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#### GEOLOGICAL AND GEOCHEMICAL SURVEY

#### ON THE PEG & BO GROUP OF CLAIMS

#### VICTORIA MINING DIVISION

N.T.S. 92B/12 & 92C/9

BPEX-8 (0670), BPEX-10 (0495), FRS 10 (1470), PEG 1 (0077) PEG 2 (0090), PEG 3 (0091), PEG 4 (0092), PEG 5 (0144) PEG 6 (0145), BO-1 (0188), BO-2 (0189), BO-3 (0190), BO-4 (0191)

Latitude 48°30'30" Longitude 123°58'30"

Owner Beau Pre Explorations Limited

Valentine Gold Corporation

Noranda Exploration Company, Limited Tho Operator:

liability)

Authors: Terence J. McIntyre

R.G. Wilson

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#### SUMMARY

The Peg & Bo group of claims lie approximately 25 km northwest of the township of Sooke, B.C. The group, comprising 55 units, is accessed via the Butler Main and Walker Main logging roads.

A reconnaissance style exploration programme was carried out from April 27 to June 21, 1989 and comprised geological mapping, prospecting and geochemical rock, soil, and stream sediment sampling.

The geology of the claim group consists of metasandstone, metapelites, and amphibolites of the Leech River Formation. These units have been subsequently intruded by a large quartz diorite sill and by small pegmatite dykes and sills both of Tertiary Age.

Geological mapping, at a scale of 1:5,000 and coincident with geochemical sampling, was carried out along north-south compassed traverses and along creeks.

Quartz veins, quartz stringers, and quartz sweats are pervasive throughout the metasedimentary rocks. Visible sulfides within the quartz veins is a rare occurrence, although they generally exhibit limonitic or hematitic staining, and they contain minor amounts of chlorite and sericite.

A few hydrothermal alterations zones were noted on the claim group and these consisted of a narrow quartz rich vein, with or without sulfides, surrounded by an argillic envelope.

Sulfide mineralization found on the claim group consists of pyrite, chalcopyrite, and bornite and is largely confined to siliceous alteration zones, brecciated zones, and rusty seep zones within the amphibolite unit. With the exception of a few localized areas sulfide mineralization was found to be sparse.

Continuous rock chip sampling produced values of 0.67% Cu (R.59346) and 0.28% Cu (R.59350) in narrow sulphide zones that do not appear continuous over an observable strike length.

Other rock and soil samples, taken in the vicinity of the BS Zone, managed to produce only slightly elevated Au values above those of background levels.

Pan concentrate samples obtained from the base of Walker Creek (H.44548) and from further up creek (H.44540) returned values of 1900 ppb and 500 ppb Au respectively. The source of this Au mineralization may be a unit located north or northeast of the claim group at the headwaters of Walker Creek.

#### 1.0 INTRODUCTION

#### 1.1 Location and Access

The Peg & Bo group of claims lie approximately 25 km northwest of the township of Sooke, B.C. (Figures 1 & 2). The claim group is accessed from Sooke via the Butler Main logging road as far as the Jordan River, and from this point via the Walker Main logging road. Access from here is via numerous branches off the Walker Main, most of which are in fair condition.

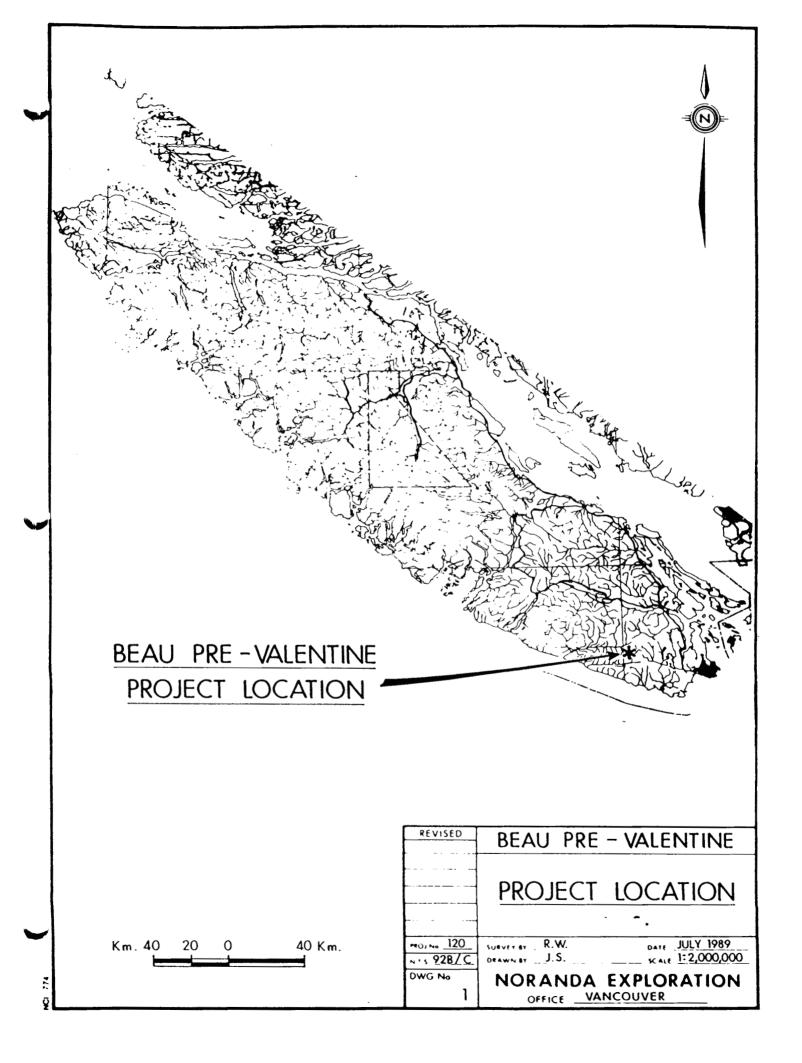
#### 1.2 Physiography

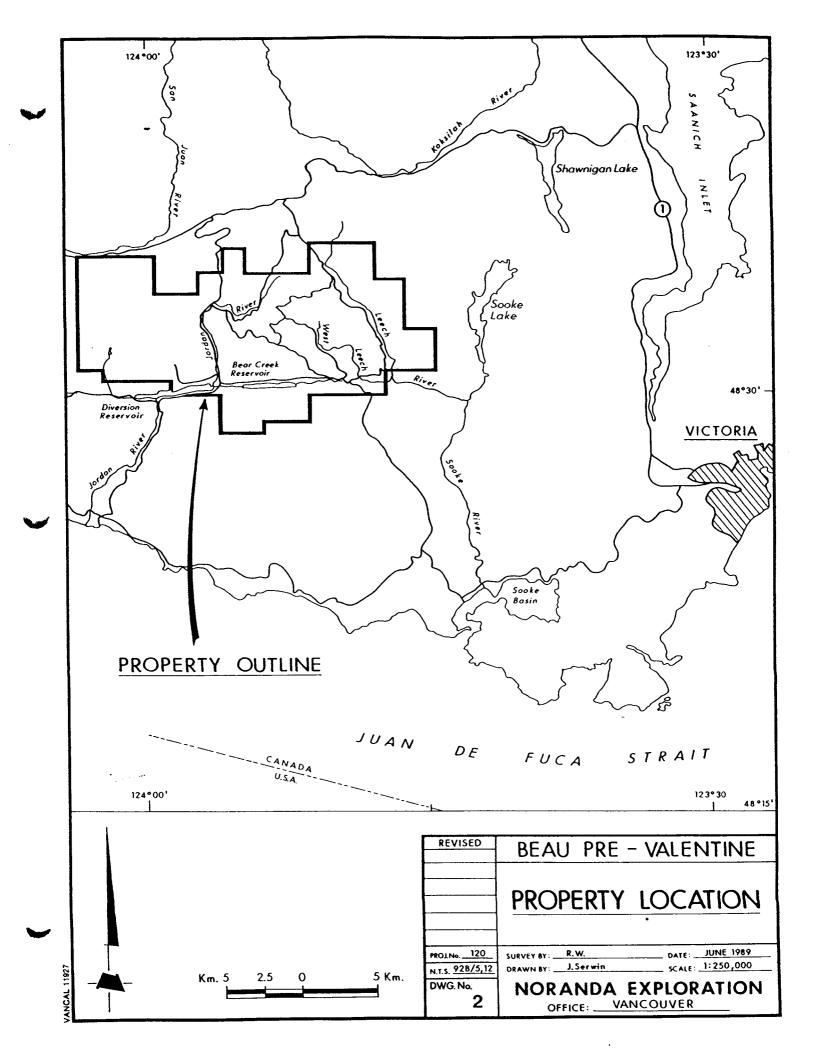
The Peg & Bo group lies within the Vancouver Island Ranges in the southern portion of the Insular Mountains.

The physiography is composed of a gently rolling plateau at the north edge of the claim group which drops steeply, towards south, either into Walker Creek at the centre of the claim, or into the Diversion Reservoir on either side of Walker Creek. Elevations range from 853 metres at the northern limit of the claim group to 372 metres at the reservoir.

The climate of the southern Vancouver Island is quite mild. The fall, winter and spring months are typified by heavy precipitation which can result in a considerable snow pack at elevations greater than 600 metres. Below this elevation work can proceed almost year round, however, above this elevation the snow pack remains until May and June. The summer months are hot and dry with up to six weeks of forest closure annually due to forest fire hazard.

Most of the claim group has been clear cut logged and there is a profusion of second growth in various stages of maturation. Above the 800 metre elevation there are stands of mature timber interspaced with huckleberry bushes.





#### 1.3 Claims and Ownership

The Peg & Bo group is made up of the following claims (Figure 3):

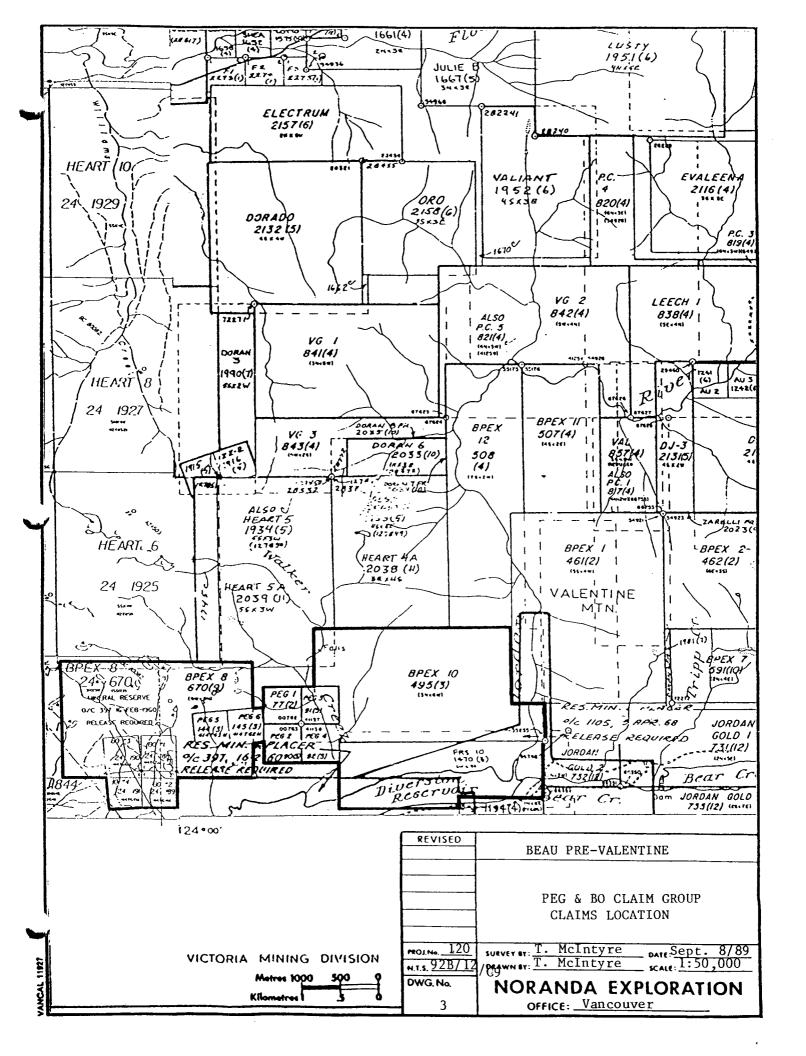
Name	Record #	Units	Previous Due Date	New Expiry Due Date
BPEX 8 BPEX 10 FRS 10 PEG 1 PEG 2 PEG 3 PEG 4	0670 0495 1470 0077 0090 0091 0092	15 18 12 1 1	Sept. 21, 199 March 6, 199 March 19, 199 Feb. 23, 199 May 24, 199 May 24, 199 May 24, 199	0 Mar. 6/91 0 Mar. 19/91 0 Feb. 23/91 0 May 24/91 0 May 24/91
PEG 5 PEG 6 BO-1 BO-2 BO-3 BO-4	0144 0145 0188 0189 0190	1 1 1 1 1	March 20, 199 March 20, 199 Sept. 14, 198 Sept. 18, 198 Sept. 18, 198 Sept. 18, 198	Mar. 20/91 Mar. 20/91 Sept.14/91 Sept.18/91 Sept.18/91

All interest in the Peg & Bo group of claims have been transferred for administrative purposes to Noranda Exploration Company, Limited (no personal liability), as stated in an option agreement between Noranda, Beau-Pre Explorations Ltd., and Valentine Gold Corporation.

#### 1.4 Previous Work

Discovery of placer gold in the Leech river gave rise to a gold rush in 1864 to 1865. A tent city with a population of upwards of 4,000 people sprang up at the confluence of the Leech and Sooke Rivers. Placer gold and nuggets ranging from ½ to 1 ounce were reported, however, a bedrock source was not found. Total value of the placer gold recovered in this area, in 1866 dollars, is estimated between \$100,000 and \$200,000.

In 1966 Mr. Fred Zorelli discovered native gold in a piece of quartz float on Valentine Mountain. In 1976 Bob Beaupre discovered native gold in a narrow quartz vein called the "A" Vein and began an exploration programme from 1976 to 1983. The programme, centred on Valentine Mountain, involved soil geochemical surveys,



trenching, bulk sampling, geological mapping, and drilling. In 1985 Falconbridge Limited conducted a trenching and sampling programme. In 1987 Valentine Gold Corporation conducted bulk sampling and a regional exploration programme on the property.

Previous work performed on the Peg & Bo group consists of a 1984 programme of geological mapping and sampling by G.A. Wingert, and a 1987 Valentine Gold Corporation programme of regional rock sample and stream sediment sampling.

#### 1.5 Work Performed

A total of 41 mandays were spent on a reconnaissance style exploration programme from April 27 to June 21, 1989 on the Peg & Bo claim group.

The programme comprised geological mapping, prospecting, and geochemical rock, soil, and stream sediment sampling. A total of 41 rocks 54 soils, 11 silts and 13 pan concentrate samples were taken. Of this total, 25 mandays were spent and 16 rock samples were taken on a prospecting survey from April 27 to May 09, 1989. The costs of this survey are included in the reconnaissance programme. The soil samples were analyzed by Acme Analytical Laboratories and by Noranda's Vancouver laboratory. The rock samples were analyzed entirely by Acme Analytical Laboratories.

#### 1.6 Personnel

The work was carried out on the claim group by T. McIntyre (Regional Property Crew Chief), D. Sharpe (Geologist), B. Singh (Geological Assistant), I. Saunders (Fieldmen), K. Lovang, and J. Lovang (Prospectors).

#### 2.0 METHODS

#### 2.1 Prospecting

Prospecting of the Met group was carried out in the initial part of the programme. Grab rock samples were obtained by the prospectors of gossanous outcrops, and of sulfide mineralization, in outcrop and in float. Rock sample locations were then plotted on a 1:5,000 scale topographic map (Figure 5).

The results of this initial survey produced Cu anomalies in the vicinity of a quartz diorite sill. These areas became the focus of attention during the reconnaissance exploration programme.

#### 2.2 Geological Mapping

Geological mapping coincident with geochemical sampling was carried out along north-south compassed traverses, and up creeks. The mapping, at a scale of 1:5,000, was carried out with a view to identifying lithology, metamorphism, structure, mineralization, quartz veining and alteration.

#### 2.3 Geochemical Sampling

Continuous rock chip samples were taken along the strike of quartz veins, and across the width of mineralized zones and hydrothermal alteration zones. To sample zones of sulfide mineralization continuous rock chip sampling was employed in order to produce a more representative geochemical result. Sample widths varied from 0.20 m to 1.0 m with one 5.0 metre sample taken across a hydrothermal alteration zone.

Rock samples collected on the Peg & Bo group, each weighing approximately 2 kg, were placed in 6 ml plastic bags and shipped to Acme Analytical Laboratories Limited in Vancouver for analysis.

The samples were dried, sieved to -80 mesh, and subjected to a 95°C solution of 3:1:2 -  $\rm HC1:HNO_3:H_2O$  for a period of 1 hour. The samples were analyzed using the 30-element ICP (inductively coupled argon plasma) method and geochemically analyzed for Au by Atomic Absorption determination.

Soil samples were taken along north-south compassed traverse lines, placed perpendicular to the strike of a quartz diorite sill. Each line is approximately 500 metres apart and 1000 metres in length with soil stations established every 50 metres. Samples, weighing approximately 1 kg each, were taken in the B Horizon at an approximate depth of 30 cm, placed into Kraft paper bags, and partially air dried prior to shipment to Noranda's Vancouver laboratory.

Analysis was carried out by Acme Analytical Laboratories Limited using the 30-element ICP method used for rock samples. Noranda's Vancouver laboratory conducted the analysis of Au in soil samples using Atomic Absorption determination. See Appendix I for Noranda's and Acme's laboratory analytical techniques.

Pan and coincident silt samples were taken at selected locations along creeks on the claim group. The creeks run predominantly north-south and drain into the Diversion Reservoir. The pan samples were obtained by sieving stream sediment down to -6 mesh and subsequently panning this down to a final volume of approximately 20 ml. Silt samples weighing approximately 1 kg were obtained from the same location as the pan sample and placed into Kraft paper bags. Both were given a sample number and partially air dried prior to shipment to Noranda's Vancouver laboratory.

Analysis was carried out by Acme Analytical Laboratories Limited using the 30 element ICP method used for rock samples. Noranda's Vancouver laboratory conducted the analysis of Au in pan and silt samples using Atomic Absorption determination.

Sample type and location, designated by symbol, and sample numbers are displayed on Figure 5.

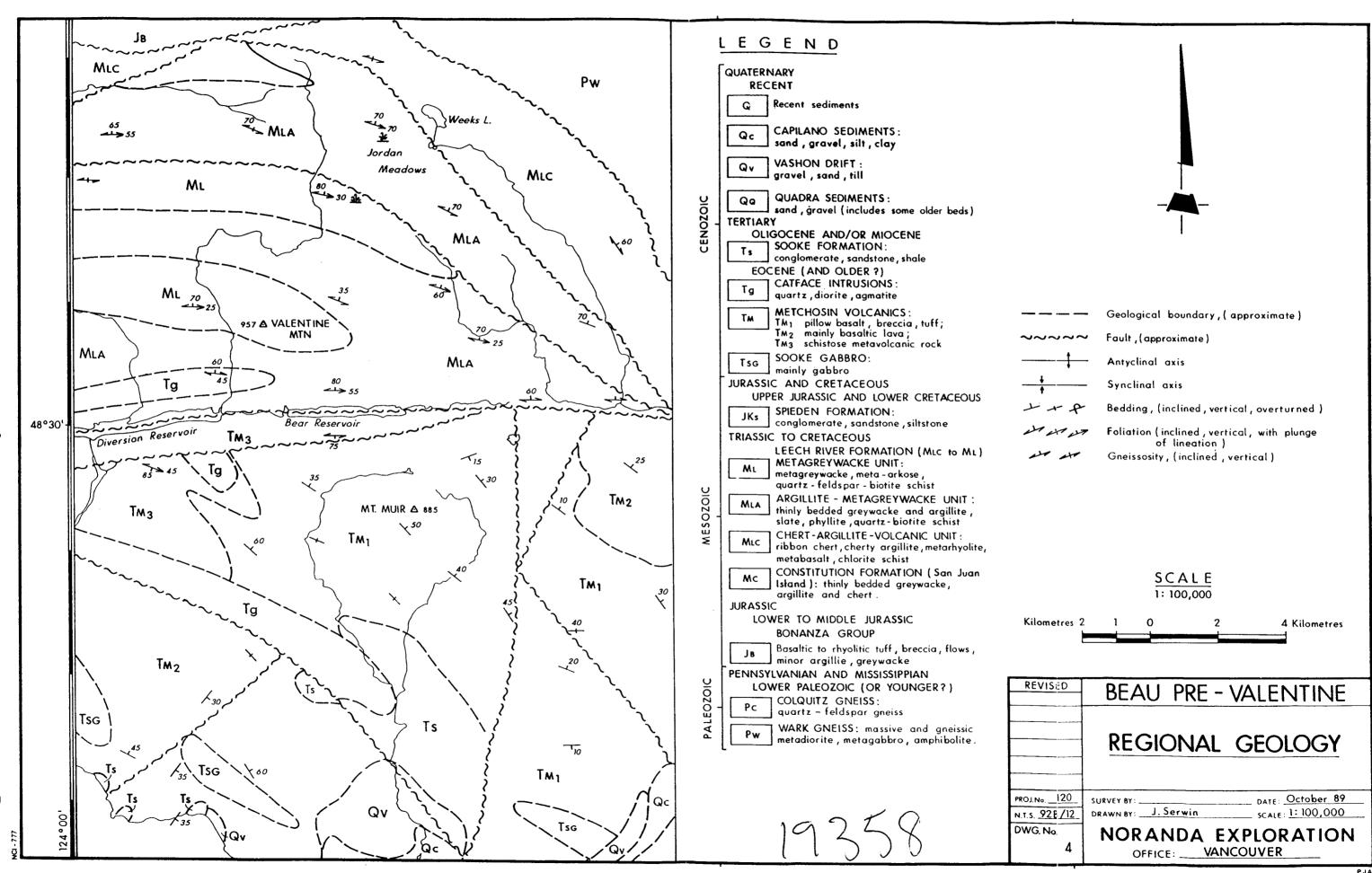
#### 3.0 GEOLOGY

#### 3.1 Regional Geology

The southern portion of Vancouver Island is composed of a series of volcanics and sediments, of Mesozoic to Cenozoic Age, which have subsequently been deformed and faulted into a structurally complex stratigraphic sequence (Figure 4).

This stratigraphic sequence is represented by the Bonanza Volcanics, Leech River Formation, Metchosin Volcanics, and the Colquitz Gneiss and Wark Diorite.

At the centre of this sequence is the discrete geotectonic Leech River Formation (Grove, 1984). It is a fault bounded complex package of sediments and volcanics which have undergone regional metamorphism to produce metasandstones, metapelites and amphibolites. The metapelites range from phyllite, to biotite



schist through to biotite-garnet-staurolite-andalusite-schist depending upon metamorphic grade. These units have been subsequently intruded by Tertiary granitic and quartz diorite sills.

The age of the Leech River Formation is somewhere between Late Jurassic to Early Cretaceous (Fairchild, 1982). It is thought originally to have been sediments from a Pacific rim trench which have subsequently been deformed and faulted to produce a major, east-west trending, east plunging anticline centred on Valentine Mountain.

South of the Leech River Formation, separated by the Leech River Fault, lie the Metchosin Volcanics a sequence of basaltic lavas, aquagene breccia, and pyroclastics of Eocene age.

North of the Leech River Formation, separated by the San Juan Fault lie the Karmutsen and Bonanza volcanics. These are represented by massive andesite and dacite tuffs, and flows, and are Paleozoic to Jurassic in age.

To the east, separated by the Survey Mountain Fault, lie the Colquitz Gneiss, Wark Diorite and metavolcanic units. These are considered to be Paleozoic to Mesozoic in age.

#### 3.2 Property Geology

The geology of the Peg & Bo group is composed of metasandstone, metapelites and amphibolite units of the Leech River Formation which have been subsequently intruded by a large quartz diorite sill and by small pegmatite dykes and sills (Figures 5a/5b).

The metasandstone is a fine to medium grained quartz-feldspathic sandstone. In fresh surface it is medium to light grey, weathering to a buff brown colour. The unit is massive and often forms prominent cliffs. In some locations it exhibits minor schistosity and occurs as minor laminations within the phyllite.

The metapelites are represented by the phyllite, and by the biotite-garnet-schist to biotite-garnet-staurolite-andalusite-schist. The mineralogical composition of the metapelites is dependent upon metamorphic grade.

There are two types of phyllite present on the property. One formed from low grade metamorphism and second from retrograde metamorphism (Wingert, 1984). The latter, a retrograde phyllite is found along the Leech River Fault.

The phyllite unit is a very fine grained biotitic phyllite. It is strongly fissile, grey-black in colour and exhibits a micaceous sheen along cleavage planes.

The schists are fine to medium grained with biotite, and quartz segregated layers 1-3 mm in width. In fresh and weathered surfaces they are medium to dark grey in colour.

The highest metamorphic grade of the schists is the biotite-garnet-staurolite-andalusite-schist. These schists are found predominantly on Valentine Mountain and west across the Jordan River. Biotite-garnet-schists occur in zones between the biotite-garnet-staurolite-andalusite-schist and the lower metamorphic grade phyllites.

The main constitute minerals of the schists are biotite, garnet, staurolite, and alusite, and quartz with minor amounts of chlorite, muscovite and tourmaline. Garnet is common in the mineralogical composition of the schists, and occurs as porphryoblasts of euhedral almandine garnet ranging in size from <1 mm to 1 cm and averaging 2-3 mm.

Staurolite is also porphyroblastic as is the andalusite. The staurolite, dark brown to black in colour, is euhedral cruciform in shape and ranges in size from <1 mm to 1.5 cm and averages 7-9 mm. Andalusite (chiastolite) occurs as subhedral to anhedral crystals 2 cm to 8 cm in length and in colour light pink in fresh surface weathering to medium to dark grey.

The order of constituate minerals of the schists is not meant to imply the relative abundance of each mineral, but rather they are intended to act as an indicator of regional metamorphic grade.

The amphibolite unit occurs as layers or lamina within the metapelites and metasandstone units. Originally intercalated porphyritic basalt and crystal tuff (Grove, 1984) the amphibolite unit varies dependent upon metamorphic grade from upper green schist facies to amphibolite facies (Wingert, 1984).

The lower grade amphibolite is a fine grained schistose rock with fine grained actinolite crystals apparent on foliation surfaces. The higher grade amphibolite is composed of alternating bands of fine grained acicular actinolite, hornblende, and quartz-feldspar-epidote. The amphibolite unit varies from a chloritic green colour to alternating bands of dark green and white minerals.

The intrusive is a moderately crystalline, equigranular, quartz diorite sill. It's strike is roughly east-west and it dips approximately 75° to the north. The sill is 2800 metres in length achieving a maximum width of 600 metres before pinching out at both ends.

The Leech River Fault, which is an east-west trending thrust fault, cuts through the Peg & Bo group approximately through the Diversion Reservoir.

#### 3.3 Mineralization and Alteration

Quartz veins, quartz stringers, and quartz sweats occur throughout the metasedimentary rocks. The quartz veins range in size from 5 mm to 0.30 m and are composed of a white bull quartz to semi-translucent quartz with subhedral to anhedral crystals. Sulfide mineralization is a rare occurrence although the quartz veins generally show limonitic or hematitic staining. Visible sulfides within quartz veins consist of a trace of pyrite and/or pyrrhotite.

Alteration within the quartz veins generally takes the form of chlorite and sericite.

Three major alteration zones occur on the claim group. The first was originally discovered by B. Beaupre and referred to by him as an epithermal zone. The hydrothermal alteration zone, named the BS Zone by Noranda personnel, is located 20 m northwest of Station 750N on traverse line BS1. The BS Zone occurs in the amphibolite in a road cut alongside a logging road. It is approximately 5.0 metres in width and consists of a 0.20 metre vein composed of quartz, druse quartz and pyritic stringers surrounded by an argillic envelope with minor propylitic alteration at the fringe. Within the envelope there is a central core of fracturing and silicification with pyrite veinlets grading outward into a zone characterized by chlorite, montmorillonite and amorphous clay.

The second is a hydrothermal alteration zone which occurs in the quartz diorite sill. It is located in a quarry off WA6A logging road and outcrops again 250 metres to the southwest in Strathallan Creek. It is 5.7 metres in width in the quarry narrowing to 1.5 metres in Strathallan Creek. It is composed of a 5 cm wide quartz vein enclosed in an intermediate argillic assemblage characterized by kaolin, illite, and pervasive clay mineral alteration.

A third hydrothermal alteration zone occurs in the amphibolite and is found in a quarry 50 metres west of Station 800N on Traverse DS1. It is similar to the BS Zone discussed above. The zone is 1½ metres in width and consists of a narrow zone of quartz cemented breccia surrounded by an argillic envelope.

Sulfide mineralization which takes the form of pyrite, chalcopyrite and bornite is largely confined to siliceous alteration zones, brecciated zones and rusty seep zones within the amphibolite unit. With the exception of a few localized areas sulfide mineralization is sparse.

#### 4.0 PROSPECTING REPORT

A total of 25 mandays were spent prospecting the Peg & Bo group from April 27 to June 21, 1989. Sixteen rock samples were collected and analyzed for 30 element ICP plus Atomic Absorption Au.

Prospecting consisted of foot traverses along logging roads and prominent rock ridges. Mineralized float and/or road fill was sampled and the source outcrop in some cases was located. The majority of rock samples were collected directly from outcrop.

Mineralization consisted of pyrite, chalcopyrite, pyrrhotite, magnetite and minor bornite. No arsenopyrite was found.

There is a good correlation between the occurrence of rhodochrosite and mineralization. One source of the copper mineralization is a quarry located 50 metres west of Station 800N on traverse line DS1.

Good mineralization and rhodochrosite was found above Walker Main logging road west of Walker Creek. It was traced 250 metres along strike but did not occur over any considerable width. Sample numbers R.59223, R.59225 and R.59184 were collected in this area.

#### 5.0 GEOCHEMICAL RESULTS

Sample location and type, designated by symbol, and sample numbers are displayed on Figure 5a/5b. Results for Au and As are displayed on Figures 6a/6b, and results for Cu, Zn, Pb and Ag are displayed on Figures 7a/7b. Analysis certificates for all elements are contained within Appendices IV.

Grab samples collected during the initial prospecting survey produced values of 0.44% Cu and 118 ppb Au (R.59192), 0.19% Cu and 38 ppb Au (R.59193), and 0.48% Cu and 29 ppb Au (R.58652). In the case of R.59192 and R.59193 the samples were found to be rock float and no immediate bedrock source was found.

In following up the initial prospecting survey continuous rock chip sampling was employed across sulfide zones and this produced values of 0.67% Cu and 15 ppb Au (R.59346) over 0.20 metres, and 0.28% Cu and 11 ppb Au (R.59350) over a width of 0.30 metres.

The former sample (R.59346) was taken on the side of a logging road and forms part of the road bed. The zone, occurring in amphibolite, consists of pyrite, chalcopyrite and rhodenite. The latter (R.59350) was taken from a rusty seep zone in the amphibolite unit. It occurs at the intersection of a foliation and joint plane and is 0.10 metre in width.

Soil samples taken along traverse lines failed to produce values significantly above background levels. The exception to this is the BS1 Traverse which produced an anomaly, over a distance of 100 metres, consisting of 129 ppb and 10 ppb Au in the vicinity of the BS Zone.

The pan concentrate samples produced the most significant anomalies. In particular pan sample H.44548 and silt sample S.44549, taken from the base of Walker Creek, yielded values of 1900 ppb and 30 ppb Au respectively. Pan sample H.44544 and silt sample S.44545 taken from Suicide Creek, a tributary leading into Walker Creek from the east, produced values of 210 ppb and 2 ppb Au respectively. Further up the creek pan sample H.44540 and silt sample S.44541 produced values of 500 ppb and 1 ppb Au.

The results of the rock sampling indicates that there are localized areas of Cu mineralization but that these do not seem to be continuous. However, the results of the stream sediment sampling seems to point to the premise that the Au is originating at the headwaters of Walker Creek. More specifically, the Au mineralization may occur in a unit located near the northern

boundary of the claim group, or that it is originating north or northeast of the claim group.

#### 6.0 CONCLUSIONS

The geology of the Peg & Bo group consists of metasandstone, metapelites and amphibolites of the Leech River Formation which have been subsequently intruded by a large quartz diorite sill, and by small pegmatite dykes and sills.

Quartz veins, quartz stringers, and quartz sweats occur throughout the metasedimentary rocks. Sulfide mineralization within the quartz veins is a rare occurrence although they generally exhibit limonitic or hematitic staining. They also contain minor amounts of alteration products such as chlorite and sericite.

A few hydrothermal alteration zones were noted on the property and generally consisted of a narrow quartz rich vein enclosed in an argillic envelope.

A continuous rock chip sample taken across a small sulfide zone in amphibolite produced 0.67% Cu and 15 ppb Au (R.59346) over 0.20 metres. Another sample of a rusty seep zone in amphibolite, 0.10 metres in width, produced 0.28% Cu and 11 ppb Au (R.59350). These zones did not appear to be continuous over an observable strike length.

Other rock and soil samples taken on the claim group failed to produce Au or Cu values significantly above background. Samples taken in the vicinity of the BS Zone produced Au values only slightly elevated above background levels.

Pan concentrate samples taken from Walker Creek returned anomalous Au values. Pan samples H.44548, taken at the base of Walker Creek, yielded 1900 ppb Au, and H.44540 taken from a tributary leading into Walker Creek from the north, produced a value of 500 ppb Au. A possible source of the Au mineralization may be a unit located north or northeast of the claim group at the headwaters of Walker Creek.

#### 7.0 REFERENCES

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Muller, J.E. (1975) : Victoria Map Area, British Columbia, G.S.C., in Report of Activities, Paper 75-1, Part A, p.21-26.

Peatfield, G.R. (1987): Geology and Geochemistry on the Valentine Mountain Property, Victoria Mining Division, N.T.S. 92B/5W, 12W, Assessment Report.

Wingert, G.A. (1984): Structure and Metamorphism of the Valentine Mountain Area, Southwestern Vancouver Island, British Columbia, the University of British Columbia, B.Sc. Thesis.

# 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  $95^{\circ}$ 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 - I	As - 1	U - 0.1
Cu - 1	Pb - 1	Ba - 10	
Fe - 100	V - 10	Bi - 1	

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#### ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

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

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 Cr	Rocks or cores - crushing to -3/16" up to 10 lbs, then pulverizing 1/2 lb to -100 mesh (98%) Surcharge crushing over 10 lbs	3.00 .25/lb
2 P X	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
нм	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
Н1	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 Soil Envelopes Bags Plastic Bags Ties	4" x 6" 4" x 6" with gusset 7" x 13" 4 ml 12" x 20" 6 ml	\$125.00/thousand \$140.00/thousand Plastic \$10.00/hundred \$ 20.00/hundred \$ 2.00/hundred
Assay Tags		И/C
10% HCl		\$ 5.00/11tet
Oropping bottles		\$ 1.00/each
Oropping bottles Zn Test	λ & Β	\$ 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	<b>&amp;</b> '	=	34.3 ppm = 10,000 ppm					



#### ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

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

Telephone: 253-3158

All Elements \$5.50

Price \$2.50

GEOCHEMICAL ANALYSES - Rocks and Soils

#### Group 1 Digestion

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

Group 1A - Analysis by Atomic Absorption.

Element	Detection	Element	Detection	Element	Detection
Antimony •	2 ppm	Copper	I ppm	Molybdenum	1 ppm
Bismuth <sup>*</sup>	2 ppm	Iron	0.01 %	Nickel	1 ppm
Cadmium*	0.1 ppm	Lead	2 ppm	Silver	0.1 ppm
Chromium	nda 1	Lithium	2 ppm	Vanadium	2 ppm
Cobalt	1 ppm	Manganese	5 ppm	Zinc	2 ppm

\$2.25 First Element Subsequent Element \$1.00

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

First Element \$4.75

Element	Detection
Arsenic	0.1 ppm
Antimony	0.1 ppm
Bismuth <sup>*</sup>	0.1 ppm
Germanium	0.1 ppm
Selenium	0.1 ppm
Tellurium	0.1 ppm

Group 1C - Hq

Detection limit - 5 ppb

Hq 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
Aq	0.1 ppm
Aq Cd,Co,Cr,Cu,Mn,Mo,Ni,Sr,Zn As,Au,B,Ba,Bi,La,Pb,Sb,Th,V,W	l 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 %

2 elements 5 elements \$3.25 4.50 5.50 Any 10 elements All 30 elements

Group 1E - Analysis by ICP/MS

Detection Element Ga, Ge ppm Au, Bi, Cd, Hg, In, Ir, Os, Re, Rh, Sb, Te, Th, Tl, U 0.1 ppm

15.00 (minimum 20 samples per batch or \$15.00 All Elements surcharge)

#### Hydro Geochemical Analysis

Natural water for mineral exploration

26 element ICP - Mo,Cu,Pb,Zn,Aq,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 U by UA3	~	detection detection	20 .01	ddd by by by	\$3.75 5.00 1.50
pH 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



#### ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

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

Telephone: 253-3158

# <u>Group 2</u> - Geochemical Analysis by Specific Extraction and Instrumental Techniques

Element	Method	<u>Detection</u>	Price
Barium	0.100 gram samples are fused with .6 gm LiB02 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 fustion - 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 Na202 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 Tungsten	.50 gram digested with 50% HNO3 - Dilute to 10 ml - graphite AA .50 gram samples are fused with Na202 dissolved in 20 ml H20, analysed by ICP.	.1 ppm 1 ppm	4.00 4.00

#### Group 3 - Geochemical Noble Metals

Element	Method	Detection Price
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 inquart with fire assay fluxes. After cupulation, the	1 ppb 6.00 - first element 2 ppb 2.50 - per additional 10.00 - for All 4

ICP/MS.

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

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

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

# APPENDIX II ROCK SAMPLE DESCRIPTIONS

PROJECT # 120				N.T.S.	92B/12&C/9
LAB REPORT #	PROJECT	BEAU_PRE_VALENTINE	(PEG & BO GROUP)	DATE	<u>May, 1989</u>

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	ppm Ag	As ppm	Au ppb	SAMPLED BY
R59187	Po & Cpy in amphibolite.				3996	11	22	1.8	5	1	K & J Lovang
R59188	Cpy in somewhat silicified amphibolite.				3510	5	27	4.6	7	3	K & J Lovang
R59189	Heavy Po & slight Cpy in amphibolite.				1038	18	19	0.8	2	6	K & J Lovang
R59190	Nice pyrite in quartz.				72	2	5	1.9	170	15	K & J Lovang
R59191	Silicified zone possibly dyke. Some pyrite.				31	11	36	0.4	61	1	K & J Lovang
R59192	Po & Cpy in amphibolite. Some rhodochrosite.				4365	11	30	2.3	2	118	K & J Lovang
R59193	Po, Py & Cpy in amphibolite. Some rhodochrosite.				1916	4	15	1.2	2	38	K & J Lovang
R59194	Po in silicified rock.				611	12	13	0.3	2	9	K & J Lovang
R59195	Cpy & Po in silicified rock.				686	8	17	0.6	2	1	K & J Lovang
R59196	Py in quartz stringer.				177	8	42	0.2	2	1	K & J Lovang
R59197	Py & Po in amphibolite.				513	13	42	0.9	2	3	K & J Lovang
R59198	Heavy Po in amphibolite.				2483	2	38	1.3	2	21	K & J Lovang
R59199	Some Py & Cpy in amphibolite. Some rhodochrosite.				2756	7	23	1.3	2	1	K & J Lovang

PROJECT # 120		·	N.T.S.	92B/12&C/9
LAB REPORT #	PROJECT	BEAU PRE VALENTINE (PEG & BO GROUP)	DATE	<u>May, 1989</u>

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	Ag	As ppm	Au ppb	SAMPLED BY
R59200	Py & Cpy with rhodochrosite.				3513	16	15	3.5	2	36	K & J Lovang
R58651	Cpy & Po with quartz & rhodo- chrosite.				1893	7	18	1.3	4	5	K & J Lovang
R58652	Po & Cpy in amphibolite. Some rhodochrosite.				4817	10	34	1.9	2	29	K & J Lovang

PROJECT # <u>120</u>			N.T.S.	92B/5,12
LAB REPORT #	PROJECT	BEAU PRE VALENTINE (PEG & BO GROUP)	DATE	<u>May, 1989</u>

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	Ag	As ppm	Au ppb		SAMPLED BY
R59222	Py & Cpy in rhodochrosite & amphibolite.				744	2	49	0.2	35	4		K & J Lovang
R59223	Cpy, Magnetite & Py in amphibo- lite & rhodochrosite.				1044	8	52	0.3	15	3	1	K & J Lovang
R59224	Po in 2' wide silicified zone.				488	2	39	0.6	7	3	1	K & J Lovang
R59225	Po & Cpy in amphibolite & rhodochrosite.				4607	10	37	1.2	13	4	_	K & J Lovang
R59184	Py & Cpy in rhodochrosite & amphibolite.				304	5	26	0.1	5	2		K & J Lovang
R59185	Py & Cpy in silicified rock.				969	2	17	0.5	5	7	1	K & J Lovang
R59186	Po & some Cpy in rhodochrosite, amphibolite, also calcite.				555	11	25	0.7	12	10	1	K & J Lovang
R59221	Quartz stringers across 4'. Pyritized.				29	7	65	0.1	5	3	1	K & J Lovang
						,						

PROJECT #		N.T.S. <u>92B/12</u>
LAB REPORT #	PROJECT BEAU PRE VALENTINE (PEG & BO GROUP)	DATE <u>June/89</u>

	T		T	I	T	<del>T</del>	<del> </del>	1	T	T	<del></del>	r
SAMPLE NO.	LOCATION & DESCRIPTION	Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb		SAMPLED BY
R59333	Strathallan Cr; Discontinuous qtz veining parallel to Schist/Amph contact. Sugar qtz with some limonite <5%.		Chip	1.0	13	2	10	0.1	3	9		McIntyre
R59334	Strathallan Creek; Limonitic Qtz vein, with a trace of muscovite, host Amphibolite 1.0m x 0.30m.	-	Chip	0.30	30	3	26	0.1	13	4		McIntyre
R59335	Lochaber Creek; White, sugar texture, Bull qtz vein, with a trace of Bornite? occuring in Amphibolite.	Tr	Chip	1.0	6	2	6	0.1	2	6		McIntyre
R59336	WA6A; Shear zone 1 1/2m wide 5% limonite, 1% bornite.	1	Chip	1.0	106	8	62	0.2	2	6		McIntyre
R59337	Lomond Creek; 8% Qtz, 5% Limonite + Clays, alteration/ shear zone.	-	Chip	0.43	40	6	63	0.1	6	5		McIntyre
R59338	Strathallan Cr; Qtz vein, 5cm swells to 15cm, TrPy, + limonite 1.0 x 0.05.	Tr	Chip	0.05	10	2	2	0.2	2	2		McIntyre
R59339	Strathallan Cr; Qtz stringer Sugar Otz with tr limonite.	-	Chip	0.03	184	2	11	0.1	2	6		McIntyre
R59340	Strathallan Cr; Qtz vein, Tr limonite <1% Pv (Tr AsPy?).	<1	Chip	0.28	8	3	26	0.1	3	3		McIntyre
R59341	WA6A; Hydrothermal Alteration Zone 5-10% Kaolinite, 5% lim,	-	Chip	3.2	15	9	82	0.1	2	6		McIntyre

PROJECT #	20			N.T.S.	92B/12
LAB REPORT #	PROJEC	BEAU PRE VALENTINE	(PEG & BO GROUP)	DATE	June/89

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	Ag	As ppm	Au ppb	SAMP) BY
R59341(con't) R59342	+ other clays.  WA6A: Hydrothermal alteration zone, Hanging wall, 4% Kaolinite 2% lim, + clays. Granitoid host rock.	-	Chip	2.5	6	9	83	0.1	2	7	McInty
R59343	WA6A; Footwall of Hydrothermal Alteration Zone, Kaolinized limonitic Granitoid.	-	Chip	2.0	15	9	75	0.1	2	6	McInty
R59344	Strathallan Cr South Reach; Hydrothermal Alteration Zone. Kaolinized, limonitic with 5cm qtz vein.	_	Chip	1 1/2	5	9	57	0.1	2	8	McInty
R59345	South Reach Rd; Shear zone in Bio, Gar Schist, graphitic with rotten gtz.	466	Chip	0.3	50	22	91	0.2	5	3	McInty
R59346	Lomond Cr Upper Rd; Amph limonitic with 1-2% Py, 1% Cpy + Rhodenite.	3	Chip	0.20	6797	5	52	1.4	2	15	McInty
R59347	Quarry. Hydrothermal Alteration Zone in Amph. limonite, Qtz, clays + Mn.	-	Chip	1.0	137	15	95	0.1	4	7	McInty
R59348	Quarry. Amph Bx Zone. Qtz lim matrix 1% Py, 2% limonite, vuggy with Mn.	1	Chip	0.20	306	6	67	0.4	2	6	McInty

PROJECT # 120		N.T.S.	92B/12
LAB REPORT #	ROJECT BEAU PRE VALENTINE (PEG & BO GROUP)	DATE	June/89

SAMPLE NO.	LOCATION & DESCRIPTION	% Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	Ag	As ppm	Au ppm	SAMPLED BY
R59349	Lomond Cr Upper Rd; Rusty Seep Zone, limonitic with vuggy Qtz + a Tr of Po + Mn.	Tr	Chip	0.25	589	6	50	0.3	2	5	McIntyre
R59350	Waterfall Sightseeing Rd. Rusty Seep Zone, 1-2% Po minor qtz, limonitic + clays. Width 0.10m		Chip	0.30	2813	2	38	0.4	2	11	McIntyre
R59351	WA6J. Qtz vein composed of whitebull qtz + vitreous qtz & limonite 1.0m x 0.15m.	-	Chip	0.15	49	4	63	0.2	2	7	McIntyre
R59352	WA6J. Shear Zone within Bio, Gar Schist. Limonitic gouge material.	_	Chip	0.12	109	9	112	0.2	6	2	McIntyre
R50631	Peg & Bo, Walker Creek. Siliceous clastic lense within Amphibolite. Tr Py + <1% mm pyritic Qtz veining. Wall rock is strongly limonitic and Qtz is grey.	<1	Chip	0.50	153	4	82	0.4	4	6	Singh
R50632	Peg & Bo, Suicide Creek. Qtz vein 3-4cm wide. Pure bull Qtz very slightly hematitic.	-	Chip	0.25	21	2	31	0.1	5	7	Singh
R50633	Peg & Bo, Trav 1 750N 0+33E. Brecciated Amphibolite with clasts of Sugar Qtz. Up to 1% bornite in veins and fracture fillings. Strongly chloritic. T	l r Py.		0.25 x 0.50	77	4	31	0.2	2	19	Singh

PROJECT # <u>120</u>		N.T.S. <u>92C/9</u>
LAB REPORT #	PROJECT BEAU PRE VALENTINE (PEG & BO GROUP)	DATE <u>June/89</u>

		*			<u> </u>		1				
SAMPLE NO.	LOCATION & DESCRIPTION	Sulph.	TYPE	WIDTH (m)	Cu ppm	Pb ppm	Zn ppm	ppm Ag	As ppm	Au ppb	SAMPLED BY
R58347	Strathallan Cr Rd; Epithermal System, 5.0m chip across zone. Limonitic, alteration, crumbly, minor brecciation and resilicification.	Tr	Chip	5.0	51	4	48	0.1	38	4	McIntyre
R58423	Strathallan Creek Rd; Epithermal System Pyritic Qtz stringers; 1% Py, brecciation & resilicification, with Druse qtz. Not representative - biased grab. 0.20m width.	1	Grab	-	31	5	45	0.6	79	14	Singh
				,							

# APPENDIX III ANALYSIS CERTIFICATES

# NORANDA VANCOUVER LABORATORY

## PROPERTY/LOCATION: BEAUPRE-VALENTINE

CODE :8905-013

\_\_\_\_\_\_

23000 TAM RK RW AD

Project No. :120 Sheet:1 of 2 Date rec'd:MAY.09 Material :4 PANS, Geol.:R.W. Date compl:MAY.16 Remarks :50 SOILS & 3 SILTS.

Values in PPM, except where noted.

=====	=====		======	=====		======	=====	======	
T. T.		SAMPLE	wt.	PPE					
No.		No.	(g)	Au	Cu	Zri	РЬ	Ag	
 5	 Н	80427	47.1	10	24	 81		0.3	
6	н	80429	71.1	520	34	114	4	0.2	
7	H	80431	93.3	10	28	111	4	0.4	
8	H	80432	61.4	10	27	97	ક	0.2	

N.B. Pan-con: entire sample used for Au determination. \*Cu, Zn, Pb, Ag values obtained from Aqua Regia sol'n.

т. т.	SAMPLE	gqq	
No.	No.	Ĥu	
52	59601 SOIL	5	
53	59602	5	
54	59603	5	
5نـــ	59604	5	
56	59605	5	
57	59606	5	
58	59607	5	
59	59608	5	
60	59609	5	
61	59610	5	
62	59611	<u> </u>	
63	59612	5	
64	59613	5	
65	59614	5	
66	59615	5	
67	59616	5	
68	44577	5	
69	44578	5	
70	44579	5	
71	44580	5	
72	44581	5	
73°	44582	5	
74	44583	5	
75	44584	5	
76	44585	5	
77	44586	5	
78	80398	5	
79	80399	5	
30	80400	5	
<b>-6</b> 1	59594	5	
82	59595	5	
83	59596	5	
84	55593	80	
85	55594	55	
86	55596 SDIL	5	

.T.	SAMPLE	bbB	8905-013
7. L	Nc.	Au	Pg. 2 of 2
97	55597 SOIL	160	,
88	55599	30	
89	55600	5	
90	59618	5	
91	59619	5	
92	59620	5	
93	59621	5	
94	59622	5	
95	59623	5	
96	59624	5	
<del>9</del> 7	59625	5	
98	59600	5	
99	59498	5	
00	59499	5	•
1	55125 <b>S</b> 01L	5	
2	80426 SILT	5	
3	80428 SILT	5	
4	80430 SILT	5	

ACME ANALYTICAL LABORATORIES LTD.

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

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

#### GEOCHEMICAL ANALYSIS CERTIFICATE

1CP - .500 GRAN 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 MM FE SA CA P LA CR MG BA TI B W AND LIMITED FOR MA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE 7TPS: P1 SOIL P2 POCK AU' AMALTSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

					SARELI										/AG		IAAC A		. (	م ا												
DATE	REC	EIVE	D:		26 1989				ORT			U	In C	1							ł				G, J.¥		ERTIFI	ED B.C	. 1551	TERS.		
				NO	DRAN	DA E	XPL	ORA	TION	co.	LT	). P	ROJ:	ECT	890	5 <b>-</b> 0 9	7 1	20	F1	le :	ŧ 89	-173	31	Pa	age	1						
Samplef	No Keg	SSK	63 XSS	2a 22K	PPK Ag	Ni PPM	00 224	ax Res	?e }	35K ya	29K 0	Au PPM	2 P.K 7 D	ST PPM	0d ?PX	á2 Kss	Bi PEM	88 <i>K</i>	Ca 3	P	la PPK	N88 LD	Ng R	Ba PPM	Ti	8 % E	λ1 3	Ha }	z f	H44 A	563 563	
255245 953245 953436 953437 958432	1 1 1	25 17 10 7 8	3 11 6 2 8	51 92 17 10 13	.1 .1 .1	19 11 7 2 6	2 2 1		4.29	2 3 4 2 2	5 5 5 5	DH DH DH DH	3 1 2 3 1	1 3 1 2	1 1 1	2 2 2 2 2	2 2 2 2 2	61 56 118 97 87	.05 .05 .09 .04	,033 ,123 ,018 ,012 ,009	9 6 10 9	38 31 25 20 21	.35 .26 .13 .06	61 32 8 5	.12 .05 .28 .21	2 5	3.44 5.98 .78 .48 1.16	.01 .01 .01 .01	.10 .06 .02 .01	1 1 2 2 1	1 1 2 2 2	
P56419 P59440 P58441 P58442 P58443	1 1 1 1 1	13 6 57 30 17	15 11 13 9 5	19 13 44 26 25	.1 .2 .1	7 7 29 21 11	4 3 7 6 5	82	3.31 3.25	2 5 6 7	5 5 5 5	DN DN DN DN	2 2 3 1	3 3 3	1 1 ! 1	2 2 2 2 2	2 2 2 2 2	154 58 69 95 107	.05 .96 .11 .12	.026 .008 .046 .036 .067	6 9 5 6	46 26 82 57 48	.26 .41 .55 .36	21 49 40 24 21	.26 .16 .15 .17 .21	2 3 4	1.57 1.08 5.06 2.00 2.14	.01 .01 .01 .01	.06 .13 .09 .04	1 1 1 1	1 1 1 1	
P58444 P58445 P58446 P58447 P58448	1 1 1 1 1	23 59 28 37 16	9 8 12 8	35 55 38 41 85	.1 .1 .2 .1	13 33 14 26 9	5 5 8 3	195 130 156	4.17 3.40 4.09 5.95 2.85	11 5 2 13	5 5 5 5	DK DK DK DK DK	3 3 1 5	3 3 2 3	1 1 1 1	2 2 2 3 2	2 2 2 2 2	98 77 96 135 32	.10 .14 .10 .06	.051 .050 .135 .104	5 5 6 10	61 74 59 76 21	.38 .78 .36 .53	26 49 22 47 31	.23 .13 .18 .24 .04	6 4 8	3.28 4.57 3.34 4.61 4.17	.01 .01 .01 .01	.05 .11 .04 .09	1 1 1 1	1 2 1 2 3	
P58449 P58450 P58451 P58452 P58453	1 1 1 1	14 18 16 4	5 7 9 2 2	36 25 20 10 3	.1 .3 .1 .1	9 11 5 4 2	3 5 2 2 1	92 81	2.87 4.38 1.45 1.13 1.59	3 4 2 2 2	5 5 5 5	ОИ ОИ ОИ ОК	2 3 1 2 2	2 2 4 2 1	1 1 1 1	3 2 2 2 2	2 2 2 2 2	72 117 51 94 93	.10 .06 .04 .10	.041 .134 .012 .006 .017	7 6 9 6	35 46 28 17 11	.16 .20 .39 .12	15 17 49 5	.15 .23 .12 .23 .21	10	1.79 1.77 1.75 .36 .34	.01 .01 .01 .01	.03 .03 .11 .01	2 1 1 1 1	1 1 1 1 6	
P58454 P58455 P58456 P58457 P58458	1 1 1 1	22 13 26 25 9	9 8 8 13 2	28 17 26 28 12	.1 .1 .1 .1	14 5 13 14 6	6 4 5 6 3		4.09 5.22 3.90 3.82 2.02	4 3 2 2 2	5 5 5 5	ИО ИО ИО ИО	2 3 3 2 1	2 3 3 3 2	1 1 1 1	2 2 2 2 2	2 2 2 2 2	81 145 88 87 83	.07 .06 .07 .12	.027 .054 .060 .048	7 7 6 5 3	59 44 60 50 27	.59 .27 .39 .41	41 24 24 21 7	.17 .25 .17 .20	12 4	2.90 1.16 3.33 2.70 .59	.01 .01 .01 .01	.11 .06 .06 .05	1 1 1 1	1 1 1 1	
858459 858460 858461 858462 858463	1 1 1 1	55 13 24 64 40	7 6 9 16	54 20 38 57 46	.1 .3 .1 .2	29 8 22 48 25	9 3 6 12 7	75 118 154	4.20 3.36 3.81 4.83 3.82	2 6 2 2 8	5 5 5 5	ND ND ND ND	3 3 1 3 2	3 6 3 5	1 1 1 1	2 3 2 2 2	2 2 2 2 2	81 117 99 101 86	.08 .14	.148 .080 .059 .074	4 7 5 5 5	99 30 54 113 75	.63 .18 .44 .96 .57	45 13 49 91 49	.24 .27 .19 .21	2 5 6	5.40 .94 1.92 8.36 3.93	.01 .01 .01 .01	.10 .02 .07 .23	1 2 1 1	1 2 1 2 2	
P58464 P58465 P58466 P59467 P58468	1 1 1 1 1 1	21 25 53 40 33	6 2 19 11 12	26 28 49 41 33	.1 .3 .2 .1	11 18 41 26 25	4 6 10 9 8	119 163	4.40 5.17	4 4 3 10 7	5 5 5 5	ND ND ND ND	2 2 4 4 3	3 4 3 1	1 1 1 1	2 2 2 4 2	4 2 2 3 2	95 86 99 105 78	.09 .09 .06 .05	.078 .054 .060 .097	6 8 9 8	49 53 82 75 57	.30 .56 1.09 .64 .73	25 60 104 55 75	.27 .21 .20 .25	4 3 6	1.92 2.74 5.65 4.38 3.15	.01 .01 .01 .01	.05 .14 .31 .13 .21	1 1 1 1. 2	1 1 2 1	
958469 STD C/AU-S	1 18	54 52	15 40	56 132	6.6	37 57	10 31	217 957	2.29 4.18	5 38	5 21	Д 1	3 36	5 49	1 18	2 14	2 23	7 6 5 B		.114	6 39	80 56	.91	87 172	.16 .07	-	5.76 2.04	.01 .06	.20 .14	1 11	1 53	

8906-097

SAMPLEF NO CU PD 2n Ag Ni Co Nn Fe As U Au 7h Sr Cd Sb Bi V Ca P La Cr Mg Ba 71 B Al Na A W Au\* 1 51 4 48 .1 52 17 661 3.30 38 5 ND 1 3 1 9 2 18 .04 .031 6 31 .15 20 .01 3 1.04 .01 .17 1 4 RISBA23 1 31 5 45 .6 32 8 558 4.42 79 5 ND 1 43 1 14 3 15 1.46 .015 4 17 .42 14 .01 7 .33 .01 .15 1 14

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 RE SR CA P LA CR MG BA TI B W AND LIMITED FOR MA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.

- SAMPLE TIPE: ROCK AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

VARIED TO ANALYSIS OF ANALYSIS

NORANDA EXPLORATION CO. LTD. PROJECT 8906-067 120 File # 89-1590

NORANDA EXPLORATION CO. LTD. PROJECT 8906-067 120  File #														# 8	9-15	90															
Sample #	Mo PPN	Cu PPK	Pb PPN	2n PPK	Ag PPK	Ni PPM	Co PPM	0K X99	I e	As PPN	U PPK	Au PPM	Th PPK	Sr PPN	Cd PPH	SD PPH	Bi PPN	V PPM	Ca %		La PPK	Cr PPK	Mg 1	Ba PPM	Ti	B PPM	Al \$	Na Ł	1	¥ PPN	λu* PPB
R 50631 R 50632 R 50633 R 59333 R 59334	1 1 3 3	153 21 77 13 30	2 4 2 3	82 31 31 10 26	.4 .1 .2 .1	38 11 - 46 13 37	25 1 11 3 13	1479 30 191 44 615	7.53 .30 2.26 .39 .75	4 5 2 3 13	5 5 5 5	DK DK DK DK	1 1 1 1 1	231 2 25 2 3	1 1 1 1	2 2 2 2 2 2	2 2 2 2 2	51 1 59 4 12	.08	.037 .013 .062 .001	3 2 2 2 6	23 9 34 11 13	2.42 .02 1.00 .08	24 3 26 2 22	.01 .01 .18 .01	2 23 12 13 17	.51 .05 1.61 .11 .39	.01 .01 .07 .01	.18 .01 .04 .01	1 2 1 2	6 7 19 9
R 59335 R 59336 R 59337 R 59338 R 59339	3 1 1 3 2	6 106 40 10 184	2 8 6 2 2	6 62 63 2 11	.1 .2 .1 .2	11 117 51 10 41	1 29 15 1	45 2314 438 57 160	.39 6.03 3.36 .33 1.11	2 2 5 2 2	5 5 5 5	Д О О О О О О	1 1 1 1	2 17 77 1 1	1 1 1 1	2 2 2 2 2	2 2 2 2 2	3 116 87 2 23	.10 .51 1.33 .06 1.76	.048 .110 .013	2 2 8 2 2	11 157 68 10 25	.06 2.26 1.17 .03 .21	1 134 289 2 2 26	.01 .10 .18 .01	17	.12 3.76 3.72 .08 1.95	.01 .02 .10 .01	.01 .15 .68 .01	1 1 1 2 1	6 5 2 6
R 59340 R 59341 R 59342 R 59343 R 59344	2 1 1 1	8 15 6 15 5	3 9 9 9	26 82 83 75 57	.1 .1 .1 .1	30 9 2 9	9 3 1 4 1	239 158	1.87 1.68 1.13 1.68	3 2 2 2 2 2	5 5 5 5	ИД ОИ ОИ ОИ	1 4 4 3 1	59 3 2 5 3	1 1 1 1	2 2 2 2 2	2 2 2 2 2	64 9 2 16	1.29 .04 .01 .03 .02	.048 .022 .006 .010	2 18 13 9 6	65 10 2 10 4	.74 .10 .02 .23	11 28 16 73 10	.10 .01 .01 .05	2	1.53 1.01 .43 2.17 .30	.05 .02 .03 .03	.10 .14 .10 .27	1 1 2 2 4	3 6 7 6 8
R 59345 R 59346 R 59347 R 59348 R 59349	1 1 5 1 8	50 6797 137 306 589	22 5 15 6 6	91 52 95 67 50	.2 1.4 .1 .4 .3	62 59 58 80 9\$	31 15	748 2275 2614 3194 6639	6.73 5.57 5.81	5 2 4 2 2	5 5 5 5	DH DH DH DH DH	5 1 4 1	15 15 27 92	1 1 1 1	2 2 2 2 2	2 4 2 2 2	112 121	.22 .92	.045 .344 .074 .182 .346	14 4 17 3 12	49 76	1.55 .70 1.24 1.67	44 24 235 51 107	.01 .08 .18 .11	3 2 2	2.95 2.30 4.01 2.96 1.58	.02 .12 .02 .04	.13 .05 .56 .02	1 1 1 1	3 15 7 6 5
R 59350 R 59351 R 59352 STD C/AU-R	1 2 1 17	2813 49 109 59	2 4 9 40	38 63 112 132	.4 .2 .2 6.1	34 32 91 68	13 9 23 30		3.14 4.87	2 2 6 43	5 5 5 18	ND DN ND	1 2 3 37	75 3 28 50	1 1 1 18	2 2 3 15	3 2 2 21	112 86 151 59	.56	.076 .024 .107 .090	2 5 13 39	21 57 151 52	.36 .94 2.20 .81	21 271 267 179	.25 .17 .18 .07	10	1.93 1.94 \$.41 1.95	.15 .01 .06	.04 .94 .86	1 1 1 12	11 7 2 520

190-90B

### 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 MA R AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM. - SAMPLE TIFE: SOIL -80 Mesh AU\* AMALYSIS BY ACID LEACH/AA PRON 10 GM SAMPLE.

DATE RECEIVED:	JUN 26 1989 DATI	E REPORT MAILED:	June 23/8	signed by.	C. Hurry	1 .D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSATERS
	NORANDA	EXPLORATION CO.	LTD. PROJEC	T 8906-067 120	File #	89-1727

					NORANDA EXPLORATION CO. LTD. PROJECT 8									890	6-0	67 1	120	F	ile	# 89	9-17	27									
SAMPLE}	CK M99	Cu PPM	da Nae	Zn 2PM	AÇ PPH	N1	00 20	ak K99	î e 1	AS PPH	U PSS	Au PPX	Th	ST Req	Cd PPM	bbii 2p	Bi PPM	y Kqs	Ca 3	?	PPM	Cr ?PX	Нg	Ea PPM	71 3	PPN PPN	Al B	Na 1	ł Z	¥ PPX	Au* ??B
P50624 P50635 P50636 P50637 P50639	1 1 1 1 1	5 30 19 25 12	11 10 14 12 8	12 37 24 34 20	.1 .2 .1 .4 .2	3 18 11 16 5	1 5 2 5 3	97 162 109 173 104	1.21 4.00 4.39 5.50 3.53	2 2 2 2 2 2	5 5 5 5	00 CH 01 CH 02 CH 04 CH	2 3 2 3 2	2 3 2 3 2	1	2 2 2 2	2 2 2 2	64 71 115 106 110	.06 .11 .08 .11	.056 .035 .051	7 7 5 5 5	13 73 58 77 36	.12 .49 .27 .39	\$0 17 25 13	.21 .15 .22 .21 .21	2	.68 4.15 2.50 3.50 1.50	.01 .01 .01 .01	.02 .12 .03 .07 .03	1 1 1 1	1 1 1 1
P50629 P50640 P50641 P50642 P50643	1 1 1 1	22 13 34 59 13	9 3 9 8 3	25 26 50 58 19	.1	10 12 13 27 70	3 4 6 7 7	82 137 181 172 30	3.30 1.25 4.30 4.79 2.53	2 2 4 6 2	5 5 5 5	D K D K D K D K D K	1 1 3 1	4 9 1	1 1 1 1	2 2 2 2 2 2	2 2 2 2 2 2	74 55 115 107 66	.15 .12 .09 .10	.051 .024 .034 .042 .027	3 4 4 6 2	73 34 65 72 127	.20 .30 .17 .61	11 20 53 48 2	.19 .12 .23 .24 .12	2 2 7	3.85 1.06 3.01 3.41 1.02	.01 .01 .01 .01	.02 .04 .13 .11	1 1 1 1	1 2 1 129 10
P50644 P50645 P50646 P50647 P50648	1 1 1 1	17 2 11 18 39	7 3 9 10 7	27 7 20 24 50	.1 .1 .1 .:	12 1 9 13 22	1 3 4 6	105 53 86 102 137	2.61 .71 3.48 3.23 3.98	2 2 2 3 4	5 5 5 5	DN DN DN DN DN	1 2 1 1 2	5 2 3 2 4	1 1 1 1	2 2 2 2 2 2	2 2 2 2 2 2 2	98 45 77 78 88	.20 .04 .08 .07	.025 .005 .039 .047	10 5 6 5	36 7 41 41 69	.38 .06 .20 .30	25 4 14 27 60	.23 .11 .18 .16 .17	2 2 2	1.36 .25 2.52 2.47 4.21	.01 .01 .01 .01	.05 .01 .03 .07	1 1 1 2 1	3 2 1 2 2
P50649 P50650 P58126 STD C/AU-S	1 1 1 17	27 18 33 59	11 12 8 40	40 28 30 132	.5 .2 .1 6.5	14 12 21 68	4 6 30		5.60 4.23 2.34 4.16	6 2 2 41	6 5 5 18	ОМ ОМ ОМ 7	3 2 1 37	3 5 48	1 1 1 19	4 2 2 15	3 2 2 18	115 104 58 58	.07 .08 .14 .50	.111 .081 .039 .082	4 5 6 37	87 49 42 52	.32 .31 .49 .88	23 25 63 176	.21 .22 .12 .07	4 2	1.26 2.38 2.23 1.94	.01 .01 .01	.06 .06 .15	1 1 2 11	3 1 3 48

PHONE (604) 253-3158 FAX (604) 253-1.

#### GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAN SAMPLE IS DIGESTED WITH 3ML 3-1-2 MCL-HHO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN PE SE CA P LA CR MG BA TI B W AND LIMITED FOR MA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TIPE: SILT AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

NORANDA EXPLORATION CO. LTD. PROJECT 8906-065 120 File # 89-1587

Sample‡		Cu PPN			•	NI PPK		Ma PPM		As PPN				ST PPK		SD PPN	B1 PPM	V PPM	Ca 3		La PPK	CT PPK	•	Ba PPM	Ti \$	B PPM		Na t	Į,	PPH	λu* PPB
44527 44529 44531 44533 44535	1	25 16 44 23 26	5 8 4 7 2	31 34 64 34 30	.1 .1 .1 .1	22 16 38 18 22		1286 424 156	2.02 2.09 2.51 1.80 1.67	2 2 2 2 2	5 5 5 5	ND D ND D D D	1 1 1 1	8 10 9 4 6	1 1 1 1	2 2 2 2 2 2	2 3 2 2 2	54 62 50	.17 .22 .11	.032 .028 .053 .031	4 6 6		.39 .81 .34	52 151 41	.10 .09 .12 .09	1 2 2	1.80 1.29 2.10 2.85 1.38	.01 .01 .01 .01	.11 .36 .08	1 1 1 1 2	1 1 1 1 8
44539 44541 44543 44545 44547	1 1 1 1	38 39 59 66 28	3 6 6	46 37 60 70 34	.1 .1 .2 .1	31 27 45 47 23	9 11 13 14 8	284 309 331	2.16 2.20 2.54 3.19 1.72	2 3 2 3 2	5 5 5 5	00 08 08 08 08	1 2 2 3 1	9 7 8 7 6	1 1 1 1	2 2 2 2 2	2 2 2 2 2	55 51 64 77 41	.17 .18 .14	.043 .036 .038 .052 .036	5 5 6 8 6	43 57	.92 1.01		.11 .11 .13 .13	2 2 2	1.94 1.82 2.12 2.67 1.48	.01 .01 .01 .01	.31 .29 .39 .41 .20	1 1 1 1 2	2 1 2 2 1
44549	1	20	2	23	.1	17	6	161	1.59	2	5	סא	2	4	1	2	2	38	.17	.031	6	31	.47	12	.09	2	1.07	.01	.21	5	30

8906-068

#### NORANDA VANCOUVER LABORATORY

ROPERTY/LOCATION: VALENTINE

CODE :8906-065

Project No.

:120 :13 PANS Sheet:1 of 1
Geol.:J.M.

Date rec'd:JUN19

Material Remarks

2

Date compl:JUL12

Values in PPM, except where noted.

<b>===</b> === Т. Т.	SAMPLE	-===== Wt	PPB			=====		
Nc.	No.	(g)	Au	Cu	Zn	РЬ	Ag	
1	44526	36. 9	10	18	18	1	0.1	
2	44528	21.9	10	10	12	1	0.1	
3	44530	26.0	40	20	18	1	0.1	
4	44532	21.5	30	ទ	12	1	0.1	
5	44534	22.8	100	12	10	1	0.1	
6	44536	15.3	10	ុំន	35	1	0.1	
7	44537	33.7	10	10	14	1	0.1	•
ē	44538	30.4	50	18	12	2	0.1	
3	44540	14.9	500	12	12	1	0.2	
10	44542	17.5	10	18	14	2	0.1	
11	44544	18.5	210	18	16	1	0.1	
12	44546	17.7	180	.10	12	i	0.2	
13	44548	17.9	1900	10	12	1	0.2	•

N.B. Pan-con: entire sample used for Au determination. \*Cu, Zn, Pb, Ag values obtained from Aqua Regia sol'n.

Sample#	No PPM		Pb PPM	2n PPK	yg.	Ni PPM	Co PPN	99 198	Fe 3	AS PPK	U PPM	AU PPN	Th X99	ST PPK	Cd PPK	Sb PPN	Bi PPN	V PPK	Ca }		La PPM	CT PPM	Mg \$	Ba PPN	Ťí Ž	B PPN	Al	Na t	1	¥ PPH	Au² PPB
55589 55590 55591 55592 55595	1 2 1 2 1	11 5 7 38 20	12 10 4 5	31 18 7 73 57	.1 .3 .1 .1	7 7 15 10	1 1 1 10 5	88 65 34 632 266	.78 .53 .43 2.91 2.73	2 5 2 2 53	5 5 5 5	ОК ОК ОК ОК	1 3 1 2 4	5 5 1 11 12	1 1 1 1	2 4 2 2 2	2 2 3 2 2	20 13 6 75 54	.06 .03 .01 .17	.004 .001 .057	2 2 2 5 7	31 9 34 35 35	.26 .15 .04 1.00	38 55 21 326 141	.02 .03 .02 .20	8 6 2 9	.46 .35 .11 1.68 1.42	.02 .02 .01 .05	.22 .14 .05 1.09 .78	1 2 1 1 2	2 1 1 1 2
55558 59187 59188 59189 59190	1	3996 3510 1038	20 11 5 18 2	31 22 27 19 5	.2 1.8 4.6 .8 1.9	10 136 25 347 13	14	5804 279 2358	4.92	4913 5 7 2 170	5 5 5 5	ОИ ОИ ОИ ОИ	4 2 1 2	12 10 65 26 2	1 1 1 1	3 2 2 2 2 46	2 4 2 12 4	47 41 104 49 14	.14 1.50 1.22 1.90	.296 .067	6 6 2 13 2	24 32 12 13 26	.64 .21 .24 .15	155 4 13 6 27	.12 .07 .13 .02	2 2 2 5 8	.94 .58 1.04 .89 .26	.03 .01 .09 .02	.55 .01 .05 .01	2 1 2 1 1	1480 1 3 6 15
59191 59192 59193 59194 59195		4365 1916 611	11 11 4 12 8	36 30 15 13 17	.4 2.3 1.2 .3 .6	37 202 130 52 38	40	197	4.17	61 2 2 2 2 2	5 5 5 5	ИО ИО ИО ИО	4 1 3 1 2	300 96 68 494 376	1 1 1 1	16 2 4 2 2	2 5 5 2 2	45 56 17	11.64 2.48 3.11 4.09 2.05	.013 .304 .520 .087 .083	3 5 2 2	16 17 26 12 19	2.94 .32 .32 .11 .27	11 5 3 18 37	.01 .09 .06 .16	7	.17 2.07 1.39 5.10 3.96	.01 .07 .03 .22	.12 .01 .01 .01	1 1 2 24 8	1 118 36 9
59196 59197 59198 59199 59200	4		8 13 2 7 16	42 42 38 23 15	.2 .9 1.3 1.3	31 106 183 96 178		647		2 2 2 2 2	5 5 5 5	ND ND ND DN	1 2 1 1	16 4 13 91 20	1 1 1 1	3 3 2 2 2	3 2 4 3 15	53 74 92	1.05 1.05 1.13 3.53 2.15	.061 .014 .041 .705 .439	2 2 2 7 15	78 -31 45 20 4	.64 .34 .35 .26	15 19 21 8 1	.20 .06 .09 .02	2 2 2	1.31 1.16 1.19 2.17 1.24	.09 .09 .09 .07	.35 .09 .12 .01	1 . 1 1 2 2	1 3 21 1 36
58651 58652 58751 58752 58753		1893 4817 49 53 30	7 10 3 12 3	19 34 42 40 31	1.3 1.9 .1 .3	105 525 12 13 7		420		2 12427 231 374	5 5 5 5	ОИ ОИ ОИ ОИ	1 1 1 3 3	64 35 98 17 6	1 1 1 1	2 2 2 2 2	16 2 2 2 2 2		1.91 2.00 .74 .20 .12	.186 .600 .027 .039	3 8 2 6 5	23 10 25 28 47	.24 .09 1.06 .83	5 4 206 188 175	.07 .03 .12 .13	2	1.36 .49 2.65 1.36 .89	.05 .01 .15 .06	.01 .01 .58 .65	2 1 1 2 1	5 29 15 18 7
59235 59236 59237 59238 59597	2 1 3 1 2	12 3 35 34 14	6 2 2 7 2	28 1 11 74 11	.1 .1 .2 .1	10 5 5 18 9	3 1 2 8 2	41 68 283	1.57 .23 1.95 3.67 1.28	24 7 3 82 5	6 5 6 5	D N D N D N D N	2 1 1 3 1	7 1 8 6	1 1 1 1 1	3 3 2 2 3	2 2 3 2 3	29 2 17 71 5	.09 .01 .06 .09	.028 .001 .026 .044	3 2 2 9 2	19 30 19 50 8	.46 .01 .10 1.24	134 3 11 218 6	.08 .01 .04 .11	7 2 2 16 9	.74 .03 .29 2.16 .18	.04 .01 .02 .04	.38 .01 .11 .84	1 1 11 2 1	1 1 1 1
59598 59599 STD C/AU-R	: 3 17	5 6 63	2 2 43	11 7 132	.1 .1 7.1	4 6 70	1 1 31	47 69 957	.55 .70 3.77	3 6 38	5 5 17	ОМ ОМ 7	2 1 37	3 3 50	1 1 18	3 2 14	4 3 23	5 4 58		.006 .004 .087	2 2 38	36 8 55	.13 .05	6 10 177	.01 .01	8 26 33	.17 .09	.01 .01	.02 .03	1 1 11	1 1 480

<sup>-</sup> ASSAY REQUIRED FOR CORRECT RESULT -

SAMPLE#	MC PPM	Cu PPN	P P M	2 n PPX	94 344	H1 PPM	CC PPH	NK 1899	Fe }	As PPK	U Mgg	AU PPM	Th PPK	ST PPN	Cd PPK	SD PPH	B1 PPN	V PPN	Ca \$	1	La PPX	CT H99	Ng \$	Ba PPK	Ti \$	B PPK	Al Ł	Na ł	I.	¥ PPK
55559	1	6	7	29	. 1	6	8	159	1.54	23	5	ND	2	3	1	2	2	36	.03	.010	9	14	. 19	30	.07	2	1.29	.01	.07	1
55600	•	8	8	38	.1	8	3	249	2.30	114	5	מא	1	f	1	2	2	52	.06	.018	5	16	.40	44	. 16		1.23	.01	.10	1
59618	1	42	16	108	. 1	336	23		4.12	7	5	НD	,	14	i	2	•	67	. 25	.042	6	109	.91	48	.12		3.14	.01	.10	1
59619	1	26	11	57	. 2	46	10		4.14	6	5	ИD	,	12	i	,	;	85	. 26	.020	4	52	. 82	33	.16		2.83	.01	.09	i
59620	ì	13	3	33	. 1	10	4		3.03	4	5	HD	3	16	i	2	2	83	.32	.031	4	25	. 32	23	.11		1.73	.01	.12	1
59621	1	17	11	52	. 3	17	6	221	3.67	10	5	ND	3	19	1	2	2	83	. 35	.034	4	31	.45	32	.14	3	2.44	.01	.13	1
59522	1	58	13	128	. 1	58	38	605	5.65	4	5	ND	1	16	1	2	2	76	.33	.033	6	61	1.65	71	.32	2	4.01	.01	.30	1
59623	1	29	15	135	. 3	60	13	581	4.42	10	9	ИD	7	9	1	2	2	50	.15	.020	7	49	1.36	53	.10	2	2.83	.01	. 28	1
59624	1	28	13	67	.1	22	6	387	5.11	12	5	ND	3	8	1	3	2	68	.18	.029	5	43	.17	20	. 13	2	2.50	.01	.12	1
59625	ì	26	22	71	. 1	23	5		4.39	10	6	HD	1	1	1	2	2	57	.13	.033	6	48	. 80	40	.05		3.11	.01	.19	1
59600	1	34	15	70	. 1	26	10	393	3.98	10	5	ND	2	22	1	2	2	80	. 43	.087	5	45	. 66	43	.10	3	3.43	.01	.11	1
59498	1	25	12	54	. 1	24	8	1017	3.70	8	5	ND	ş	19	1	2	2	82	.41	.049	5	42	.76	23	.10	4	2.46	.01	.16	2
59499	1	47	15	80	. 1	38	13	485	4.67	б	6	ИD	8	17	1	3	2	89	.36	.050	6	55	1.04	50	.11	5	4.08	.01	.20	1
55125	1	25	12	11	. 2	25	1	327	5.21	10	7	ND	1	6	1	3	2	73	.08	.072	4	52	.95	26	.07	2	3.95	.01	.17	2
8042E	1	31	14	105	.1	37	13	589	3.72	15	5	DK	5	30	1	2	2	52	.30	.042	11	36	.86	62	.06	4	2.47	.01	.13	1
80428	1	31	17	94	.4	33	17	793	3.64	13	5	ND	7	23	1	2	2	53	. 26	.038	10	34	. 92	63	.08	2	2.39	.01	.18	1
80430	1	36	17	103	.1	35	15	612	4.17	18	9	ND	8	19	1	2	2	64	. 23	.051	9	38	1.05	52	.11	3	2.97	.01	.22	2
STD C	17	59	41	132	7.0	73	29	948	3.92	35	21	6	36	51	17	16	19	58	.49	.085	36	55	.89	174	.07	34	1.92	.06	.15	12

11.

#### GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HH03-H20 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. . CAMPLE TYPE . DIAD? SATE PHILP PR ROCK

				•	SAMPLE					P3 ROCK					,			_	,	ין כי	ļi.									
DATE	RECE	IVE	D:	KAY 1	5 1989	DA	ATE	REP	ORT	MAII	ED:	14	ay	17	/89	sı	GNE	D B	y(	L	. ,	7 . 0.	TOYE.	C. LEONG	, J.WA	NG: C	ERTIFII	D B.C.	ASSAT	IERS
				NO	RANI					co.			v				3 12	20	Fi	1e #	89-	107	8	Pa	ge 1					
SAMPLES	Mo PPM	Cu PPK	Pb PPM	On PPK	A9 H95	HÍ PPM	Co PPK			A5 2PM	U 899	Au PPK	7h 199	78 18	Cd PPX	S D P P N	Bi PPK	V PPM	C a		La PPN	CT PPM	Жā	8a PPM	71 3	B PPN	Al ,3	Na 1	ş	¥ PPK
59601 59602 59603 59604 59605	1 1 1 1	32 14 39 12 23	20 16 16 11 14	61 70 90 38 71	.4 .4 .2 .3	20 9 44 9 20	6 3 13 3 10	243 525 141	4.08 3.56 4.19 2.40 3.31	15 8 3 7 5	7 5 7 5 5	ND ND ND ND	8 7 6 3 5	10 4 14 9 12	1 1 1 1	2 2 2	2 3 2 2 2	61 31 65 48 53	.14 .02 .19 .12	.025 .044 .024	5 4 8 6 8	39 15 53 19 32	.65 .75 1.14 .28	33 33 61 35 60	.10 .11 .15 .04 .11	2 2 2	4.12 2.52 3.44 2.21 2.85	.01 .01 .01 .01	.13 .12 .20 .08	1 1 1 2 1
59606 59607 59608 59609 59610	1 1 1 1	21 16 25 34 12	16 13 13 25 13	68 45 69 81 46	.1 .3 .1 .2	22 12 23 30 10	8 4 6 7	148 353 431	4.25 2.09 5.22 5.65 3.79	7 5 8 7 6	5 6 5 5	ДИ ОИ ОИ ОИ	4 5 5 4 3	10 9 8 ?	1 1 1 1	3 2 2 2 2	2 3 2 2 2	48 56 71 58 60	.14 .17 .13 .10	.028 .067 .047	6 5 5 5	34 28 43 43 29	.61 .31 .77 .87	49 26 35 28 25	.09 .09 .13 .10	2 3 2	2.80 2.15 3.13 3.77 2.24	.01 .01 .01 .01	.10 .05 .08 .02	1 2 1 1
59611 59612 59613 59614 59615	1 1 1 1	15 13 33 43 48	13 16 17 19 26	51 46 57 112 102	.2 .1 .1 .1	13 11 27 72 31	4 3 7 19 9	171 290 460	3.48	7 7 2 9	5 5 5 5	ND ND ND DN	3 5 1 4 3	10 10 11 14 7	1 1 1 1	2 2 2 2 2	2 2 2 2 2	63 57 59 62 61	.15 .14 .18 .16	.045 .040	4 6 3 15 5		.35 .38 .73 1.04 1.06	26 30 23 75 42	.09 .08 .16 .14	2 2	2.13 2.80 4.05 4.09 4.38	.01 .01 .01 .01	.06 .07 .01 .11	2 1 1 1 1
59616 44577 44578 44579 44580	1 1 1 1	15 12 9 6 13	29 23 10 3 10	83 49 38 16 32	.1 .2 .2 .1	19 8 6 3	5 3 2 1 3	92 129 90	2.32	15 10 6 2 5	5 5 5 5	ND ND ND ND	1 1 1 3	7 17 26 8	1 1 1 1	2 2 2 2 2	6 2 2 2 2	69 52 51 63 74	.13 .17 .16 .07	.093 .045 .036 .017	4 3 3 2 4	56 18 15 14 22	.81 .20 .19 .18 .27	25 40 59 15	.12 .08 .08 .11	4 2 3	3.43 1.16 1.13 .91 2.04	.01 .01 .01 .01	.06 .07 .04 .01	1 1 1 1
44581 44582 44583 44584 44585	1 1 1 1	21 11 37 14 12	15 3 14 12 12	62 31 83 45 37	. 2 . 1 . 5 . 2 . 2	22 11 39 13 8	6 4 14 4 3	245 398 296	3.63 2.51 4.38 2.98 3.55	9 6 12 13	5 5 8 5 5	ОМ ОМ ОМ ОМ	3 1 7 3 3	12 12 15 13 8	1 1 1 1	2 2 4 2 2	2 2 2 2 2 2	55 50 57 50 71	.14 .11 .12 .16	.059 .028 .028 .032 .032	6 4 10 4 5	20 43 24 25	.74 .31 1.11 .37 .35	26 30 84 48 25	.09 .07 .14 .07	2 5 4	2.15 1.55 3.55 2.02 2.58	.01 .01 .01 .01	.13 .05 .23 .18	1 1 1 1
44586 80398 80399 80400 59594	1 1 1 1	4 24 21 25 10	9 15 10 10	21 51 96 78 27	.1 .5 1.3 .3	5 15 56 53 8	2 6 13 11 3	798 384 337	1.57 4.21 3.22 3.74 4.60	3 7 7 4 4	5 6 5 5 5	0 M D M D M D M D M	1 4 1 1	8 18 36 24 20	1 1 1 1	2 2 2 2 2	2 2 2 2 2	48 88 58 79 139	.06 .32 .64 .48	.013 .095 .035 .031	3 7 4 3 4	14 34 41 41 31	.22 .33 1.08 .94 .17	22 36 62 46 17	.09 .06 .11 .13	5 2 3	.97 2.53 2.73 3.12 1.65	.01 .01 .02 .02	.08 .12 .05 .03	1 1 1 1 1
59595 59596 55593 55594 55596	1 1 1 1	37 27 2 17 12	12 13 2 9	82 84 8 58 41	.2 .3 .1 .1	36 81 3 7 8	12 11 1 6 3	287 39 253	4.26 4.37 .60 3.29 3.15	5 6 9 190 47	5 5 5 5	ND ND ND ND	2 1 1 1 5	22 24 2 7	1 1 1 1	2 2 2 2 3	2 3 2 2 2	81 86 28 60	.41 .41 .03 .06	.041 .052 .004 .022	4 5 3 5 5	48 46 6 21 27	.85 .70 .07 .52	54 58 15 60 37	.14 .10 .08 .18	3 2 6	4.54 3.72 .40 1.70 2.34	.01 .01 .01 .01	.02 .03 .01 .33	1 1 1 2 2
55597 STD C	1 18	9 63	13 42	72 132	.2 1.1	12 73	10 31	448 1019	3.66 4.35	394 44	5 17	0 M	<b>4</b> 40	8 53	1 18	2 16	2 23	62 61		.034	6 39	25 52	.47 .96	56 181	.17		2.19 2.02	.01 .05	.18 .15	1 12

# APPENDIX IV STATEMENT OF COSTS

#### PEG & BO GROUP

#### COST STATEMENT

## WAGES: April 27 - May 9, 1989

T. McI.	6	mandays	x	\$140.00
B.S.	4	manday	x	\$112.00
I.S.	5	manday	x	\$190.00
D.S.	1	manday	x	\$117.00
K.L.	13	mandays	x	\$200.00
J.L.	12	mandays	x	\$ 75.00

\$5,855.00 =======

#### **ACCOMMODATIONS:**

#### **GROCERIES:**

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### TRUCK:

========

#### GAS:

OFFICE SUPPLIES:		\$ 9.14 ========
TRUCK/TIRE REPAIR		\$ 6.62
MISCELLANEOUS:		\$ 22.54 =======
SHIPPING: June 11 - 21,	1989 (5 boxes @ \$6.33)	\$ 31.65 =======
GEOCHEMICAL ANALYSIS:		\$1,785.10 =======
REPORT WRITE-UP AND PREPA	RATION	
Author Drafting Typing	\$600.00 \$600.00 \$200.00	\$ 1,400.00 =======
	TOTAL COSTS:	\$10,754.95

#### GEOCHEMICAL ANALYSIS

#### COSTS FOR THE PEG & BO GROUP

```
Rocks
41 samples @ $6.25/sample analysis for 30 elements by ICP
41 samples @ $4.50/sample analysis for Au by AA
41 samples @ $2.40/sample handling & preparation
41 samples @ $3.00/sample crushing & pulverizing
41 samples @ $1.50/sample data processing & entry
                                                  $ 723.65
41 samples @ $17.65 sample
                                                  _____
<u>Soils</u>
54 samples @ $6.25/sample analysis for 30 element by ICP
54 samples @ $4.50/sample analysis for Au by AA
54 samples @ $2.40/sample handling & preparation
54 samples @ $1.50/sample data processing & entry
                                                   $ 791.10
54 samples @ $14.65/sample
======
                                                   =======
Silts
11 samples @ $6.25/sample analysis for 30 elements by ICP
11 samples @ $4.50/sample analysis for Au by AA
11 samples @ $2.00/sample handling & preparation
11 samples @ $1.50/sample data processing & entry
11 samples @ $14.65/sample
                                                   $ 161.15
                                                   =======
======
Pan Concentrate
13 samples @ $1.60/sample analysis for Cu
13 samples @ $1.80/sample analysis for Zn,Pb & Ag
13 samples @ $5.00/sample analysis for Au by AA
                                                   $ 109.20
13 samples @ $8.40/sample
                                                  ========
                          TOTAL COST OF ANALYSIS: $1,785.10
                                                   _____
```

\* Analysis by 30 element ICP: 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.

# APPENDIX V AUTHORS QUALIFICATIONS

#### STATEMENT OF QUALIFICATIONS \*\*\*\*\*\*\*

I, Kolbjorn Lovang, of the City of Vancouver, in the Province of British Columbia, do hereby certify that:

- 1. I am a prospector residing at 3235 School Avenue, Vancouver, British Columbia, V5R 5N4.
- 2. I am a graduate (1954) of the Prospector's and Developers Association prospecting course.
- 3. I have been a prospector and geophysical operator since 1955 with the following companies:

1955-57: Asarco - Highland Valley, B.C., Prospecting, Mag, E.M.

Hans Lundbertg Geophysics - B.C.; E.M. and Mag. 1957-62:

1963-69: Plateau Metals - B.C.; Prospecting El Paso Mining - B.C.; Prospecting

1970-73: El Paso Mining - B.C.; Prospecting 1974-75: Domage Campbell - Sask., Ont.,; Prospecting

1976-89: Noranda Exploration - B.C., Man., N.W.T.; Prospecting.

4. I have no direct interest or indirect interest in the property which is the subject of this report.

Dated at Vancouver

this 25th day of September, 1989

Kol Lovang, Prospector

# AUTHORS QUALIFICATIONS

I, Terence J. McIntyre of 894 Pacific Drive, Delta, Province of British Columbia, do hereby certify that:

- I have been employed as a Geologist for Noranda Exploration Company, Limited (no personal liability) from the spring of 1987 to the present.
- I graduated from the Montana College of Mineral Science and Technology in 1986 with a BSc degree in geological engineering.
- I have worked in mineral exploration and in mines since 1983.

Terence J. McIntyre

# AUTHORS QUALIFICATIONS

-

I, Robert G. Wilson of the City of Vancouver, Province of British Columbia, do hereby certify that:

- I am a geologist residing at 3328 West 15th. Avenue, Vancouver B.C.
- I graduated from the University of British Columbia in 1976 with a BSc degree in Geology.
- I have worked in mineral exploration since 1973 and have practiced my profession as a geologist since 1976.
- I am presently a Project Geologist with Noranda Exploration Company, Limited (no personal liability).
- I am a member of the Geological Association of Canada (Cordillera Division).
- I supervised this project and have reviewed the findings presented within this report.

Rob Wilson

Project Geologist

