92	.06	.15	12	515

SAMPLE#	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	U PPM	Au PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	Au* PPB
NLR-88-046	2	163	5	12	.1	7	4	132	2.45	5	5	ND	1	59	1	2	3	73	2.16	.105	4	32	.02	3	.52	2	.93	.01	.01	1	5
NLR-88-047	1	700	572	402	3.5	5	91	723	.50	20	5	ND	1	175	7	2	2	1	31.23	.012	2	4	.09	1	.01	2	.18	.01	.01	1	22
NLR-88-048	1	32	7	57	.1	5	8	648	2.06	2	5	ND	1	51	1	2	2	58	1.68	.072	2	8	.66	14	.15	2	1.91	.05	.06	1	2
NLR-88-049	1	1032	43	85	.7	5	105	724	45.53	44	5	ND	4	12	1	6	2	4	1.71	.009	2	13	.05	4	.01	2	.06	.01	.01	2	15
NLR-88-050	1	2541	12	51	.7	56	1133	372	44.02	11	5	ND	4	1	1	7	2	2	.25	.026	2	54	.03	2	.01	3	.01	.01	.01	1	4
NLR-88-051	1	1765	14	113	1.5	13	44	1077	41.72	13	5	ND	5	2	1	2	2	3	.65	.003	2	8	.16	4	.01	2	.04	.01	.02	1	1
NLR-88-052	1	54	23	126	.1	9	15	791	1.67	2	5	ND	1	136	1	6	2	52	2.92	.067	3	9	.69	16	.10	2	4.14	.06	.10	1	1
NLR-88-053	1	93	23	144	.3	9	14	1349	4.30	2	5	ND	3	63	1	6	2	105	1.65	.074	5	15	1.58	21	.26	4	3.12	.03	.07	1	2
NLR-88-054	1	93947	431	99999	150.4	76	645	2231	11.17	21	5	ND	1	2	1970	2	66	34	.16	.001	2	29	.12	1	.01	2	.08	.01	.01	1	26
NLR-88-055	1	31571	4775	99999	60.9	24	246	10292	14.50	72	5	ND	1	2	959	14	16	119	2.39	.006	2	17	.24	2	.01	2	.28	.01	.01	4	35
NLR-88-056	1	191	67	1721	.4	1	2	1219	.38	4	5	ND	1	133	22	2	2	2	29.01	.001	2	1	.06	1	.01	7	.02	.01	.01	1	1
NLR-88-058	1	33565	158	75214	15.7	53	150	3435	7.93	16	5	ND	1	4	524	2	15	29	2.17	.001	2	10	.18	1	.01	2	.16	.01	.01	2	22
NLR-88-059	1	5317	503	3795	3.3	60	21	2004	9.68	8	5	ND	1	135	19	2	2	122	3.04	.107	3	58	.42	7	.46	2	1.32	.01	.01	1	3
NLR-88-060	2	5057	5516	41500	20.0	11	10	8762	4.31	11	5	ND	1	7	308	6	3	29	5.94	.007	2	20	2.44	5	.04	2	.51	.01	.01	2	9
NLR-88-061	1	1809	169	2372	1.6	64	18	6011	7.29	2	5	ND	2	137	8	2	2	118	2.13	.121	4	53	.29	10	.54	2	1.61	.01	.01	1	1
NLR-88-062	3	1483	66	2006	.9	65	28	6031	12.34	4	5	ND	2	152	7	8	2	123	3.21	.160	2	89	.37	111	.40	2	4.83	.12	.04	1	2
NLR-88-063	2	169	20	576	.1	16	5	5501	1.67	2	5	ND	1	100	2	2	2	35	1.76	.079	3	17	.51	248	.22	3	2.45	.09	.07	1	1
NLR-88-064	2	2482	172	1648	2.8	59	47	7455	5.76	5	5	ND	1	79	8	2	2	114	3.51	.092	3	53	.27	8	.54	2	1.36	.01	.01	2	1
NLR-88-065	1	1270	23	5913	.9	45	34	18619	2.23	2	5	ND	2	67	31	2	2	68	2.94	.082	2	34	.36	3	.36	3	.92	.01	.01	1	1
NLR-88-066	1	28529	38	6056	13.2	147	201	23080	10.17	18	5	ND	2	22	29	2	13	37	6.87	.033	2	25	.06	1	.14	2	.59	.01	.01	1	1
NLR-88-067	1	284	502	2186	1.2	36	14	19539	1.67	2	5	ND	1	99	5	2	2	83	2.60	.139	4	40	.59	7	.43	2	1.36	.01	.03	1	1
NLR-88-068	1	758	6	142	.6	48	17	612	3.57	2	5	ND	1	134	1	10	2	120	2.48	.068	2	65	1.61	135	.30	4	4.00	.22	.32	1	1
NLR-88-069	1	20	10	120	.1	2	1	686	.79	2	5	ND	3	26	1	2	2	4	.93	.011	6	4	.18	25	.04	2	.87	.06	.11	2	1
NLR-88-071	1	114	2	78	.1	60	25	407	8.33	2	5	ND	1	67	1	8	2	222	3.55	.087	5	109	1.82	10	.46	2	4.24	.02	.06	2	2
NLR-88-072	1	2583	20	12608	1.2	56	54	5391	11.46	14	5	ND	2	52	77	2	2	100	2.59	.101	2	55	.43	3	.44	2	1.36	.01	.02	1	2
NLR-88-073	1	725	10	369	.6	70	22	553	4.08	2	5	ND	1	167	1	10	2	152	2.67	.054	3	144	1.50	44	.25	2	4.92	.38	.10	1	2
NLR-88-074	1	43937	16	1109	30.9	347	167	748	13.29	76	5	ND	1	72	7	2	29	83	1.53	.072	2	42	.23	3	.48	2	.74	.01	.01	1	3
NLR-88-075	1	16691	12	2461	5.7	123	142	760	22.87	73	5	ND	2	37	19	6	2	99	1.31	.059	2	29	.33	5	.44	2	.60	.01	.01	1	1
NLR-88-076	1	5152	11	461	5.1	88	54	1342	15.19	69	5	ND	2	41	1	10	2	106	2.77	.066	2	37	.29	5	.57	2	.97	.01	.01	1	1
NLR-88-077	1	1066	16	51	.2	83	94	69	18.25	32	5	ND	3	7	1	2	2	19	.28	.091	3	13	.02	12	.01	2	.73	.01	.16	1	21
NLR-88-078	2	4618	244	440	1.5	99	38	4807	5.59	40	5	ND	1	80	6	12	2	97	2.67	.072	7	67	1.09	68	.25	2	4.63	.04	.05	1	7
NLR-88-079	1	799	5	37	.5	12	6	55	42.55	119	5	ND	6	17	1	2	2	227	.14	.176	2	64	.24	38	.08	2	.41	.01	.02	1	1
STD C/AU-R	18	57	37	132	6.8	67	29	1050	4.08	39	22	8	38	47	18	16	19	58	.46	.094	39	53	.84	175	.07	34	1.90	.06	.16	11	470

—Assay required for correct result for Cu, Zn > 1%. Ag > 35 ppm

SAMPLE#	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	U PPM	Au PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	Au* PPB
GVN-400	1	571	8	82	.4	58	18	476	3.27	6	5	ND	1	71	1	3	2	104	1.52	.087	3	72	1.37	16	.20	3	2.60	.12	.03	2	2
GVN-401	1	8205	13	6166	5.0	43	193	9372	6.36	17	5	ND	1	38	38	3	2	104	5.90	.068	2	27	.17	15	.32	5	1.40	.01	.01	1	5
GVN-404	1	90	4	87	.1	96	27	408	3.61	2	5	ND	1	28	1	2	2	72	.74	.030	2	52	2.86	7	.29	2	2.35	.03	.01	1	4
STD C	18	63	36	132	6.9	67	31	1022	4.16	37	20	8	40	49	18	16	20	60	.48	.092	41	54	.92	179	.07	33	1.98	.06	.13	12	-

APPENDIX II

Petrographic Report

PETROGRAPHIC REPORT ON EIGHT SPECIMENS FROM THE NAWHITTI PROPERTY, NORTHERN VANCOUVER ISLAND

Report for: Ms. L. Lee, MineQuest Exploration Associates Ltd
5th Floor, 164 Water Street
Vancouver, B.C. V6B 1B5

SUMMARY

Of the 8 samples submitted, four contained enough sulfides to be worth having polished thin sections made. These are all skarn samples, ranging from:
(1) massive green epidote with minor idocrase, magnetite, chalcopyrite and sphalerite (NLR 88-029W) to
(2) massive pink-buff clinozoisite (Fe-poor epidote) with lesser carbonate and minor chalcopyrite, pyrite and sphalerite (067W), plus abundant Mn-oxide fractures, to
(3) pale green clinopyroxene (?diopside)-garnet with lesser sphalerite, galena, and chalcopyrite, retrograded to sericite, carbonate and quartz, (060W) to
(4) massive pyrrhotite with minor pyrite and chalcopyrite, magnetite, garnet and quartz, retrograded to fractures of ?aegirine-acmite (sodic pyroxene) and then to chlorite, plus hematite after magnetite (050W).

The four altered wall rocks range from two fine-textured, finely porphyritic diabases (070 and 402) to a basalt (012) and a trachyte (069). The diabases have a significantly coarser, seriate texture than the volcanic rocks, and could have been feeder dykes to the pile, or sills. They were composed of original clinopyroxene and plagioclase (labradorite-andesine) phenocrysts in a matrix of the same minerals plus primary magnetite (in 070) and ilmenite (in 402), now altered to a propylitic assemblage of albite, actinolite (some hornblende may be late-magmatic), chlorite, epidote, sericite and leucoxene. Sample 402 is considerably more altered than 070, with alteration envelopes around veins of secondary albitic feldspar and minor quartz. The basalt contained original clinopyroxene and labradorite plagioclase, so it was probably a finer equivalent of the diabases. It is also altered to actinolite, chlorite, and epidote. The felsic volcanic is composed mainly of albite (?secondary alkali feldspar) with minor relict hornblendes, now chloritized. It may have been a trachyte or andesite. These rocks, and the alteration of them, resemble somewhat that at Island Copper.

Craig H.B. Leitch

November 9, 1988

NLR 88-012W: ACTINOLITE-CHLORITE-EPIDOTE ALTERED BASALT

Dark green, fine-grained, even-textured ?basaltic volcanic with a vaguely altered appearance caused by the lack of recognizable phenocrysts. In thin section, the rock can be seen to be thoroughly altered to actinolite and lesser chlorite. The modal mineralogy is:

Actinolite (replacing ?pyroxene)	50%
Relict plagioclase (?labradorite, microlites)	25%
Chlorite	15%
Epidote	5%
Opaque (Fe-Ti oxides: leucoxene?)	5%

This rock was originally a mafic basaltic volcanic, probably a flow. The texture is mainly a simple porphyritic one; although at one end of the slide a fragmental texture is apparent, which may be due to later fracturing, creating the impression of fragments.

The most abundant phenocrysts were mafics, probably mainly pyroxene from their outlines, although a few extremely elongated needles up to 4 mm long suggest former hornblende as well. The rectangular to octahedral ?pyroxene outlines are about 1-2 mm across on average; the crystals were euhedral, and are now completely replaced by actinolite, as fine matted aggregates of flakes less than 0.05 mm long, or as psuedomorphic grains of the same size as the original crystals (0.5-1.0 mm). The actinolite has bright green pleochroism, and a small extinction angle of a bout 15-20 degrees. Occasionally, remnants of a paler-coloured amphibole (?hornblende, with an extinction angle close to 30 degrees) are also present, and they are replaced by the actinolite.

There were no plagioclase phenocrysts; instead, plagioclase is restricted to fine microlites, forming the groundmass to the mafic phenocrysts. The microlites are about 0.1 to 0.2 mm long on average, but locally may reach almost 1 mm. Many are altered, especially at their cores, to fine flecks of actinolite and chlorite plus minor epidote, but there are also some fresh, euhedral crystals, which have maximum extinction angles of about 40 degrees, indicating probable labradorite compositions (about An_{60}).

The matrix between the microlites is composed of very fine-grained actinolite, chlorite, epidote, and opaques, generally less than 0.02 mm across. The opaques are generally very fine, less tahn 0.01 mm across; although some have cubic outlines suggestive of pyrite, no sulfides are visible in the hand specimen.

The rock is crossed by swarms of irregular, anastamosing, thin fractures that are dark yellowish-green and may be caused by fine-grained mixtures of actinloite and epidote. These in turn are cut by better-defined veinlets of actinlolite and epidote, the actinolite as cross-fibres up to 0.2 mm long, and the epidote up to a similar grain size.

NLR 88-029W: EPIDOTE-IDOCRASE-QUARTZ CU-ZN SKARN

Light green epidote skarn with rounded patches of sulfide (chalcopyrite and sphalerite), some of which have been oxidized to minor covellite and limonite, or removed by weathering. Elsewhere, a few thin (0.5 mm) veinlets of the same sulfides cross the rock. In polished thin section, the modal mineralogy is:

Epidote	80%
Idocrase (Viluite?)	5%
Quartz, (trace carbonate)	5%
Hydrobiotite	5%
Chalcopyrite, Pyrite	3%
Sphalerite	2%
Magnetite, Covellite	<1%

This skarn rock is composed principally of massive epidote, as a granular aggregate of interlocking, anhedral crystals about 0.2 mm across. The epidote shows typical bright yellow-green pleochroism, and so is probably rich in iron.

In patches in the massive epidote are rounded areas of other minerals, that look like replacements of phenocrysts, and include the quartz, idocrase, hydrobiotite, and sulfides. The quartz forms clear grains of about 0.2 mm diameter or less, with a tendency to a bladed habit. It is commonly altered to masses of brownish fibrous material that looks like sillimanite (the so-called "fibrolite"). The rectangular shapes of these altered grains suggest derivation from some other mineral, such as ?plagioclase. Closely associated with this alteration are minor amounts of greenish-brown hydrobiotite; whether these are formed by alteration of quartz or originally intergrown mafic material is not certain, since other larger masses of hydrobiotite are also nearby, as intergrown flakes about 0.01 mm across. They are closely associated with the sulfides. A rare, intensely bright green ?mineral found with the fibrous, altered quartz is unidentified; it may merely be epoxy.

The other major mineral in the rounded patches is probably idocrase, with a distinct pale yellow colour and moderate (but non-anomalous) birefringence. However, it has a distinct biaxial character, with a large positive 2V. Idocrase, being tetragonal, is usually uniaxial negative; thus the mineral in this sample may be the rare viluite, which contains 2-4% B_2O_3. Basal sectors show distinctive sector twinning with four diagonal sections, as well as fine polysynthetic twinning. Since the optic angle decreases with temperature and pressure, the large angle in this specimen implies ?low T and P conditions.

In reflected light, there are minor amounts of pyrite, as minute (0.05 mm) cubic grains, intergrown with the anhedral masses of chalcopyrite and lesser sphalerite. The latter two minerals form grains up to 1 mm across, and aggregates up to several mm. The sphalerite has very pale, almost colourless or ?greenish internal reflections, so it is probably iron-poor. Minor magnetite occurs, and limonite and traces of covellite replace the chalcopyrite.

NLR 88-050: MASSIVE PYRRHOTITE-PYRITE-CHALCOPYRITE-GARNET SKARN, RETROGRADED TO ?AEGIRINE-CHLORITE

Massive pyrrhotite, with lesser blebs of chalcopyrite included. Attached are portions of intensely developed garnet skarn (visible in thin section only). In polished thin section, the mineralogy is:

Opaques:	Pyrrhotite	75%
	Pyrite (primary)	5%
	Chalcopyrite	2%
	Pyrite/marcasite (after pyrrhotite)	2%
	Magnetite	2%
	Hematite (replacing magnetite)	2%
	Goethite (secondary, after sulfides)	1%
Gangues:	Chlorite	5%
	?Aegirine (sodic pyroxene)	3%
	Garnet	2%
	Quartz	1%

This specimen is composed principally of massive pyrrhotite, with blebs of pyrite and chalcopyrite included in it, all cut by later (?retrograde) fractures and veinlets of silicates, mainly ?pyroxene and chlorite.

At one end of the section, an area with other silicates (garnet, quartz) is also present. The garnet is occasionally anisotropic, showing zoned crystals up to 0.5 mm across. Rare grains of quartz occur with the garnet, and minor magnetite is also mixed in with this area. The magnetite is partly martitized (replaced by hematite with blood-red internal reflections). The principal sulfide in this area is pyrite, as large primary aggregates up to 3 mm across (composed of grains about 0.3 mm across), containing small grains of magnetite and hematite.

The pyrite in both the pyritic area and in the massive pyrrhotite is present both as blebs and as veins, cutting the pyrrhotite. These veins are coarse (1 mm across), and appear to cut through blebs of both chalcopyrite (0.1-0.5 mm across) and pyrite (up to 1 mm across). Thus there was an initial pyrrhotite-pyrite-chalcopyrite assemblage, that was retrograded to pyrite (probably at the time of pyroxene-chlorite retrograding).

This retrograding takes the form of a well-developed network of silicate fractures, cutting the massive sulfides. The silicates include an intensely pleochroic mineral (deep green to red-brown) that may be an acmite or aegirine (sodic pyroxene), although it might also be an amphibole. It appears to be a retrograde product, and is itself variably altered to chlorite and hydrobiotite.

Along the edges of the retrograde fracture fillings, the pyrrhotite is also oxidized to a secondary, fine-grained botryoidal mixture of pyrite and marcasite, typical of the oxidation of pyrrhotite. These oxidation fractures are cut by thin pyrite veinlets, perhaps deposited by solutions mobilized by the oxidation.

A most unusual rock, with a complicated history that I feel I have only touched on here.

NLR 88-060W: GARNET-PYROXENE SKARN, RETROGRADED TO SERICITE-CARBONATE-QUARTZ, WITH SIGNIFICANT SPHALERITE-GALENA

Pale green, intensely altered rock with blebs of chalcopyrite and a 1 cm vein of sphalerite/galena. Well oxidized, with coatings of black Mn-oxide, greasy black spots of neotocite (a mixture of Cu-, Mn-, and Fe-oxides), plus a bright yellow unidentified oxide and minor malachite and azurite. In polished thin section, the mineralogy is now dominated by sericite and carbonate, but was clearly a skarn assemblage:

Ganques:	Sericite	40%
	Carbonate (calcite)	25%
	Quartz (secondary, veinlets)	10%
	Clinopyroxene (diopside?)	10%
	Garnet	3%
	Amphibole (tremolite?)	2%
Opaques:	Sphalerite	5%
	Limonite (goethite)	2%
	Galena	1%
	Chalcopyrite	1%
	Pyrite	1%
	Covellite	<1%

This was evidently a garnet-clinopyroxene-quartz skarn before almost complete retrograding to sericite-carbonate-quartz. Whether the significant Pb-Zn-Cu sulfide mineralization was originally present in the skarn or accompanied the later alteration is not clear.

The original skarn varied from a fine granular mixture of garnet, clinopyroxene, and quartz, all about 0.2 mm across, to a coarse, bladed clinopyroxene mass with lesser garnet. The bladed pyroxene was up to several millimeters long, as radial aggregates. The pyroxene has an extinction angle of up to 44 degrees, and is clear and colourless, so it is not likely to be hedenbergite (the iron-rich diopside characteristic of skarns). Diopside is more likely. Garnet crystals up to 1 mm across show occasional anomalous anisotropism and zoning around their margins, with isotropic cores altered by flecks of calcite, or containing sulfides. Bright yellow-green colour in some grains may indicate a high iron content (andaradite). Coarse quartz grains were also up to 1 mm across; they poikilitically enclose sericite and carbonate.

The radial sheaf-like aggregates of pyroxene are clearly psuedomorphed in places by parallel-oriented mats of carbonate, as grains up to 0.5 mm long, and sericite, as flakes up to 0.05 mm. Occasionally, the pyroxene is partially replaced by a brownish mineral that could be amphibole (tremolite, by its small extinction angle), or, in places, merely iron-stained sericite.

Irregular, poorly-defined veins of quartz and calcite up to 0.5 mm thick cross the slide. They cut through the sulfides and so are probably unrelated to the mineralization. Since they are similar to the sericite-carbonate-quartz retrograding, it may indicate that the

economic sulfide mineralization accompanied the initial skarn formation.

The opaques in this section consist of elongated masses of sphalerite up to a centimeter long, aligned parallel to an apparent "vein" or layer of relatively unsericitized garnet-pyroxene-quartz original skarn. The sphalerite has very pale, white internal reflections; it may be iron-poor. It contains small blebs of galena and chalcopyrite, generally less than 0.1 mm across, and often intergrown. Similar intergrown galena and chalcopyrite are also common around the margins of the larger sphalerite grains, and thin microveinlets of chalcopyrite cut the sphalerite. Larger grains of galena up to a millimeter across also occur. Occasionally, separate patches of chalcopyrite, with minor pyrite, are found in the matrix of the rock, usually well oxidized to limonite. Minor covellite replaces sphalerite and galena.

NLR 88-067W: EPIDOTE SKARN, RETROGRADED TO CARBONATE-CHLORITE/HYDROBIOTITE

Light buff-brown rock, denser than normal, composed of massive clinozoisite (iron-poor mineral of the epidote group), although this is only evident in thin section; it looks like massive garnet in hand specimen. Strong black Mn-oxide staining is present on fractures. The modal mineralogy in polished thin section is:

Gangues:	Clinozoisite (Fe-poor epidote)	65%
	Carbonate	20%
	Chlorite/hydrobiotite	10%
Opaques:	Mn-oxides (psilomelane and/or pyrolusite)	2%
	Limonite	1%
	Chalcopyrite	1%
	Pyrite	1%
	Sphalerite	tr
	Covellite	tr

This is a fine-grained skarn rock, made up of an interlocking aggregate of fine subhedral clinozoisite grains averaging about 0.2 mm across. The clinozoisite is an epidote-group mineral that is poor in iron, and hence lacks the bright yellow pleochroism typical of epidote. It is distinguished by lower birefringence than epidote, and anomalous blue-grey and yellow-green first order interference colours.

In this specimen, the epidote-group mineral is incipiently altered in many places, and completely in others, to carbonate, as fine flecks about 0.05 mm across or less. The carbonate does not react to cold dilute HCl, but this may only be due to the fine-grained nature of the carbonate; it could be calcite.

Patches of very weakly birefringent chlorite or ?hydrobiotite, with pale green colours in transmitted light, could be the result of replacement of clinozoisite, but from their appearance they are more likely to be psuedomorphic replacements of former mafic minerals, such as pyroxene (although no relict outlines remain).

It seems likely that the carbonate and chlorite are the products of retrograde alteration of the skarn.

Veinlets and disseminations of Mn-oxides are the commonest opaque phase in this rock. The veins are up to 0.3 mm thick, and composed of one or possibly two phases, one relatively isotropic and the other strongly anisotropic in shades of grey, both with weak brown internal reflections. Scattered bunches of sulfide are also present, up to 1 cm across, composed of partially oxidized chalcopyrite and lesser pyrite, with rare sphalerite that has reddish internal reflections. Traces of covellite replace the sulfide minerals, and limonite replaces pyrite and chalcopyrite.

NLR 88-069W: SERICITE-CHLORITE-CALCITE ALTERED TRACHYTE

Pale grey-green coloured, siliceous-looking, ?felsic volcanic rock with faint relic phenocryst sites now marked by spots of chlorite and sericite. Minor thin manganese stains and dendrites are present on fractures. In thin section, the modal mineralogy is:

Plagioclase (albitized, sericitized)	75%
Sericite	10%
Chlorite	5%
Carbonate (calcite)	3%
K-feldspar (?), phenocrysts	3%
Quartz (secondary)	2%
Epidote	1%
Opaques (Fe-Ti oxides)	1%

This is a rock composed principally of plagioclase, that was originally made up of small glomeratic phenocrysts of plagioclase, ?K-feldspar, and mafic mineral, up to about 1 mm across, in a groundmass of fine plagioclase crystals about 0.1-0.2 mm in diameter. The phenocryst content was small, about 10 percent. Fine sericite and chlorite, ranging from 0.005 to 0.05 mm across, is interstitial to the groundmass feldspar, and may represent altered mafic material.

Plagioclase is now largely albite (extinction angles of Y^010 of about 14 degrees, or An_5), although it may have originally been more calcic. The phenocrysts are generally altered to calcite, sericite, epidote, and chlorite; some may also be altered to ?K-feldspar, which is clear and has small extinction angles. The groundmass plagioclase is less altered, to minor sericite and carbonate. It is not clear what the composition of this groundmass plagioclase is; it may be albitized like the phenocrysts. Many of the larger groundmass plagioclase grains are rounded, with traces of concentric ?zoning; they have the appearance of being derived after an original ?spherulitic structure. The finer grains in between are more normal microlites, i.e. elongated laths.

Mafic sites look to have been originally occupied by hornblende, by their elongated nature. They are now completely replaced by chlorite, sericite, epidote and carbonate.

There are minor amounts of very fine (0.02 mm) opaque grains, which are anhedral and probably are now leucoxene (altered remnants of ilmenite or sphene).

A few phenocrysts are clear, with small extinction angles and look like K-feldspar, possibly original. There is very little K-spar and quartz evident in this rock, however, so even though it appears to be felsic and siliceous, it would properly be classed as an andesite by the AGI scheme (or trachyte, if the sodic plagioclase is considered "silicic feldspar" under the scheme of Moorhouse, 1959).

NLR 88-070W: ACTINOLITE ALTERED PLAGIOCLASE-PYROXENE DIABASE

Dark green, finely porphyritic basaltic volcanic, moderately magnetic, like typical Bonanza high-alumina basalts from the Island Copper area. Pale green sericitized plagioclase phenocrysts are set in a dark, mafic, magnetic matrix, but there is no fracturing or sulfides present, so the magnetite is probably primary. In thin section, the mineralogy is:

Plagioclase (phenocrysts and matrix, andesine)	45%
Amphibole (secondary, actinolite)	20%
Clinopyroxene (primary)	20%
Magnetite (?primary)	10%
Sericite, clay (secondary)	3%
Epidote	1%
Chlorite	1%

The texture is almost diabasic in thin section (on a fine scale), so the rock is more likely to represent a feeder dyke or sill than an extrusive flow. Plagioclase phenocrysts, occasionally glomeratic, are about 2 mm across, and are enclosed in a groundmass of interlocking plagioclase laths and interstitial amphibole, both about 0.3 mm long on average.

Plagioclase phenocrysts are generally glomeratic, composed of many small crystals about 0.5 mm long or less in random orientations, although some are of single crystals up to 2 mm long. They show remnants of concentric zoning, from labradorite cores, An_{60} (Y^010=30 degrees) to andesine rims, An_{30} (Y^010=20 degrees). Most, however, are mildly to moderately altered to fine flecks of sericite, clay, and fibrous actinolite, and some appear to be altered at their rims (or occasionally completely) to albite.

The matrix to these phenocrysts was composed of intelocking laths of plagioclase of similar composition, about 0.2-0.4 mm long, with interstitial clinopyroxene and magnetite. The clinopyroxene has an extinction angle of about 40 degrees, and may be augite. It forms subhedral grains about 0.1-0.2 mm across. It is largely replaced in places by bright green pleochroic secondary amphibole, which may be actinolite. The actinolite is fibrous in places and up to 0.1 mm long.

Magnetite forms sub-to euhedral grains, 0.05 mm across if single, or up to 0.3 mm across if aggregated. They are associated with the mafic minerals, interstitial to the plagioclase. Occasional grains of epidote, with strong yellow pleochroism, are associated with these sites, with minor chlorite. Some of the opaques could be Ti-bearing, i.e. ilmenite.

Rare brown grains of high relief with lamellar structure could be iddingsite, a mineral formed after olivine.

NLR 88-402W: EPIDOTE-ACTINOLITE-CHLORITE-SERICITE ALTERED, DIABASIC MAFIC VOLCANIC

Light green, moderately altered, intermediate to basic volcanic rock characterized by small, altered plagioclase and mafic phenocryst relics, and buff Ti-oxide relics. The rock is cut by thin white quartz stringers, which are surrounded by variably green alteration envelopes. In thin section, the mineralogy is:

Relict plagioclase (albitized)	40%
Amphibole (hornblende, ?after pyroxene)	20%
Epidote	10%
Actinolite (secondary)	10%
Chlorite	5%
Sericite	5%
Hydrobiotite	3%
Quartz (veins; secondary)	3%
Leucoxene	2%

This specimen is similar to, but coarser, and more altered, than the previous specimen (070). It could represent a slightly deeper diabasic equivalent. Through the overprint of alteration, the original rock appears to have been an interlocking mass of plagioclase grains with seriate texture (i.e. having a continuous range in grain size, from 0.1 up to 2 mm long), containing scattered mafic phenocrysts also up to 2-3 mm long.

Plagioclase is well altered, assuming that it originally was a calcic andesine or labradorite. It is now albite (An_0, based on extinction angles of 16 degrees for Y^010). It is also variably replaced by small grains of epidote, sericite, and actinolite.

The mafic phenocrysts were probably clinopyroxene, to judge by their euhedral to subhedral outlines. Most of the smaller ones (1 mm or less) are now completely psuedomorphed by a pale green amphibole (hornblende?) as optically continuous grains the same size as the orginal pyroxenes. This amphibole has extinction angles of about 15 degrees, and in detail a fibrous extinction, so it may also be mostly actinolitic. However, some is yellow-brown and non-fibrous, so it may be original. The obviously secondary amphibole, distributed along veins and envelopes, is bright green and lath-like, so it must be actinolite.

Other, larger mafic patches (up to 3 mm) may also have been originally mafic phenocrysts. They could also have been amygdules, except that the coarse diabasic texture of the rock is against this interpretation. They are now composed largely of epidote, with lesser actinolite and chlorite, and traces of quartz.

Abundant relict Ti-minerals (?originally ilmenite) are now composed of leucoxene and chlorite. The grains were about 0.2 mm across on average. The abundance of these Ti relics, plus the mafic character of the rock, suggest it was a diabase (fine-grained equivalent of a gabbro) before propylitic alteration. The veins are unusual, being mainly albitic secondary feldspar, plus minor quartz.

APPENDIX III

Statements of Qualification

STATEMENT OF QUALIFICATIONS

I, Linda J. Lee, hereby certify that:

1. I am presently employed by MineQuest Exploration Associtates Ltd. as a Geologist.

2. I am a graduate of the University of British Columbia (B.A.Sc., Geological Engineering, 1985) and University of Calgary (M.Sc., Geology and Geophysics, 1988).

3. I have completed 7 seasons of mineral exploration in British Columbia.

Signed: L-Lee
Linda J. Lee

Dated at Vancouver, B.C. this 27 day of Feb, 1989.

APPENDIX IV

Cost Statement

COST STATEMENT

Fees and Wages (September 1st - October 30th)			
R.V. Longe	1 day at $525.00	$ 525.00	
G.R. Peatfield	1 day at $525.00	525.00	
L.J. Lee	23 days at $300.00	6,900.00	
C. Donders	4 days at $235.00	940.00	
K. Miller	2 days at $235.00	470.00	
G. Vernon	17 days at $235.00	3,995.00	
C. O'Neill	15 days at $200.00	3,000.00	
B. Miller	15 days at $165.00	2,475.00	
A. Young	15 days at $165.00	2,475.00	
		$21,305.00	$21,305.00

Disbursements		
Scheduled air fares	$ 630.00	
Rental Vehicles	2,700.00	
Fuels and lubricants	250.00	
Taxis, etc.	125.00	
Room and Board	5,010.00	
General field supplies	600.00	
Rental equipment (boat, brush cutter)	750.00	
Analyses 71 at $15	1,065.00	
Petrographic Studies	400.00	
Communications, postage, etc.	200.00	
Reprographics, maps, etc.	600.00	
Shipping Costs	260.00	
	$12,590.00 ✓	
+ 10% override	1,259.00 ✓	
	$13,849.00	$13,849.00

MineQuest Charges		
Photocopies	$ 40.00 ✓	
Word Processing	350.00 ✓	
	$ 390.00	$ 390.00
		$35,544.00

APPENDIX V

Statement of Work

Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES DIVISION — TITLES BRANCH

MINERAL ACT

OFFICE USE ONLY

SUB-RECORDER RECEIVED NOV -3 1988 M.R. # 3058DDT $710 VANCOUVER, B.C. RECORDING STAMP

Statement of Work — Cash Payment

I, Kevin Miller (Name) Agent for ~~QPX Minerals Inc~~ Frederick T. Russell (Name)

Valid subsisting FMC No. 260507 — Valid subsisting FMC No. ~~299640~~ 293130 RUSSELL

500 - 164 Water Street (Address) — 500 - 164 Water Street (Address)

Vancouver, B.C. — Vancouver, B.C.

V6B 1B5 (Postal Code) 669-2251 (Telephone Number) — V6B 1B5 (Postal Code) 669-2252 (Telephone Number)

STATE THAT: [NOTE: If only paying cash in lieu, turn to reverse and complete columns G to J and S to V.]

1. I have done, or caused to be done, work on the Lake, Jean No.1 - Jean No.4, Jean No.5, Jean No.7, FTR No.2, FTR No.4, FTR No.6, Lake No.2, Lake No.3 and FTR No.8 Claim(s)

Record No(s). 17810, 18101-18104, 18426, 18428, 21370, 21372, 21374, 24670, 24671, 33598

Situate at Nahwitti Lake in the Nanaimo Mining Division,

Work was done from September 10, 19 88, to October 30, 19 88.

TYPE OF WORK

PHYSICAL: Work such as trenches, open cuts, adits, pits, shafts, reclamation, and construction of roads and trails. Details as required under section 13 of the Regulations, including the map and cost statement, must be given on this statement.

PROSPECTING: Details as required under section 9 of the Regulations must be submitted in a technical report. Prospecting work can only be claimed once by the same owner of the ground, and only during the first three years of ownership.

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL, DRILLING: Details must be submitted in a technical report conforming to sections 5 through 8 (as appropriate) of the Regulations.

PORTABLE ASSESSMENT CREDIT (PAC) WITHDRAWAL: A maximum of 30% of the approved value of geological, geophysical, geochemical and/or drilling work on this statement may be withdrawn from the owner's or operator's PAC account and added to the work value on this statement.

TYPE OF WORK	VALUE OF WORK			
(Specify Physical (include details), Prospecting, Geological, etc.)	Physical	*Prospecting	*Geological etc.	
Geological, Geophysical			35,000.00	
(Report to Follow)				
TOTALS	A +	B +	C 35,000.00	D 35,000.00
PAC WITHDRAWAL — Maximum 30% of Value in Box C Only			E →	E
from account(s) of			TOTAL	F 35,000.00

* Who was the operator (provided the financing)? Name QPX Minerals Inc
Address 500 - 164 Water Street
Vancouver, B.C. Phone: 669-2252

Transfer amount in Box F to reverse side of form and complete as required.

F $35,000.00 I WISH APPLY $ 35,000.00 OF THE TOTAL VALUE FROM BOX F AS FOLLOWS:

Columns G through R inclusive MUST BE COMPLETED before work credits can be granted to claims.
Columns G through J and rough V inclusive MUST BE COMPLETED before a cash payment or rental payment can be credited.
Columns not applicable need not be completed.

Cash Payment

CLAIM IDENTIFICATION				APPLICATION OF WORK CREDIT							CASH IN LIEU OF WORK OR LEASE RENTAL			
G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
CLAIM NAME (one claim/lease per line)	RECORD No.	No. OF UNITS*	CURRENT EXPIRY DATE	WORK TO BE APPLIED: VALUE	WORK TO BE APPLIED: YEARS	WORK TO BE APPLIED: EXCESS CREDIT	RECORDING FEES 5% OF K	PENALTY FEES 10% OF K	PRIOR EXCESS CREDIT BEING USED	NEW EXPIRY DATE	EXCESS CREDIT REMAINING	C/L	RECORDING FEE 5% OF S	MINERAL LEASE RENTAL	NEW EXPIRY D
1 Lake	~~17180~~	1	29/03/92	400	2		20			~~29/03/94~~					
2 Jean No.1	~~18101~~	~~1~~	~~20/07/92~~	400	2		20			20/07/94					
3 ~~Jean No.2~~	~~18102~~	~~1~~	~~20/07/92~~	400	2		20			20/07/94					
4 ~~Jean No.3~~	~~18103~~	~~1~~	~~20/07/92~~	400	2		20			20/07/94					
5 ~~Jean No.4~~	~~18104~~	~~1~~	~~20/07/92~~	400	2		20			20/07/94					
6 ~~Jean No.5~~	~~18426~~	~~1~~	~~28/02/90~~	800	4		40			28/02/94					
7 ~~Jean No.7~~	~~18248~~ 18425	~~1~~	~~28/02/90~~	800	4		40			28/02/94					
8 FTR No. 2	21370	1	30/11/91	600	3		30			30/11/94					
9 FTR No. 4	21372	1	30/11/91	600	3		30			30/11/94					
10 FTR No. 6	21374	1	30/11/91	600	3		30			30/11/94					
11 Lake No. 2	24670	1	02/05/91	600	3		30			02/05/94					
12 Lake No. 3	24671	1	02/05/91	600	3		30			02/05/94					
13 FTR No. 8	33598	1	22/03/91	600	3		30			22/03/94					
14															
15															
16															
17															
18															
				7,200 TOTAL OF K			360 TOTAL OF N	TOTAL OF O				TOTAL OF S	TOTAL OF T	TOTAL OF U	

NOTICE TO GROUP No. 970 RECORDED ~~[illegible]~~

* 2 POST, FRACTION, REV. CROWN GRANT ARE 1 UNIT EACH

Value of work to be credited to portable assessment credit (PAC) account(s).
[May only be credited from the approved value of Box C not applied to claims.]

Name of owner/operator	Name	AMOUNT
	1. QPX Minerals Inc	15,000
	2. F.T. Russel	~~12,800~~
	3.	

I, the undersigned Free Miner, hereby acknowledge and understand that it is an offence to knowingly make a fa statement or provide false information under the *Mineral Act*. I further acknowledge and understand that if statements made, or information given, in this Statement of Exploration and Development are found to be false a the exploration and development has not been performed, as alleged in this Statement of Exploration a Development, then the work reported on this statement will be cancelled and the subject mineral claim(s) may, a result, forfeit to and vest back to the Province.

Signature of Applicant

APPROX. CLAIM BOUNDARY

100+00 E. | 101+00 E. | 102+00 E. | 103+00 E. | 104+00 E. | 105+00 E. | 106+00 E. | 107+00 E. | 108+00 E. | 109+00 E. | 110+00 E. | 111+00 E. | 112+00 E.

102+00 N.
101+50 N.
101+00 N.
100+50 N.
100+00 N.
99+50 N.
99+00 N.
98+50 N.

Logged to here

LAKE TRAIL

TR 1 TR 2 TR 3 TR 4 TR 5 TR 6 TR 7 TR 8 TR 9 TR 10

LAKE ZONE

RAVEN ZONE

BOAT LANDING AREA

BOAT LANDING AREA

1st float and subcrop

N

N A H W I T T I L A K E

Sample No.	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Co ppm
NLR 88-035	26	15	6	0.1	1
NLR 88-036	145	35	2	0.3	2
NLR 88-037	456	49	16	0.1	66
NLR 88-068	758	142	6	0.6	48
NLR 88-069	20	120	10	0.1	2
NLR 88-073	725	369	10	0.6	553
NLR 88-074	43,937	1109	16	30.9	748
NLR 88-075	16,691	2461	12	5.7	760
NLR 88-076	5152	461	11	5.1	1342
NLR 88-077	1066	51	16	0.2	69
NLR 88-078	4618	440	244	1.5	4807
NLR 88-079	798	37	5	0.5	55
GVN 88-400	571	82	8	0.4	18
GVN 88-401	8205	6166	13	5.0	193
GVN 88-404	90	87	4	0.1	27

LEGEND

QUATSINO FORMATION

UPPER TRIASSIC — Limestone, generally fine grained but may be coarsely crystalline or crudely banded

MIDDLE TRIASSIC — KARMUTSEN VOLCANICS

Basalt, commonly fine grained but locally med. grained (feeder zones or dykes) or porphyritic oliv. plag

Pale buff-grey coloured, fine grained felsic volcanic

Skarn assemblage (epidote, magnetite, garnet, diopside ... ±py, cpy, po, sph, gal)

Approx. claim boundary
Grid line
Creek
Trail
Outcrop boundary
Fault
Geological boundary
50° Strike and dip of fault/fracture
50° Strike and dip of bedding
Cliff
Swamp
Spring or seepage
Float
XNLR-88-074 Rock sample location

GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,502

SCALE 1:2000

m 0 50 100 150 m

QPX MINERALS INC.

NAHWITTI PROJECT, NANAIMO M.D., B.C.

GEOLOGY and TRENCH LOCATION MAP

Originator	Drawn J.W.	Date Feb.'89	PLAN 14-15	FIG. 3
Originator	L.J.L.		N.T.S. 92L/12	
Revision				

MINEQUEST EXPLORATION ASSOCIATION LTD.