

ARIS SUMMARY SHEET

District Geologist, Victoria

Off Confidential: 92.03.04

ASSESSMENT REPORT 21129

MINING DIVISION: Nanaimo

PROPERTY: Rainier
LOCATION: LAT 50 20 00 LONG 127 15 45
UTM 09 5576917 623659
NTS 092L06W
CLAIM(S): Rainier 1-4
OPERATOR(S): Noranda Ex.
AUTHOR(S): McCorquodale, J.E.; Bull, D.R.
REPORT YEAR: 1991, 35 Pages
COMMODITIES
SEARCHED FOR: Zinc, Copper, Gold
KEYWORDS: Triassic, Quatsino Formation, Parson Bay Formation, Limestone
Argillites
WORK
DONE: Geological
GEOL 100.0 ha
RELATED
REPORTS: 18659, 19151, 20327
MINFILE: 092L 058

LOG NO: <i>March 22/91 RD.</i>
ACTION:
FILE NO:

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VANCOUVER, B.C.

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

RAINIER GROUP

N.T.S. 92L/6

50°20'N, 127°15'45"W

NANAIMO MINING DIVISION

Owner/Operator: Noranda Exploration Company, Limited
(no personal liability)

Authors : Joan E. McCorquodale
Dennis R. Bull

Date : February 1991

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

21,129

TABLE OF CONTENTS

	<u>PAGE</u>
1.0 INTRODUCTION.....	3
1.1 Location and Access.....	3
1.2 Physiography, Climate and Vegetation.....	3
1.3 Claims.....	5
1.4 Previous Work.....	5
1.5 Personnel.....	6
1.6 Work Procedure.....	6
2.0 GEOLOGY.....	8
2.1 Regional Geology.....	8
2.2 Property Geology.....	10
2.2.1 Lithologies.....	10
2.2.2 Structure.....	11
2.2.3 Mineralization.....	12
3.0 1990 RESULTS AND RECOMMENDATIONS.....	13
3.1 Rock Geochemistry.....	13
3.2 Summary and Recommendations.....	13
BIBLIOGRAPHY.....	15

LIST OF FIGURES

Figure 1: Property Location Map	Page 1
Figure 2: Road Access from Port McNeill and Port Hardy	Page 2
Figure 3: Claim Map	Page 4
Figure 4: Regional Geology of Northern Vancouver Island	Page 7
Figure 5: Property Geology and Rock Sample Location Map	(In Pocket)

LIST OF TABLES

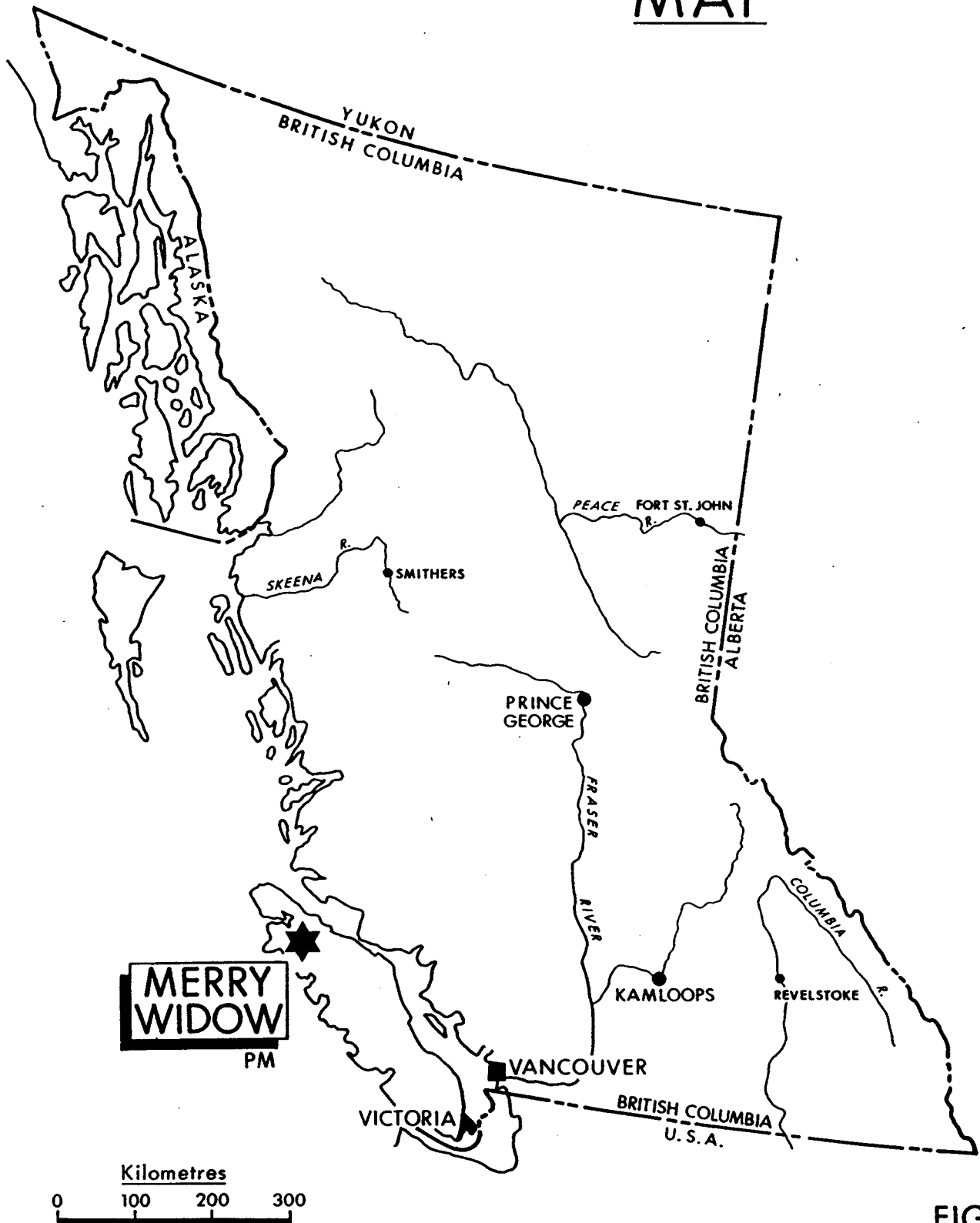
Table 1: Mineral Claims

APPENDICES

Appendix I:	Analytical Method Descriptions for Geochemical Assessment Reports
Appendix II:	Rock Sample Descriptions and Analysis Certificates
Appendix III:	Authors Qualifications
Appendix IV:	Statement of Expenditures

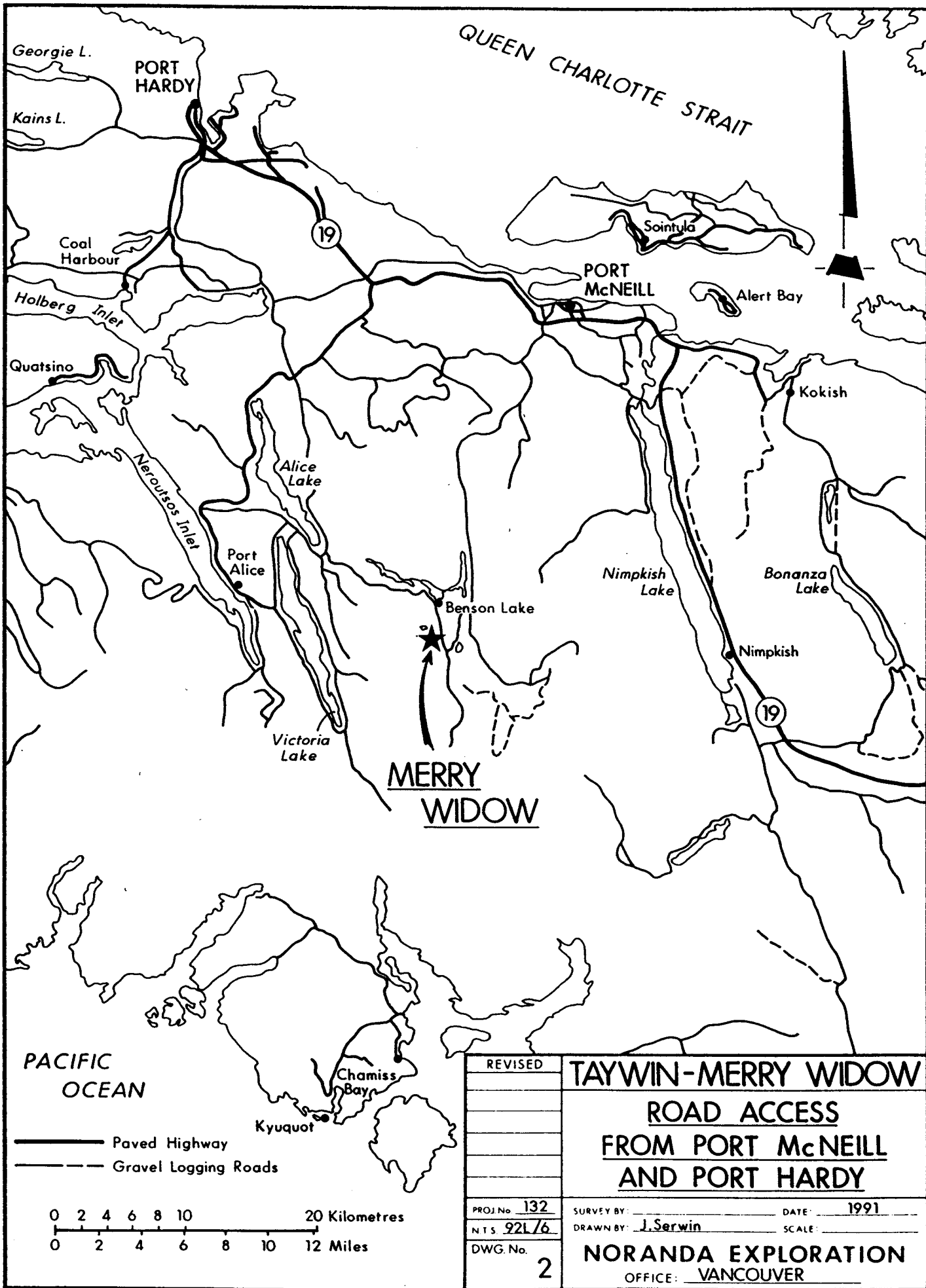
- 1 -

TAYWIN-MERRY WIDOW PROPERTY LOCATION MAP





MERRY WIDOW
PM

Kilometres
0 100 200 300



PACIFIC OCEAN

 Paved Highway
 Gravel Logging Roads

0 2 4 6 8 10 20 Kilometres
 0 2 4 6 8 10 12 Miles

REVISED	TAYWIN-MERRY WIDOW	
	ROAD ACCESS	
	FROM PORT McNEILL	
	AND PORT HARDY	
PROJ. No. 132	SURVEY BY:	DATE: 1991
N.T.S. 921/6	DRAWN BY: J. Serwin	SCALE:
DWG. No. 2	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	

NCI-774

1.0 INTRODUCTION

1.1 Location and Access

The Rainier property is located 30 km southwest of Port McNeill, B.C. on the northern end of Vancouver Island, as shown on Figures 1 and 2.

The approximate centre of the claim block is located at latitude 50°20'N, Longitude 127°15'45"W. The area is covered by N.T.S. Map 92L/6 (scale of 1:50,000).

Access to the property is via the Benson Main logging road from Port McNeill. This gravel road is well maintained year round by MacMillan Bloedel Limited, except for short periods during some winters when snowfall is unusually heavy.

The distance by road from Port McNeill to the centre of the property is approximately 40 km. The property may also be reached via Alice Lake logging road from Port Hardy. This route is less favourable, due to washouts and may not be passable during the winter due to snow conditions.

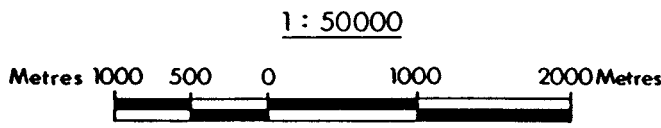
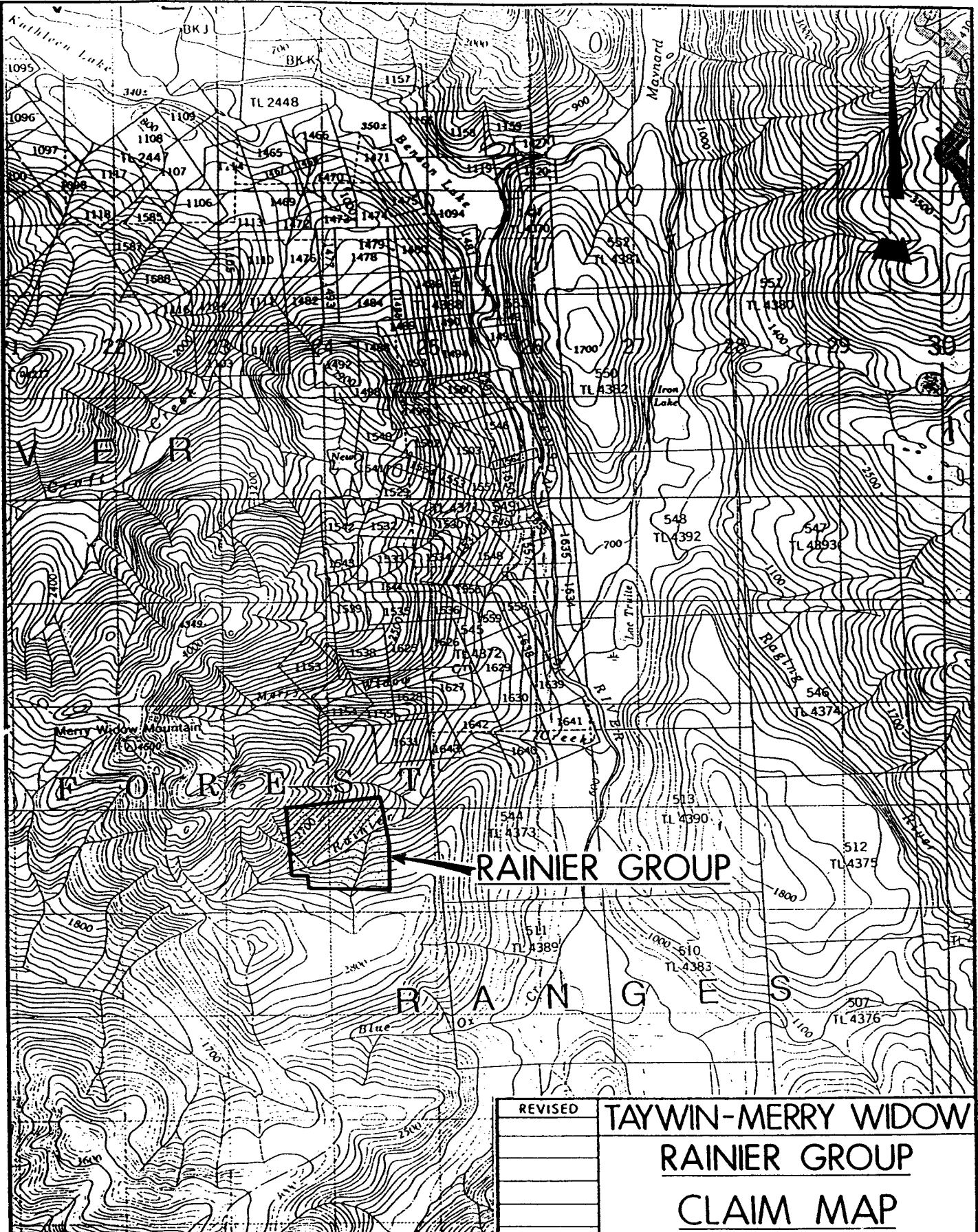
Road access routes from Port McNeill and Port Hardy are shown on Figure 2.

1.2 Physiography, Climate and Vegetation

The topography of the region is fairly rugged, with elevations ranging from 975 m in the northwest corner of the group to 550 m within the Rainier Creek valley.

The climate is generally mild, with heavy annual precipitation of 2500 mm or more. During winter months, much of this falls as snow, with accumulations up to 2.5 metres by mid-March. By the middle of April, most of the snow accumulated over the winter has gone. Fieldwork can therefore, most years, begin in early May.

Mean temperatures range from +9°C (max.) to +1°C (min.) in spring and summer, and from +2°C to -4°C in fall and winter.



REVISED	TAYWIN-MERRY WIDOW	
	RAINIER GROUP	
	CLAIM MAP	
PROJ. No. 132	SURVEY BY: J. Serwin	DATE: 1991
N.T.S. 921/6	DRAWN BY: J. Serwin	SCALE: 1:50,000
DWG. No. 3	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	

NCI-774

Whilst September 1990 had an average number of sunny vs. cloudy days, the months of October and November had above average rainfall, interspersed with hail, sleet and snow.

Vegetation consists of dense, mature forest of Hemlock, Cedar and Spruce. The lower slopes of the Rainier Creek Valley were clearcut logged in 1987/88. Thick underbrush in the mature forest, and debris in the clearcut make foot travel slow and difficult. However, the network of logging roads partly compensates for this.

1.3 Claims

The property consists of 4 mineral claims (4 units) located in the Nanaimo Mining Division. They cover approximately 83.6 hectares which covers a portion of the Rainier Creek valley. A complete list of the mineral claims is give in Table I. Figure 3 (claim map) shows all the above described claims.

TABLE 1: MINERAL CLAIMS

Claim Name	Record #	Type *	Units	Record Date	Due Date
Rainier 1	2989	TP	1	06/14/88	06/14/96
Rainier 2	2990	TP	1	06/14/88	06/14/96
Rainier 3	2991	TP	1	06/14/88	06/14/96
Rainier 4	2992	TP	1	06/14/88	06/14/96

* TP = Two Post

The above claims are owned by James Laird (prospector) and Noranda Exploration. Operator is Noranda Exploration.

1.4 Previous Work

Within the Minfile Report #92L058 there is a description of small quartz-calcite veins containing chalcopyrite, sphalerite and pyrite. This showing was first reported in 1929.

In 1970 an Aero-magnetic Survey was completed over the eastern half of the present day Rainier group. It was completed on behalf of Alice Lake Mines Limited.

In 1988 Taywin Resources in conjunction with prospector James Laird completed reconnaissance style mapping, soil sampling and prospecting of the area. A small zinc (sphalerite) showing was located on the Rainier 2 claim. A total of 195 soil samples were collected at 25 m intervals along 11 grid lines for a total of 5 km and analyzed (Clarke, 1989).

In September 1990 Noranda Exploration optioned the property.

1.5 Personnel

The following Noranda Exploration personnel were employed on the property:

Joan E. McCorquodale	Party Chief (geologist)
Jeff Reeder	Field Geologist
Ron Butler	Field Geologist

1.6 Work Procedure

From the 9th. to 14th. October 1990, eight mandays were spent geologically mapping, rock sampling and prospecting the property and immediate area. Roads and creeks were prospected and mapped. Chain and compass traverses were also conducted to access the more remote areas of the property. Seven rock samples were collected and are discussed in the Rock Geochemistry portion of this report (Section 3.1).

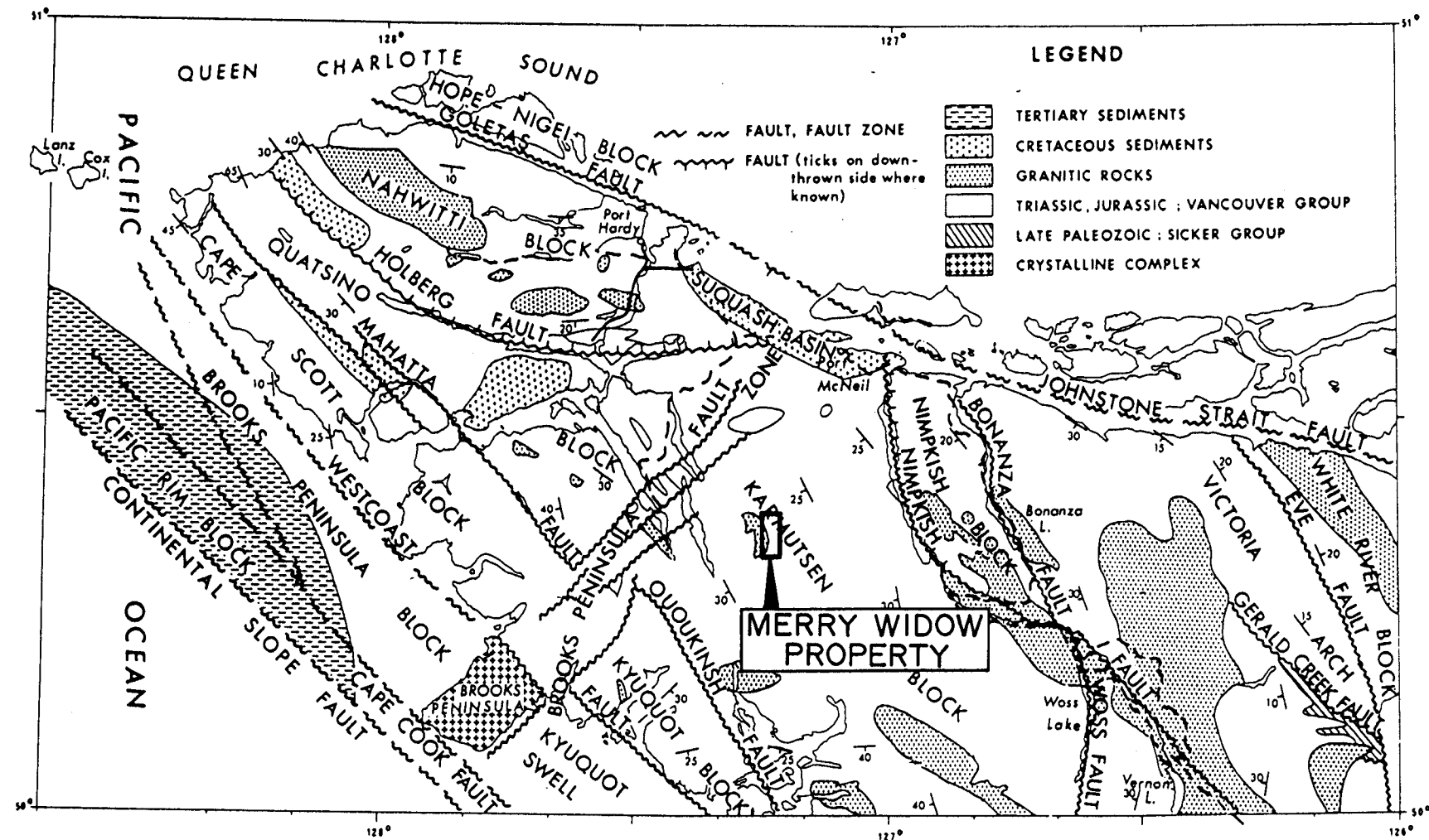


Figure 4

REGIONAL GEOLOGY of NORTHERN VANCOUVER ISLAND

showing

MAIN FAULTS and FAULT BLOCKS

(After Muller et al, 1974)

KILOMETRES



2.0 GEOLOGY

2.1 Regional Geology

The Rainier Group lays within the Alert - Cape Scott map area (92L-102I) which was most recently mapped by J.E. Muller, K.E. Northcote, and D. Carlisle (G.S.C. Paper 74-8, Map 1552A, 1974). Earlier mapping in the region was done by G.M. Dawson (1887), C.H. Clapp (1912), V. Dolmage (1919), H.C. Gunning (1930, 1932).

The region in and around the property is underlain by a conformable sequence of rocks of the Vancouver Group. Contacts between the formations comprising these groups are gradational.

Vancouver Group rocks in the region are (from oldest to youngest) as follows:

Karmutsen Formation (Upper Triassic):

Basaltic flows, pillow lavas, breccia and aquagene tuffs, with minor interbeds of limestone.

Quatsino Formation (Upper Triassic):

Limestone consisting of thick bedded to massive brown-grey to black, light grey to white, fine to medium crystalline in the lower part, and medium to thin bedded limestone inter-laminated with black calcareous siltstone (1 to 5 cm thickness) in the upper part. The upper contact of the Quatsino Formation with the overlying Parsons Bay Formation is indicated by the appearance of thin beds and laminae of black calcareous silty mudstone, commonly containing halobia (Muller et al, 1974, P.13).

Parsons Bay Formation (Upper Triassic):

Carbonaceous, black limestone inter-laminated with black calcareous argillite and siltstone in the lower part and thin bedded calcareous siltstone volcanoclastic and feldspathic wacke in the upper part.

The Bonanza Group rocks are as follows:

Harbledown Formation (Lower Jurassic):

Non fissile, colour laminated feldpathic wacke in the lower part, grading into dark, thin bedded calcareous siltstones in the upper part.

Bonanza Formation Volcanics (Lower Jurassic):

Basaltic andesite to rhyodacite flows, interbedded with maroon and green ash to lapilli tuffs and volcanic breccias. Several clastic sedimentary units are interbedded with the volcanics, these consist of greywackes, shales and argillites and pebble conglomerates.

INTRUSIVE ROCKS:

Greenstone Intrusives:

The greenstone intrusives cut all of the above described stratigraphic units. These intrusives occur as dykes and minor sills. The greenstone intrusives are generally very fine grained, medium grey-green in colour, and are largely of andesitic composition. They are thought to have been the feeders to the Bonanza volcanics.

Island Intrusions:

Granitoid Island Intrusions of Middle Jurassic Age intrude all Bonanza and Vancouver Group rocks. Compositions of these intrusions vary from leuco quartz monzonite to gabbro, but the majority are granodiorite and quartz diorite with some quartz-feldspar porphyry. Muller et al (1974) believed that these intrusions are coeval with the higher stratigraphic levels of Bonanza volcanics; "Age, geological relationship and similar, intermediate calc-alkalic composition are strong arguments for cogenetic association to Lower Jurassic (Bonanza) volcanics and (greenstone) intrusions" (Northcote & Muller 1972, Volcanism, Plutonism & Mineralization, Vancouver Island, Bulletin of Can-Inst. Mining & Metallurgy, October 1972, P.49-57).

Structure

As shown in Figure 4, the regional structure of Northern Vancouver Island is dominated by numerous major north west trending high angle faults. These faults divide the region into several great structural blocks which themselves are fractured into smaller fault segments by steeply dipping northerly and north-easterly trending faults.

Many of the faults are poorly exposed since they tend to lie beneath valleys and are covered by recent sediments and water. However, these faults are recognized by the abrupt offsets of stratigraphy, and from their distinct linear features on air photo and satellite imagery.

The Rainier Group lies within the Karmutsen fault block and strata within this area is tilted regionally to the southwest at ~25-35°.

2.2 Property Geology

The Rainier claim group is underlain by, (from oldest to youngest), Quatsino limestone, Parson's Bay sediments, and Bonanza volcanics. All units are cross cut by greenstone dykes. Rainier Creek, which crosses the property in a east-northeasterly direction flows along the surface trace of what is named within this report as the Rainier Creek fault. South of Rainier Creek are shallow dipping Parson's Bay argillites, siltstones and carbonaceous limestone. North of the creek is a large recumbent fold of Bonanza tuff wrapping around Quatsino limestone. Other than the small showings of sphalerite and magnetite-pyrite (see Section 2.2.3), the only mineralization observed was pyrite, occurring as fine disseminations within the argillites and siltstones and as fracture fillings within the greenstone dykes.

2.2.1 Lithologies

Quatsino Limestone: Fine grained micritic medium grey to beige in colour. Well bedded with local strong undulatory surfaces. Beds range from 0.3 m to 7 m thick. The rock is very competent.

Parson's Bay Sediments: These sediments range from light to medium grey fine grained massive siltstone to black-grey fine grained conchoidally fracturing argillite to a dark grey carbonaceous limestone. Underlying the siltstones, the argillites become increasingly calcareous. Locally, fossil fragments were observed. These two observations indicate a downward grading into a carbonaceous limestone, suggesting proximity to the Parson's Bay - Quatsino contact.

Bonanza Volcanics: Medium green, moderately to strongly chloritized lithic tuffs occur in large massive beds. The tuff clasts are <1 cm across and comprise 40% of the rock and are within a fine grained matrix. The tuffs lie conformably on top of the Quatsino limestone.

Greenstone Dykes: Medium grey-green, fine grained, locally vesicular and porphyritic. Widths range from 0.3 m to 5 m. The majority of the dykes are sub-vertical and cross cut all Bonanza and Vancouver Group lithologies.

Island Intrusions: The Middle Jurassic granitoid Coast Copper Stock was not observed during the geological mapping programme, but is reported to underlie the northwesterly part of the Rainier Group (Clarke, 1989).

2.2.2 Structure

The lithologies of the Rainier Group differ greatly on either side of Rainier Creek which runs east-northeasterly through the centre of the property. The creek follows the surface trace of the Rainier Creek Fault with the south side down-dropped relative to the north.

South of the creek are rocks of the Parson's Bay Formation which dip shallowly to the west. They appear in a "tops-up" position as siltstones and argillites and grade downward into a carbonaceous limestone, indicating proximity to the Quatsino limestone contact.

Immediately north of Rainier Creek is a ~100 m thick unit of Bonanza tuffs overlain by a ~400 m thick unit of Quatsino limestone, itself overlain by Bonanza tuffs. This repeat stratigraphy suggests a large recumbent fold with the axis paralleling the trend of the Rainier Creek fault.

Mineralization

Pyrite appears throughout the property as finely disseminated cubes within the argillites and siltstones and as disseminated cubes and fracture filling within the greenstone dykes.

At a location just north of Rainier Creek and at the eastern property boundary, a 4 cm wide calcite vein crosscuts both a dyke and the calcareous argillite. The vein carried 25% pyrite and 5% sphalerite occurring as a massive anhedral morphology with rare crystal faces.

Near the northwest corner of the claim group a ~0.7 m wide vein of magnetite and calcite crosscuts the Quatsino limestone. For approximately one metre on either side of the vein, the limestone is skarnified with epidote and minor magnetite and garnet. The vein itself contains 70% black massive magnetite, 23% calcite and 2% massive pyrite (occurring near the wallrock contact).

Epidote skarnification of the limestones in the northwest portion of the property suggests proximity to the Coast Copper Stock intrusion.

3.0 1990 RESULTS AND RECOMMENDATIONS

3.1 Rock Geochemistry

Seven rock samples were collected and shipped to Vancouver for thirty element ICP plus Au geochemical analysis. See Appendix II for full description of each sample and the geochemical results.

One sample (R-124449) returned anomalous Au, Cu, Ag, Zn, As values. This sample was collected from a calcite-quartz vein containing 5-7% sphalerite. The location of this sample is shown in Figure 5. This vein was previously known, as discussed in Section 1.4 ("Previous Work").

3.2 Summary and Recommendations

Noranda Exploration's 1990 reconnaissance style programme on the Rainier group consisted of geological mapping, prospecting and rock sampling.

This programme revealed that the geologic structure of the area is more complex than was previously thought.

Whilst the Coast Copper intrusive was not observed during reconnaissance mapping on the Rainier Group, its contact with the Triassic and Jurassic strata cannot be far to the west.

Anomalous values for Au, Cu, Ag, Zn & As from rock sample R-12449 indicate that mineralizing fluids have affected the area.

The above combination of geologic and structural setting, together with proof that a mineralizing event has occurred, suggest that the area is worthy of further exploration.

This should be as follows:

- (i) further traverses to the north and northwest, for the purpose of geological mapping and prospecting, and to locate the contact with the Coast Copper Stock;

- (ii) Further geological mapping of the Bonanza and Quatsino units north of Rainier Creek, with emphasis on structure, in order to better determine the nature of the folding and faulting which has occurred;
- and (iii) combined with these, reconnaissance soil geochemistry lines should be run in the northwest part of the Rainier Group.

BIBLIOGRAPHY

- Clark, Tiro, 1989: Report on Soil Geochemical and Preliminary Geological Surveys on the Rainier 1-4 Claims. Assessment Report for Taywin Resouces.
- Crosby, Richard, 1970: Report on Aeromagnetic Survey Trout Lake Area, British Columbia on behalf of Alice Lake Mines Limited. Assessment Report.
- McCorquodale, J.E., Bull, D.R. 1990-1991
Project Report on the Merry Widow Project. Unpublished.
- Muller, J.E., Northcote, K.E., Carlisle, D., 1974:
Geology and Mineral Occurrences of Alert-Cape Scot Map Area, Vancouver Island, British Columbia. G.S.C. Paper 74-8

APPENDIX I

**Analytical Method Descriptions for
Geochemical Assessment Reports**

ANALYTICAL METHOD DESCRIPTIONS FOR GEOCHEMICAL ASSESSMENT REPORTS

The methods listed are presently applied to analyses geological materials by the Noranda Geochemical Laboratory at Vancouver.

Preparation of Samples:

Sediments and soils are dried at approximately 80°C and sieved with a 80 mesh nylon screen. The -80 mesh (0.18 mm) fraction is used for geochemical analysis.

Rock specimens are pulverized to -120 mesh (0.13 mm). Heavy mineral fractions (panned samples * from constant volume), are analysed in its entirety, when it is to be determined for gold without further sample preparation.

Analysis of Samples:

Decomposition of a 0.200 g sample is done with concentrated perchloric and nitric acid (3:1), digested for 5 hours at reflux temperature. Pulps of rock or core are weighed out at 0.4 g and chemical quantities are doubled relative to the above noted method for digestion.

The concentrations of Ag, Cd, Co, Cu, Fe, Mn, Mo, Ni, Pb, V and Zn can be determined directly from the digest (dissolution) with a conventional atomic absorption spectrometric procedure. A Varian-Techtron, Model AA-5 or Model AA-475 is used to measure elemental concentrations.

Elements Requiring Specific Decomposition Method:

Antimony - Sb: 0.2 g sample is attacked with 3.3 ml of 6% tartaric acid, 1.5 ml conc. hydrochloric acid and 0.5 ml of conc. nitric acid, then heated in a water bath for 3 hours at 95°C. Sb is determined directly from the dissolution with an AA-475 equipped with electrodeless discharge lamp (EDL).

Arsenic - As: 0.2 - 0.3 g sample is digested with 1.5 ml of perchloric 70% and 0.5 ml of conc. nitric acid. A Varian AA-475 equipped with an As-EDL is used to measure arsenic content in the digest.

Barium - Ba: 0.1 g sample digested overnight with conc. perchloric, nitric and hydrofluoric acid; Potassium chloride added to prevent ionization. Atomic absorption using a nitrous oxide-acetylene flame determines Ba from the aqueous solution.

Bismuth - Bi: 0.2 - 0.3 g is digested with 2.0 ml of perchloric 70% and 1.0 ml of conc. nitric acid. Bismuth is determined directly from the digest with an AA-475 complete with EDL.

Gold - Au: 10.0 g sample is digested with aqua regia (1 part nitric and 3 parts hydrochloric acid). Gold is extracted with MIBK from the aqueous solution. AA is used to determine Au.

Magnesium - Mg: 0.05 - 0.10 g sample is digested with 4 ml perchloric/nitric acid (3:1). An aliquot is taken to reduce the concentration to within the range of atomic absorption. The AA-475 with the use of a nitrous oxide flame determines Mg from the aqueous solution.

Tungsten - W: 1.0 g sample sintered with a carbonate flux and thereafter leached with water. The leachate is treated with potassium thiocyanate. The yellow tungsten thiocyanate is extracted into tri-n-butyl phosphate. This permits colourimetric comparison with standards to measure tungsten concentration.

Uranium - U: An aliquot from a perchloric-nitric decomposition, usually from the multi-element digestion, is buffered. The aqueous solution is exposed to laser light, and the luminescence of the uranyl ion is quantitatively measured on the UA-3 (Scintrex).

N.B.: If additional elemental determinations are required on panned samples, state this at the time of sample submission. Requests after gold determinations would be futile.

LOWEST VALUES REPORTED IN PPM:

Ag - 0.2	Mn - 20	Zn - 1	Au - 0.01
Cd - 0.2	Mo - 1	Sb - 1	W - 2
Co - 1	Ni - 1	As - 1	U - 0.1
Cu - 1	Pb - 1	Ba - 10	
Fe - 100	V - 10	Bi - 1	

EJvL/ie



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Telephone: 253-3158

GEOCHEMICAL LABORATORY METHODOLOGY & PRICES - 1989

Sample Preparation

S80	Soils or silts up to 2 lbs drying at 60 deg.C and sieving 30 gms -80 mesh (other size on request)	\$.85
SJ	Saving part or all reject	.45
S20R	Soils or silts - drying at 60 deg.C and sieving -20 mesh & pulverizing (other mesh size on request.)	2.00
SP	Soils or silts - drying at 60 deg.C pulverizing (approx 100 gms)	1.50
RP100	Rocks or cores - crushing to -3/16" up to 10 lbs, then pulverizing 1/2 lb to -100 mesh (98%)	3.00
Cr	Surcharge crushing over 10 lbs	.25/lb
2PX	Surcharge for pulverizing over 1/2 lb	1.00/lb
RPS100	Same as RP100 except sieving to -100 mesh and saving +100 mesh (200gms)	3.75
RPS100 1/2	Same as above except pulverizing 1/2 the reject - additional	1.00/lb
RPS100 A	Same as above except pulverizing all the reject - additional	1.00/lb
OP	Compositing pulps - each pulp Mixing & pulverizing composite.	.50 1.50
HM	Heavy mineral separation - S.G.2.96 + wash -20 mesh	12.00
V1	Drying vegetation and pulverizing 50 gms to -80 mesh	3.00
V2	Ashing up to 1 lb wet vegetation at 475 deg.C	2.00
H1	Special Handling	17.00/hr

Sample Storage

Rejects - Approx. 2 lbs of rock or total core are stored for three months and discarded unless claimed.

Pulps are retained for one year and discarded unless claimed.

Additional storage - for 3 years \$10.00/1.2 cu.ft. box
or 15 cents/sample pulp
or 5 cents/sample soil

Supplies

Soil Envelopes	4" x 6"	\$125.00/thousand
Soil Envelopes	4" x 6" with gusset	\$140.00/thousand Plastic
Bags	7" x 13" 4 ml	\$10.00/hundred
Plastic Bags	12" x 20" 6 ml	\$20.00/hundred
Ties		\$2.00/hundred
Assay Tags		N/C
10% HCl		\$5.00/liter
Dropping bottles		\$1.00/each
Zn Test	A & B	\$12.00/each liter

Conversion Factors

1 Troy oz	= 31.10 g
1 oz/ton	= 34.3 ppm = 34.3 g/tonne = 34,300 ppb
1 %	= 10,000 ppm

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GEOCHEMICAL ANALYSES - Rocks and Soils

Group 1 Digestion

.50 gram sample is digested with 3 mls 3-1-2 HCl-HNO₃-H₂O at 95 deg.C for one hour and is diluted to 10 ml with water. This leach is near total for base metals, partial for rock forming elements and very slight for refractory elements. Solubility limits Ag, Pb, Sb, Bi, W for high grade samples.

Group 1A - Analysis by Atomic Absorption.

Element	Detection	Element	Detection	Element	Detection
Antimony*	2 ppm	Copper	1 ppm	Molybdenum	1 ppm
Bismuth*	2 ppm	Iron	0.01 %	Nickel	1 ppm
Cadmium*	0.1 ppm	Lead	2 ppm	Silver	0.1 ppm
Chromium	1 ppm	Lithium	2 ppm	Vanadium	2 ppm
Cobalt	1 ppm	Manganese	5 ppm	Zinc	2 ppm

First Element \$2.25 Subsequent Element \$1.00

Group 1B - Hydride generation of volatile elements and analysis by ICP.
This technique is unsuitable for sample grading over .5% Ni or Cu.
Cu Massive Sulphide.

Element	Detection	Price
Arsenic	0.1 ppm	First Element \$4.75 All Elements \$5.50
Antimony	0.1 ppm	
Bismuth	0.1 ppm	
Germanium	0.1 ppm	
Selenium	0.1 ppm	
Tellurium	0.1 ppm	

Group 1C - Hg Detection limit - 5 ppb Price \$2.50

Hg in the solutions are determined by cold vapour AA using a F & J scientific Hg assembly. The aliquots of the extract are added to a stannous chloride/hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Group 1D - ICP Analysis

Element	Detection	Price
Ag	0.1 ppm	Any 2 elements \$3.25 5 elements 4.50 10 elements 5.50 All 30 elements 6.25
Cd, Co, Cr, Cu, Mn, Mo, Ni, Sr, Zn	1 ppm	
As, Au, B, Ba, Bi, La, Pb, Sb, Th, V, W	2 ppm	
U	5 ppm	
Al, Ca, Fe, K, Mg, Na, P, Ti	0.01 %	

Group 1E - Analysis by ICP/MS

Element	Detection	Price
Ga, Ge	1 ppm	All Elements 15.00 (minimum 20 samples per batch or \$15.00 surcharge)
Au, Bi, Cd, Hg, In, Ir, Os, Re, Rh, Sb, Te, Th, Tl, U	0.1 ppm	

Hydro Geochemical Analysis

Natural water for mineral exploration

26 element ICP - Mo, Cu, Pb, Zn, Ag, Co, Ni, Mn, Fe, As, Sr, Cd, V, Ca, P, Li, Cr, Mg, Ti, B, Al, Na, K, Ce, Be, Si \$8.00

F by Specific Ion Electrode	- detection	20 ppb	\$3.75
U by UAS	- detection	.01 ppb	5.00
pH		.1 pH	1.50
Au	- detection	.001 ppb	4.00

* Minimum 20 samples or \$5.00 surcharge for ICP or AA and \$15.00 surcharge for ICP/MS. All prices are in Canadian Dollars

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Telephone: 253-3158

Group 2 - Geochemical Analysis by Specific Extraction and Instrumental Techniques

<u>Element</u>	<u>Method</u>	<u>Detection</u>	<u>Price</u>
Barium	0.100 gram samples are fused with .6 gm LiBO2 dissolved in 50 mls 5% HNO3 and analysed by ICP. (other whole rock elements are also determined)	10 ppm	\$4.00
Boron	.5 g/Na2O2 fusion - 50ml in 20% HCl	2 ppm	4.00
Carbon	LECO (total as C or CO2)	.01 %	5.75
Carbon+Sulfur	Both by LECO	.01 %	6.50
Carbon (Graphite)	HCl leach before LECO	.01 %	8.00
Chromium	0.50 gram samples are fused with 1 gm Na2O2 dissolved in 50 ml 20% HCl, analysed ICP.	5 ppm	4.00
Fluorine	0.25 gram samples are fused with NaOH; leached solution is adjusted for pH and analysed by specific ion electrode.	10 ppm	4.50
Sulphur	LECO (Total as S)	.01 %	5.50
Sulphur insoluble	LECO (After 5% HCl leach)	.01 %	8.00
Tin	1.00 gram samples are fused with NH4I. The sublimed Iodine is leached with 5 ml 10% HCl, and analysed by Atomic Absorption.	1 ppm	4.00
Tl	.50 gram digested with 50% HNO3 - Dilute to 10 ml - graphite AA	.1 ppm	4.00
Tungsten	.50 gram samples are fused with Na2O2 dissolved in 20 ml H2O, analysed by ICP.	1 ppm	4.00

Group 3 - Geochemical Noble Metals

<u>Element</u>	<u>Method</u>	<u>Detection</u>	<u>Price</u>
Au*	10.0 gram samples are ignited at 600 deg.C, digested with hot aqua regia, extracted by MIBK, analysed by graphite furnace AA.	1 ppb	\$ 4.50
Au** Pd, Pt, Rh	10.0 gram samples are fused with a Ag in quart with fire assay fluxes. After cupulation, the dore bead is dissolved and analysed by AA or ICP/MS.	1 ppb 2 ppb	6.00 - first element 2.50 - per additional 10.00 - for All 4
Larger samples - 20 gms add \$1.50 30 gms add \$2.50			

Group 4A - Geochemical Whole Rock Assay

0.200 gram samples are fused with LiBO2 and are dissolved in 100 mls 5% HNO3. SiO2, Al2O3, Fe2O3, CaO, MgO, Na2O, K2O, MnO, TiO2, P2O5, Cr2O5, LOI + Ba by ICP.

Price: \$3.75 first metal \$1.00 each additional \$9.00 for All.

Group 4B - Trace elements

<u>Element</u>	<u>Detection</u>	<u>Analysis</u>	<u>Price</u>
Co, Cu, Ni, Zn, Sr	10 ppm	ICP	\$3.75 first element or \$1.00 additional to 4A \$6.00 for All.
Ce, Nb, Ta, Y, Zr	20 ppm	ICP	

Group 4C - analysis by ICP/MS.

Be, Rb, Y, Zr, Nb, Sn, Cs, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, Th, U

Detection: 1 to 5 ppm

Price : \$20.00 for All.

* Minimum 20 samples or \$5.00 surcharge for ICP or AA and \$15.00 surcharge for ICP/MS. All prices are in Canadian Dollars



ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone: 253-3158

Regular Assay

Aluminum	(Al)	\$ 7.00	Moisture	(H2O)	\$ 5.00
Antimony	(Sb)	7.00	Molybdenum	(Mo)	7.00
Arsenic	(As)	7.00	Molybdenum Sulfide	(MoS2)	9.00
Barium	(Ba)	7.00	Niobium	(Nb)	10.00
Bismuth	(Bi)	7.00	Nickel	(Ni)	7.00
Boron	(B)	7.00	Nickel (Non-sulfide)		9.00
Cadmium	(Cd)	7.00	Palladium	(Pd)	10.00
Calcium	(Ca)	7.00	Phosphorus	(P)	7.00
Carbon (Total)	(C)	9.00	Platinum	(Pt)	10.00
Carbon (Graphitic)*		10.00	Potassium	(K)	7.00
Carbon plus Sulfur (Total)*		11.00	Rhodium	(Rh)	10.00
Cerium	(Ce)	10.00	Rubidium	(Rb)	7.00
Chromium	(Cr)	7.00	Selenium	(Se)	10.00
Cesium	(Cs)	10.00	Silica	(SiO2)	7.00
Cobalt	(Co)	7.00	Silver	(Ag)	7.00
Copper	(Cu)	7.00	Silver (Fire Assay)		8.50
Copper (non-sulfide)*		8.00	Sodium	(Na)	7.00
Europium	(Eu)	20.00	Specific Gravity*	(SG)	7.00
Fluorine	(F)	7.00	Strontium	(Sr)	7.00
Gallium	(Ga)	7.00	Sulfur (Total)*	(S)	9.00
Germanium	(Ge)	7.00	Sulfur (Sulfate)	(S)	10.00
Gold	(Au)	7.00	Tantalum	(Ta)	7.00
Gold (Fire Assay)		8.50	Tellurium	(Te)	10.00
Gold plus Silver (Fire Assay)		12.00	Thallium	(Tl)	10.00
Indium	(In)	7.00	Thorium*	(Th)	7.00
Iron (Total)	(Fe)	7.00	Tin	(Sn)	7.00
Iron (Ferrous)*		10.00	Titanium	(Ti)	7.00
Lanthanum	(La)	7.00	Tungsten	(W)	7.00
Lithium	(Li)	7.00	Uranium	(U)	7.00
Lead	(Pb)	7.00	Vanadium	(V)	7.00
Loss on Ignition	(LOI)	2.00	Yttrium	(Y)	7.00
Magnesium	(Mg)	7.00	Zinc	(Zn)	7.00
Manganese	(Mn)	7.00	Zirconium*	(Zr)	7.00
Mercury*	(Hg)	7.00			

* Minimum 5 samples per batch

Other elements by Mass Spec. on request.

Multi-Element Assay Price

Arsenic, Antimony, Bismuth, Cadmium, Cobalt, Copper, Gold, Iron, Lead, Manganese, Molybdenum, Nickel, Silver, Thorium, Uranium, Zinc.

Price : First element \$7.00 Each Additional \$3.00 All 16 elements \$22.00

Whole Rock Assay Prices

SiO2, Al2O3, Fe2O3, CaO, MgO, Na2O, K2O, MnO, TiO2, P2O5, Cr2O3, LOI.

Price : First oxide \$7.00 Each Additional \$3.50 All 12 \$9.00

Volume Discounts Available.

Special Fire Assay Prices

Gold (1/2 A/T)	\$ 8.50
Gold + Silver (1/2 A/T)	12.00
Gold (1 A/T)	10.00
Gold - native + 100 mesh	6.00
Gold, Silver, Platinum, Palladium, Rhodium (1/2 A/T)	22.00
Placer conc. for total precious metal or Gold + return of bead	15.00

APPENDIX II

Rock Descriptions and Analysis Certificates

NORANDA EXPLORATION COMPANY, LIMITED

PROJECT # 132

N.T.S. 92L/6W

LAB REPORT # _____

DATE Oct. 14/90

PROJECT RAINER GROUP

ROCK SAMPLE REPORT

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	ICP (ppm) + Au (ppb) Geochem						SAMPLED BY
					Cu	Ag	Co	As	Zn	Au	
150804	Fine grained, light greenish grey dyke. Pyrite trace, disseminated.	Py trace	Grab		57	.3	14	13	111	1	R. Butler
124446	Fault in fine grained siltstone. Py <2% finely disseminated - strong limonite staining. - From talus below cliff.	Py <2%	Grab		66	.3	16	2	63	4	R. Butler
124447	Dark green-grey, fine grained, silt stone. <1% Py euhedral, irregular disseminated <.5 mm & in minute discontinuous stringers.	Py <1%	Grab		57	.1	16	13	149	1	R. Butler
124448	Black, fine grained calcareous argillite <1% Py finely disseminated and as fine cubes congregated into elliptical blebs ~1 x .5 cm.	Py <1%	Grab		28	.1	8	12	166	5	R. Butler
124449	Dyke in calcareous argillites. Greenstone, medium green, fine grained. Cutting through is 4 cm calcite vein with ~15% Py on clusters of euhedral crystals to 1 mm. 5% sphalerite medium red-brown to black, semi-massive.	Py 15% Zn 5%	Chip	30 cm	321	1.0	29	1431	21318	280	R. Butler

ACME ANALYTICAL LABORATORIES LTD.

852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Rainier Merry Wood

Noranda Exploration Co. Ltd. PROJECT 9010-057 132

File # 90-5388

P.O. Box 2380, 1050 Davie, Vancouver BC V6B 3T5

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au*	
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppb	
124446	1	66	4	63	.3	1	16	887	7.16	.2	5	ND	1	140	.5	2	2	102	2.51	.155	8	1	1.67	8	.27	4	2.32	.10	.03	1	4	
124447	1	57	7	149	.1	4	16	1031	7.32	.13	5	ND	1	82	1.0	2	2	125	1.68	.118	6	5	1.71	20	.21	5	2.57	.09	.02	1	1	
124448	1	28	4	166	.1	16	8	241	3.23	.12	5	ND	1	339	.6	2	2	61	6.46	.080	7	52	.93	16	.11	3	1.49	.03	.06	1	5	
124449	1	321	44	21318	1.0	13	29	467	11.19	1431	5	ND	1	41	168	5	3	3	29	3.76	.067	4	26	.53	13	.01	3	1.20	.01	.15	2	280
124450	1	73	4	43	.1	7	17	1107	21.87	.16	9	ND	2	57	1.1	2	2	44	7.21	.015	2	8	.39	6	.06	14	1.04	.01	.04	1	2	
150804	1	57	5	111	.3	1	14	1184	7.52	.13	5	ND	1	41	.5	2	2	84	1.13	.182	11	1	1.90	5	.40	2	2.65	.04	.03	1	1	
150851	1	80	2	93	.4	5	21	890	7.71	.8	5	ND	1	153	.7	2	2	270	3.12	.075	5	6	2.49	5	.01	2	3.34	.03	.03	1	1	
STANDARD C/AU-R	19	60	36	131	7.0	73	31	1052	3.98	45	19	7	40	53	19.6	15	18	59	.45	.092	40	60	.89	170	.08	34	1.90	.06	.14	11	510	

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 18 1990

DATE REPORT MAILED:

Oct 23/90

SIGNED BY.....

Chung

B.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

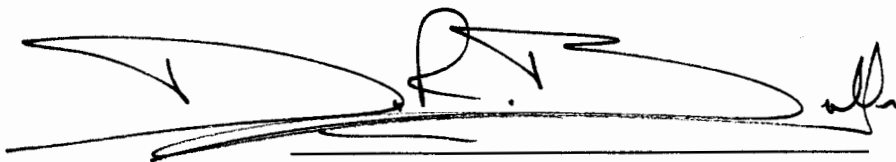
✓ ASSAY RECOMMENDED

APPENDIX III
AUTHORS QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Dennis R. Bull of the Municipality of Surrey, Province of British Columbia, do hereby certify that:

1. I am a Geologist residing at 12918 - 64th. Avenue, Surrey, B.C.
2. I graduated from the University of Alberta in 1986 with a BSc (Honours) degree in Geology.
3. I have worked in Mineral Exploration since 1974 and have practised my profession as a Geologist since May, 1987.
4. I am presently employed as a Project Geologist with Noranda Exploration Company, Limited.

A handwritten signature in black ink, appearing to read 'D.R. Bull', is written over a horizontal line. The signature is stylized and includes a large loop on the left side.

Dennis R. Bull

STATEMENT OF QUALIFICATIONS

I, Joan E. McCorquodale of the City of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a geologist residing at 186 West 20th. Avenue, Vancouver, B.C.
2. I graduated from the University of Alberta in 1988 with a B.Sc. degree (specialization) in geology.
3. I have worked in mineralization exploration and government geology since 1985.
4. I have been employed as a geologist for Noranda Exploration Company, Limited (no personal liability) from May 1988 to the present.

Joan E. McCorquodale

Joan E. McCorquodale

APPENDIX IV
STATEMENT OF EXPENDITURES

**TAYWIN - MERRY WIDOW
RAINIER GROUP
STATEMENT OF EXPENDITURES**

WAGES:

J.E. McCorquodale - Party Chief October 14, 1990 1 day @ \$200/day	\$ 200.00
J. Reeder - Field Geologist October 9, 1990 1 day @ \$180/day	\$ 180.00
R. Butler - Field Geologist October 9-14, 1990 6 days @ \$180/day	\$1,080.00

FOOD & ACCOMMODATION:

Meals - 8 mandays @ \$20/day	\$ 160.00
Accommodation - (Tent Camp) Fuel & Misc. Supplies	\$ 100.00

TRUCK & GAS:

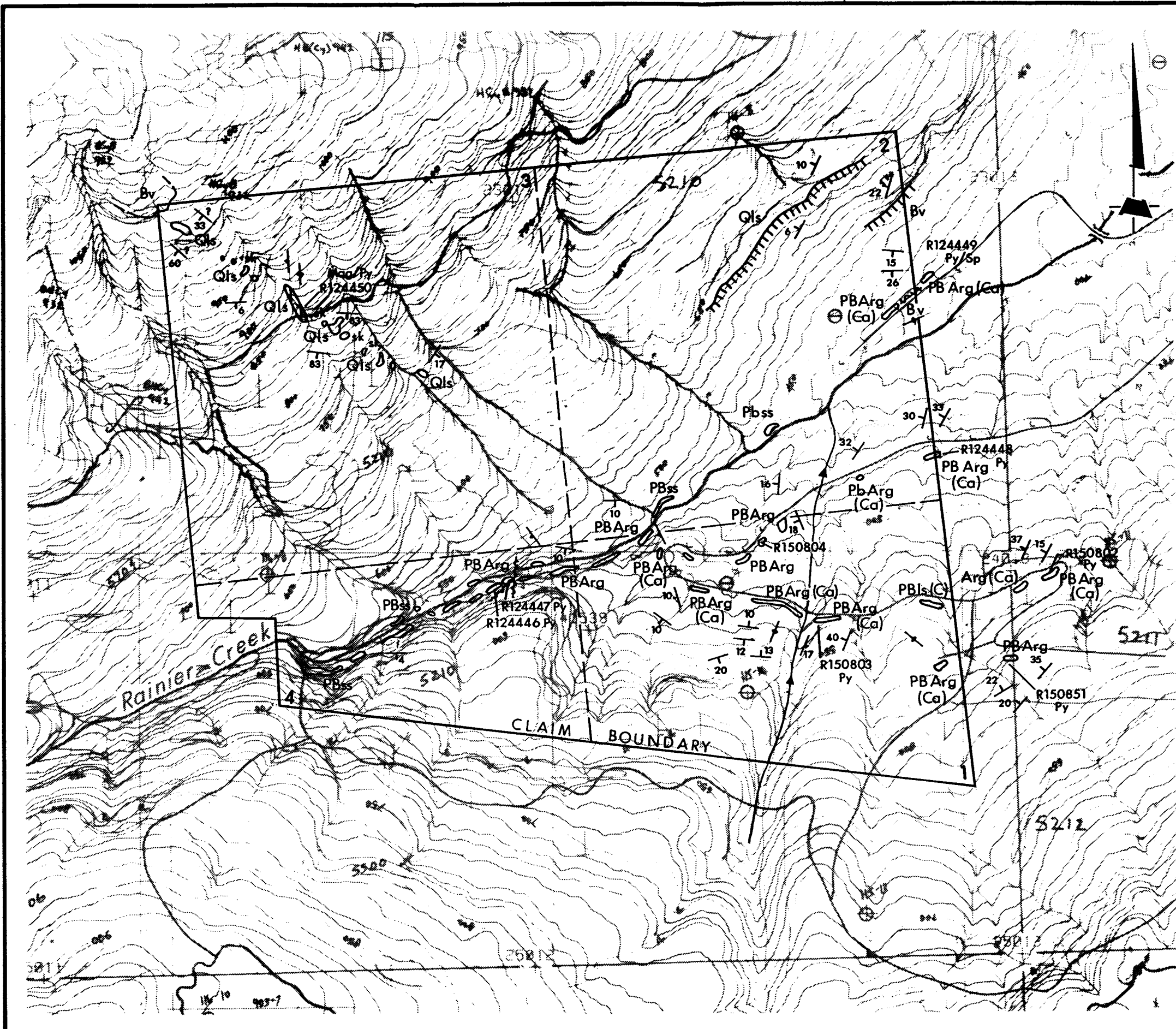
6 days @ \$50/day	\$ 300.00
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ROCK SAMPLE ANALYSES:

7 rock samples by I.C.P. + Au @ \$15/sample	\$ 105.00
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<u>REPORT PREPARATION, TYPING, DRAFTING:</u>	\$ 500.00
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TOTAL EXPENDITURES:	----- \$2,625.00 =====
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LEGEND

- GEOLOGY**
 BONANZA VOLCANICS Bv - lithic tuff
 QUATSINO LIMESTONE Qls
 PARSONS BAY SEDIMENTS PB - siltstone (ss)
 - argillite (Arg)
 - limestone (ls)
 DYKES - greenstone

- ALTERATION**
 EPIDOTE SKARN sk
 CARBONACEOUS C
 CALCAREOUS Ca

- MINERALIZATION**
 PYRITE Py
 MAGNETITE Mag
 SPHALERITE Sp

SYMBOLS

- STRUCTURAL**
 BEDDING
 FAULT/SHEAR
 VEINS
 CONTACT (Inferred)
 OUTCROP
GEOGRAPHIC
 CREEKS (showing flow)
 ROADS



REVISED	<h1>MERRY WIDOW</h1> <h2>RAINIER GROUP</h2> <h3>GEOLOGY & ROCK SAMPLE LOCATIONS</h3>	
PROJ.No. 0132	SURVEY BY: R. Butler	DATE: Feb./91
N.T.S.	DRAWN BY: <i>[Signature]</i>	SCALE: 1:5000
DWG.No. 5	NORANDA EXPLORATION OFFICE: Vancouver	