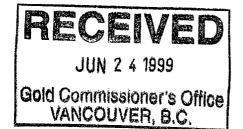
### ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

#### CONSULTING GEOLOGICAL ENGINEERS

1016 - 510 WEST HASTINGS STREET, VANCOUVER, B.C. V6B 1L8 TEL (604) 688-2568 • FAX (604) 688-2578



REPORT

describing

#### **PROSPECTING AND HAND TRENCHING**

on the

#### NORTHERN DANCER CLAIM

ATLIN MINING DIVISION BRITISH COLUMBIA

NTS 1040/13E

Latitude 59°59'50"N; Longitude 131°37'00"W



GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT

BOX 4127, 2054 SECOND AVENUE, WHITEHORSE, Y.T. YIA 3S9 TEL (867) 667-4415

W.A. Wengzynowski, P.Eng.

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#### **INTRODUCTION**

The Northern Dancer property is owned 100% by Nordac Resources Ltd. It straddles the British Columbia-Yukon border and consists of the nine unit Northern Dancer claim in B.C. plus six adjoining mineral claims in Yukon. This report describes work conducted in 1998 on the B.C. claim.

The Northern Dancer claim was staked in late June 1998 and covers mineralized veins peripheral to the Logtung Deposit which lies about 300 m north of the border. The Logtung Deposit contains porphyry-type tungsten-molybdenum mineralization while the veins on the Northern Dancer claim are comprised of quartz with wolframite, scheelite, beryl and other minerals.

The 1998 program included prospecting and hand trenching to establish distribution and geological controls of the veins. The work principally focussed on beryl as a potential source of beryllium, either as a by-product of the porphyry deposit or as a small scale, stand-alone target. The author conducted most of the work and supervised the remainder. The Author's Statement of Qualifications appears in Appendix I while the Cost Statement is Appendix II.

#### PROPERTY, LOCATION AND ACCESS

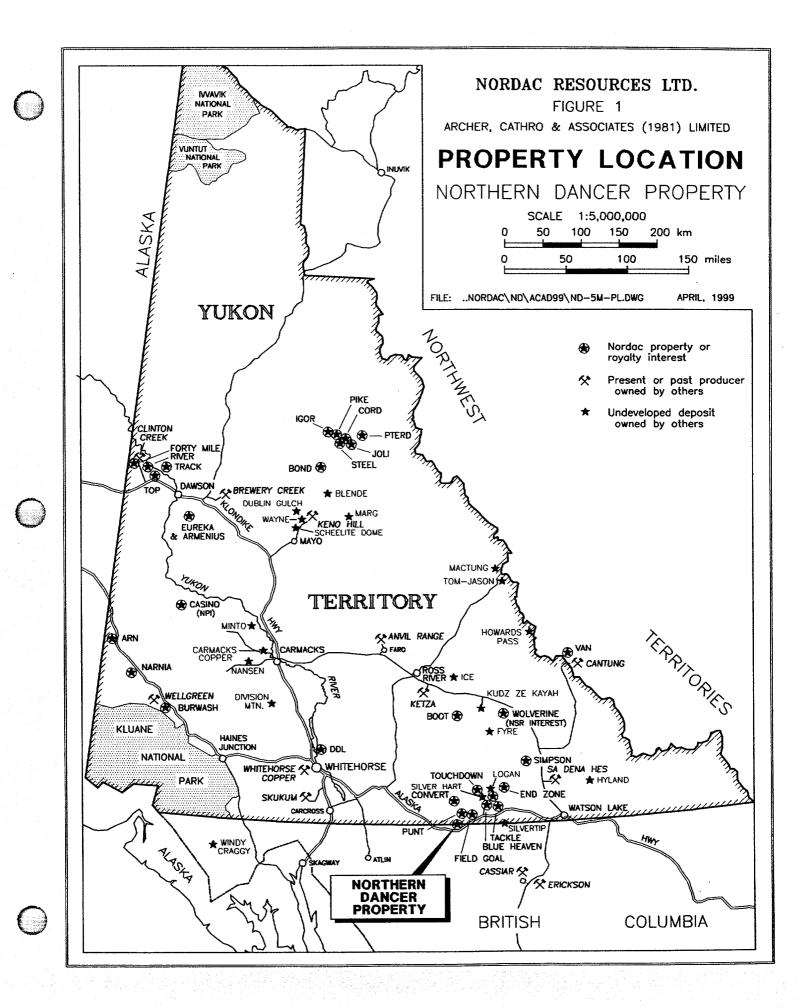
The Northern Dancer claim consists of nine units located in the Atlin Mining Division on NTS mapsheet 104O/13E. It is centred at latitude 59°50'N and longitude 131°37'00"W (Figure 1). The northern edge of the claim follows the B.C.-Yukon border. Claim data are listed below.

Claim Name	Record Number	Expiry Date*
		and the second second second
Northern Dancer 1 (9 units)	363828	June 30, 2009

\*Includes assessment work done in 1998 which has been filed but not yet accepted.

Access is provided by a 14 km gravel road that extends from KM 1303 on the Alaska Highway to the property. Although the road has not been maintained since the early 1980's, it is easily passable with a four-wheel drive vehicle during summer and fall.





#### PREVIOUS WORK

In 1975 the Bath Uranium Partnership discovered tungsten stream sediment anomalies in Logjam Creek but it was not until the following year that the anomalies were traced to their source and a large claim block was staked straddling the B.C.-Yukon border. After preliminary prospecting, ownership of the claims was transferred to Logjam Resources Ltd. which immediately optioned them to Amax Potash Limited. Between 1977 and 1981 Amax built a road to the property and explored with geological mapping, soil geochemistry, IP surveys, 47 diamond drill holes totalling 11,157 m and 496 m of underground workings. The surface work was done on both sides of the border but only 474 m of diamond drilling (4 holes) was on B.C. claims. Most of the work focussed on an area about 300 m north of the border where the Logtung Deposit was outlined. In 1984 airborne magnetic and electromagnetic surveys were conducted but a preliminary feasibility study completed later that year concluded the deposit was uneconomic. Amax dropped its option in 1986.

-2-

In 1993 NDU Resources Ltd. staked the Lad 1 and 2 claims in an area now largely covered by the Northern Dancer claim and explored them as a possible bulk tonnage gold target modelled on the Fort Knox Deposit in Alaska (Eaton, 1994). The program consisted of soil geochemical surveys and prospecting done in conjunction with work that NDU Resources did on the Yukon side of the border on claims it held under option. Soil sampling outlined large areas of moderately to strongly anomalous tungsten, bismuth and gold values but prospecting and rock analyses returned disappointing results and the property was allowed to expire without additional work being done.

#### **GEOMORPHOLOGY**

The claim covers the headwaters of two creeks, one draining west into the Smart River and the other (Logtung Creek) southeast into the Swift River. Local elevations range from 1350 to 1750 m above sea level. The area has undergone recent alpine and valley glaciation and is typified by steep ridges separating broad U-shaped valleys blanketed by glacial debris. Outcrop is most abundant along ridge crests and on north or west facing slopes. South and east facing slopes are usually covered by talus. Most of the property is above treeline which is at 1450 m.

#### **GEOLOGY**

Regional and property geology are well described in Noble et al (1986) plus a number of company reports, notably Harris (1978 and 1979). No attempt was made to remap the property in 1998 and the following is a brief summary of the earlier descriptions.

The property lies south of the Tintina Fault within the Yukon-Tanana Terrane. Country rocks consist of Paleozoic fine grained clastic and carbonate sedimentary rocks that were accreted to North America during a Mesozoic arc-continent collision. The sediments are intruded by two Mesozoic intrusive suites. The older suite is Jurassic to Triassic age and includes stocks and dykes ranging from ultramafic to granodiorite in composition. The younger intrusions are Cretaceous in age, quartz monzonite to monzogranite in composition and range from batholiths (Cassiar, Seagull and Hake) through to narrow hypabyssal dykes.

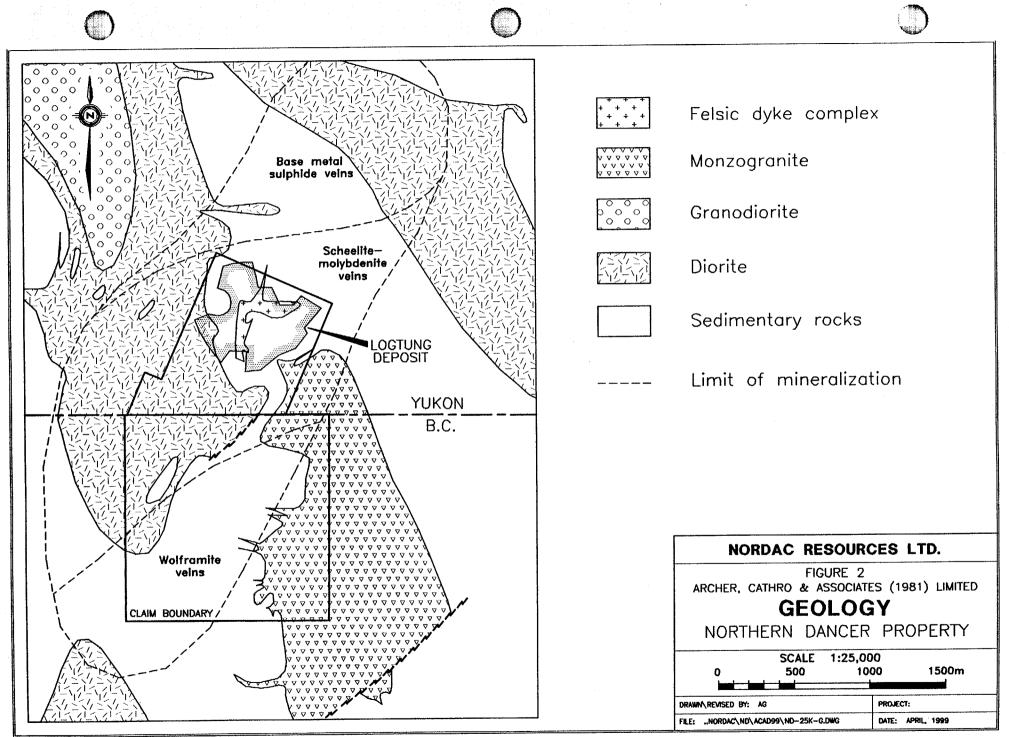
Figure 2 on the following page illustrates geology in the main areas of interest on the Yukon and B.C. claims. Sedimentary rocks on the property are Carboniferous age and consist of isoclinally folded graphitic quartzites with calcareous shale interbeds. The strata generally exhibit shallow to moderate dips. The sedimentary rocks are intruded by two Triassic diorite stocks flanked by numerous satellite dykes and a Cretaceous monzogranite stock accompanied by swarms of pegmatic dykes and sills plus a slightly younger but apparently comagenetic felsic dyke complex. Both ages of intrusions produced extensive hornfels halos and localized skarn horizons.

#### SOIL GEOCHEMISTRY

Figure 3 shows the location of four soil samples collected during prospecting traverses. The samples were sent to Chemex Labs Ltd. in North Vancouver where they were dried, screened to -80 mesh and then geochemically analyzed for 32 elements using the induced coupled plasma (ICP) technique. Beryllium and tungsten values obtained by ICP analysis are usually understated because the common minerals containing these metals are only partially digested by the acids used during sample preparation. Three of the samples were also analyzed for beryllium and tungsten using complete digestion. Certificates of Analyses appear in Appendix III.

Two of the soil samples (N34756 and N34757) were taken along the upper edge of the float train containing the highest concentration of beryl mineralization. Both are moderately anomalous for beryllium and tungsten. A third sample (N34755) was collected immediately downhill from a linear depression containing quartz-beryl vein float. It is strongly anomalous for beryllium and moderately anomalous for tungsten. Comparison of partial digestion to complete digestion results from the three samples showed that beryllium increased by a factor of about three but that tungsten was relatively unchanged. All three samples are also moderately anomalous for bismuth and weakly anomalous for molybdenum and copper. The fourth sample was taken in an area where no mineralization was known and returned low values for all metals.

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#### **MINERALIZATION**

Previous work in the vicinity of the claim has outlined an extensive, multi-episode vein system that is enriched in several metals, most notably tungsten and molybdenum. The system is centred on the felsic dyke complex and forms a 3 by 1 km kidney-shaped zone that is elongated along an north-northeasterly axis (Figure 2). Approximately 95% of the mineralization within the system occurs in veins and fractures with the remainder found as disseminations within the felsic dyke complex and skarn horizons. The veins crosscut all units and are apparently related to emplacement of the felsic dyke complex. Table 1 below summarizes mineralization in the main vein sets.

# TABLE 1SUMMARY OF VEIN MINERALOGY (from Noble et al, 1986)

<u>Vein Type</u>	Essential Minerals	Accessory Minerals
Quartz- Molybdoscheelite	quartz, garnet, diopside, molybdoscheelite, pyrite	epidote, chlorite, fluorite, calcite, biotite, molybdenite, plagioclase, orthoclase
Quartz-Pyrite- Scheelite	quartz, fluorite, epidote, scheelite, chlorite, molybdoscheelite	plagioclase, calcite, garnet, diopside, hornblende, biotite, orthoclase, sphalerite, molybdenite, chalcopyrite
Quartz- Molybdenite	quartz, epidote, calcite, diopside, molybdenite, pyrite, chalcopyrite	muscovite, chlorite, scheelite, garnet, sphalerite, plagioclase, pyrrhotite, rutile
Sheeted Veins (A) Scheelite- Molybdenite (central region)	quartz, beryl, scheelite, orthoclase, fluorite, plagioclase, calcite, pyrite, molybdenite	biotite, chlorite, muscovite, epidote, helvite, sphalerite, bismuthinite, marcasite, pyrrhotite, galena
(B) Pb-Zn-Ag (northeast)	quartz, calcite, arseno- pyrite, galena, sphalerite, pyrrhotite, chalcopyrite	chlorite, stannite, galenobismutite, pyrite, lollingite
(C) Quartz- Wolframite (southwest)	quartz, fluorite, beryl, wolframite	calcite, scheelite, bismuthinite

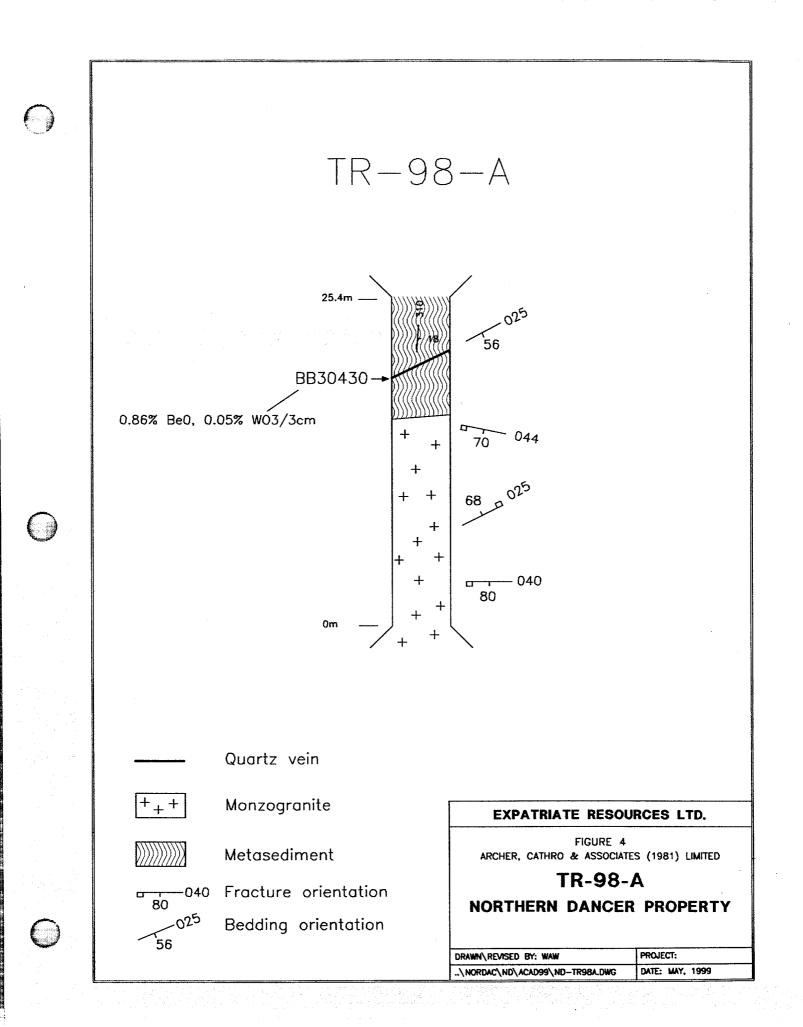
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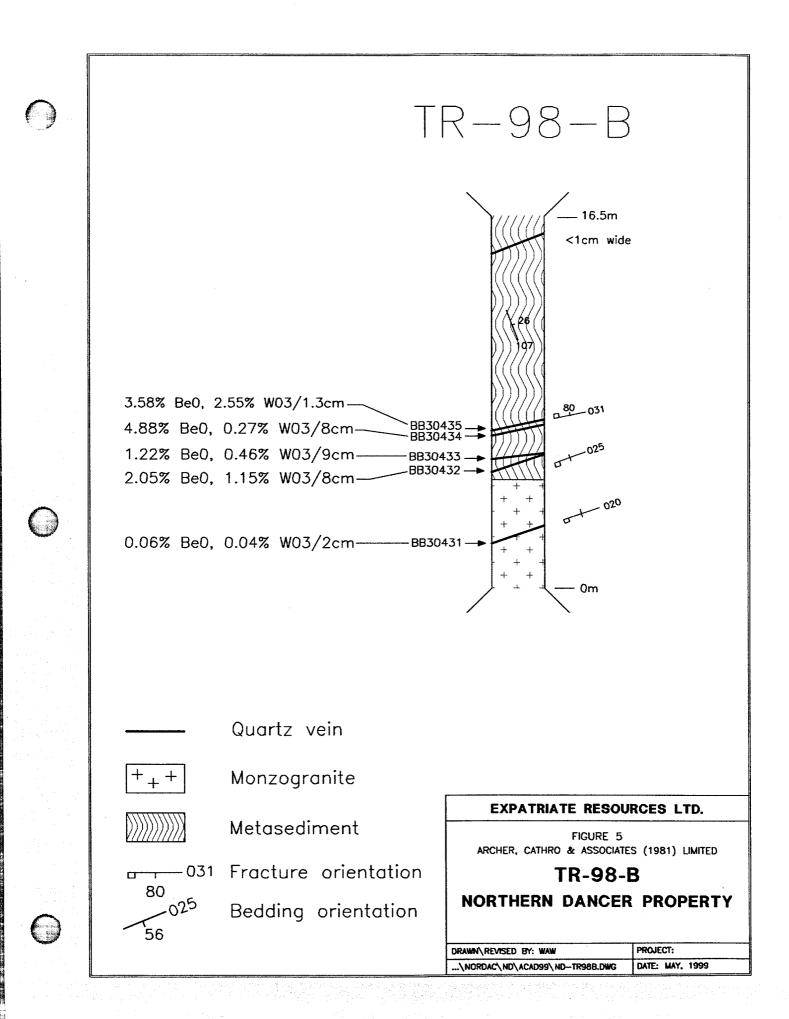
Published reports provide excellent descriptions of the distribution, density and orientation of the various vein sets and their relationship to different rock types.

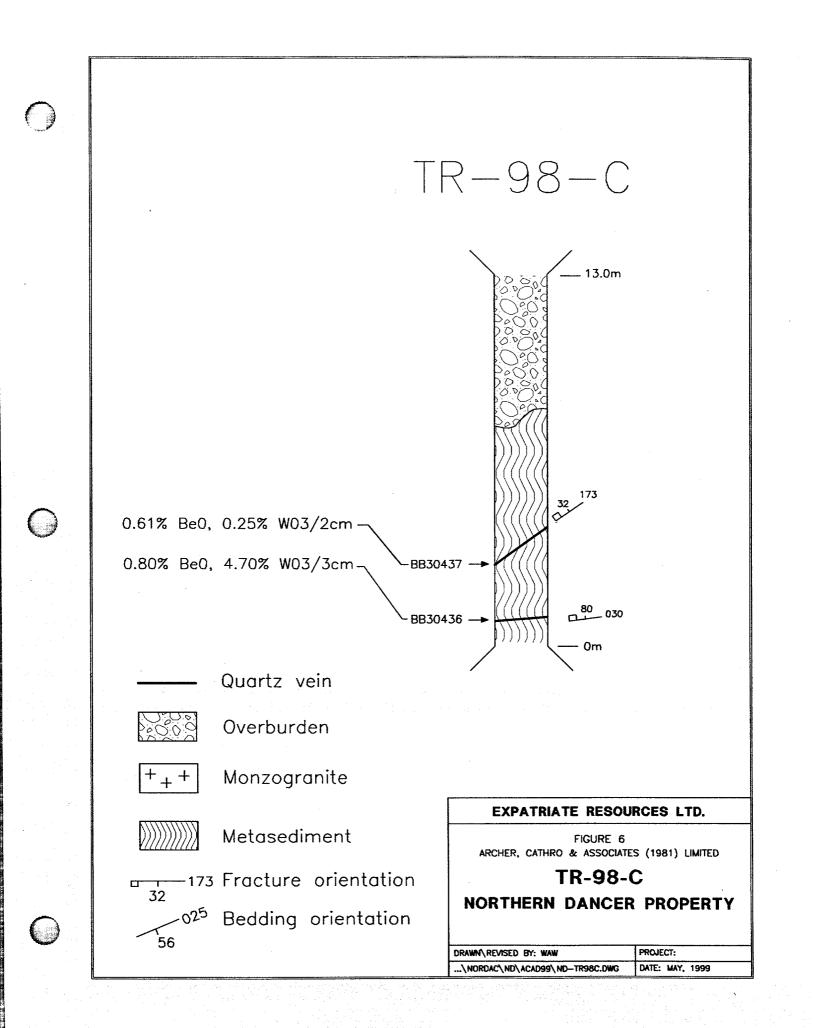
A number of rock samples were collected during the prospecting and hand trenching program. They were sent to Chemex Labs where they were routinely analyzed for 32 elements by the ICP technique. Selected sample splits were also geochemically analyzed or assayed for specific elements including Be0, WO<sub>3</sub>, tungsten, beryllium, gold, lithium, rare earth elements and whole rock analysis. Sample sites are shown on Figure 3 while Certificates of Analysis appear in Appendix III. Rock sample descriptions are in Appendix IV. Although some assays were reported as beryllium on the assay certificates, all have been converted to Be0 where referred to in text or plotted on maps.

In 1998 prospecting focused on the portion of the vein system where wolframite is the dominant tungsten mineral (Sheeted Veins - Type C on Table 1). Four areas of quartz-beryllium-wolframite-scheelite vein float have been identified on the claim (Figure 3).

The largest, highest grade area (Area A) is in the eastern third of the claim. Scattered mineralized float has been found over a length of about 1000 m, with the highest concentrations occurring on talus slopes and the lowest densities in areas where the hillside is covered by a thin layer of soil plus grass and buckbrush. The float appears to be derived from a series of sheeted veins striking about 030° and dipping vertically or steeply to the west. Subcrop and outcrop mineralization has been discovered at three sites where the vein trends cross a ridge crest in the southeast corner of the claim and in three of five hand trenches dug near the top of a major float train (the other two trenches failed to reach bedrock). The largest quartz vein in the area (sample site 59642) is up to 80 cm thick and is part of a swarm of veins comprising about 15% of the rock over a width of 20 m. The veins consist of massive white quartz with traces of beryl. Well mineralized veins range between 1 and 30 cm in thickness, based on exposures and the dimensions of float fragments. Typically, they contain white quartz with 1 to 50% pale blue cloudy beryl, trace to 15% wolframite, trace to 5% scheelite (usually intergrown with or fringing wolframite), trace to 3% muscovite, trace to 10% pale purple fluorite and trace to 0.5% bismuthinite. The beryl is normally euhedral and is between 0.5 and 4 cm long and 0.2 and 0.8 cm in diameter. It is often concentrated along vein selvages. Transparent beryl crystals up to 2 cm long and 0.6 mm in diameter have been observed in vugs along with transparent, clear or smoky euhedral quartz crystals. Specimens of mineralized vein have assayed up to 7.85% Be0 and 16.30% WO3. The best chip samples from veins exposed in hand trenching returned 4.88% Be0 and 1.15% WO<sub>3</sub> across 8 cm. Figures 4 to 6 show geology in the hand trenches. Only a small area has been tested by hand trenching. Therefore, the extent of the mineralized quartz veins and their average density has not yet been determined. They seem to be more abundant in metasedimentary rocks directly adjacent to the monzogranite stock.







Feldspar rich pegmatite dykes and sills occur with the quartz veins in some parts of Area A. Most of these intrusions are less than 50 cm thick and contain only minor beryl. Some dykes near sample site 59633 contain up to 40% purple fluorite while scattered pegmatic float immediately north of the hand trenches contain up to 50% beryl.

<u>Area B</u> is located on a largely till and talus covered cirque floor. Blue beryl, wolframite, scheelite, bismuthinite and molybdenite occur in up to 10 cm thick quartz vein fragments that were found in till and a series of scattered subcrops within a 150 m long zone that trends northerly across the border. The veins are hosted by hornfelsed metasedimentary rocks immediately east of a diorite intrusion. Samples collected on the Yukon side of the border assayed up to 1.47% Be0, 4.60%  $WO_3$ , 0.23% bismuth and 0.91%  $MOS_2$ . No samples were taken on the B.C. side of the border.

<u>Area C</u> also straddles the border. It consists of mineralized talus apparently derived from one or more quartz veins cutting diorite. A vein outcrops at sample site 4979 where it strikes 040° and dips 60° west. Quartz boulders in this zone range up to 30 cm in diameter. Most contain bismuthinite and many contain minor milky white, pale blue or pale green beryl. A soil sample of gossanous talus fines was collected immediately north of the border and returned 1260 ppm bismuth, 13.4 ppm silver, 515 ppm molybdenum, 340 ppm beryllium and greater than 2370 ppm tungsten. The southern projection of this vein trend projects into B.C. where preliminary prospecting was frustrated by thick talus cover.

<u>Area D</u> is in the southwest corner of the claim and consists of three mineralized float locales. The largest showing is composed of wolframite and scheelite rich quartz talus apparently derived from a 20 cm thick vein which is exposed in a 3 by 1.5 m outcrop. The vein strikes 040° and dips 55° to the southwest. A specimen (59634) from the outcrop assayed 4.30% WO<sub>3</sub>. Similar material was collected from a second talus train about 150 m along strike to the northeast. A specimen from this locale (59632) returned 4.40% WO<sub>3</sub>. The third mineralized locale is an 8 cm wide vein that outcrops along a ridge crest. This vein strikes 160° and dips vertically, approximately perpendicular to the main vein trend. It consists of white quartz with minor green fluorite, white to pale green beryl and scheelite. A specimen from this vein (59635) assayed 4.60% WO<sub>3</sub>.

Thirty-three samples were also taken from old drill core stored on the property. The samples consisted of quartered core from a 1977 drill hole (77-3). Another quarter of this core had previously been geochemically analyzed by the ICP technique and had returned high beryllium values compared to other ICP results from the property. All 33 samples were hornfelsed or skarnified metasediments. The samples were assayed for beryllium and returned uniformly low values suggesting that beryllium bearing minerals in the altered metasediments are likely more easily digested than the beryl in the quartz veins.

### **CONCLUSIONS**

The Northern Dancer claim hosts beryllium and tungsten rich veins whose potential is substantially enhanced by their proximity to an established tungsten-molybdenum deposit. Little trenching or drilling has been done outside of the deposit; thus, it is possible that the open pit outline could be modified to include a large tonnage of beryllium-tungsten mineralization. The colour contrast between the well mineralized quartz veins and the surrounding wallrocks suggest that photometric sorting may be a viable technique for pre-concentration of the beryllium-tungsten veins. There is also a potential for smaller scale production from the relatively high grade veins. The economics of either type of operation would be greatly enhanced by the coarse grain size of the mineralization and high values of beryl, wolframite and scheelite concentrates.

-7-

In order to evaluate vein potential, future work must reliably determine their average density and grade. The most effective exploration techniques for the next phase of exploration would be continued hand trenching on steep slopes coupled with excavator trenching in flatter, till covered areas. Large diameter diamond drill holes will be required if trenching results are favourable.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

B. Wergzyrowski

W.A. Wengzynowski, P.Eng.

#### **REFERENCES**

#### Eaton, W.D.

1994 Prospecting and Geochemical 1993 Report for NDU Resources Ltd., Lad 1 and 2 Claims, Atlin Mining District, NTS 104O/13E.

#### Harris, F.R.

- 1978 1977 Property Report, Logtung Property, unpublished company report for Amax Potash Limited, p.43.
- 1979 1978 Property Report, Logtung Property, unpublished company report for Amax Potash Limited, p.28.

### Noble, S.R., Spooner, E.T.C. and Harris, F.R.

1986 Logtung: A porphyry W-Mo deposit in southern Yukon, in CIM Special Vol. 37, pp.274-287.





### APPENDIX I

## AUTHOR'S STATEMENT OF QUALIFICATIONS



( )

### STATEMENT OF QUALIFICATIONS

I, William A. Wengzynowski, geological engineer, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, do hereby certify that:

- I graduated from the University of British Columbia in 1993 with a B.A.Sc. in 1. geological engineering, option 1, mineral and fuel exploration.
- I became a Professional Engineer on December 12, 1998 registered in the Province of 2. British Columbia.
- From 1983 to present, I have been actively engaged in mineral exploration in the Yukon 3. Territory and am presently employed with Archer, Cathro & Associates (1981) Limited. I have personally participated in and supervised the field work reported herein. 4.

B. Worgzynowski, P.Eng.



### APPENDIX II COST STATEMENT

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### Statement of Expenditures Northern Dancer - 1 Mineral Claim February 22, 1999

### <u>Labour</u>

( )

A. Archer - geologist - July to October - 17 hrs @ \$66/hr	\$ 1,200.54
D. Eaton - geologist July - 18 hrs, Aug 20 hrs, Sept 38 hrs, Oct 5 hrs,	
Nov 2 hrs - 83 hrs @ \$56/hr	<b>4,973.36</b> .
B. Wengzynowski - geologist - Sept 28 hrs, Oct 63 hrs 91 hrs @ \$43/hr	4,186.91
B. Gay - geologist - Aug 2 days @ \$240/day	513.60
I. Weatherston - field assistant - Sept 2 days, Oct 4 days -	
6 days @ \$172.50/day	<u>1,107.45</u>
전에 가지 않는 것 같은 것은 것을 가지를 수가 많이 많이 많이 많이 많이 들었다.	\$11,981.86
Expenses	
	2,707.10
Field room and board - 22 days @ \$115/day	
Norcan Leasing - truck rental and gas	1,201.58
Chemex Labs	1,233.15
Drafting and printing	507.61
Trucking and airfreight	71.37
	ф <i>с</i> 700 01
	<u>\$ 5,720.81</u>
Total	\$17,702.67



# APPENDIX III ANALYTICAL CERTIFICATES

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Analytical Chemists \* Geochemists \* Registered Assayers

212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218 To: NORDAC RESOURCES LTD. C/O ARCHER, CATHRO BOX 4127, 2054 SECOND AVE. WHITEHORSE, YT Y1A 3S9 Page per :1-A Total, s:1 Certificate Date: 23-OCT-1998 Invoice No. : 19833639 P.O. Number : Account :MTT

Project : LOGTUNG-B.C. Comments:

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CERTIFICATION:

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### **Chemex Labs Ltd.** Analytical Chemists \* Geochemists \* Registered Assayers

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212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218

Project : Comments: LOGTUNG-B.C.

NORDAC RESOURCES LTD.

C/O ARCHER, CATHRO BOX 4127, 2054 SECOND AVE. WHITEHORSE, YT

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212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218

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### Chemex Labs Ltd. Analytical Chemists \* Geochemists \* Registered Assayers

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212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218

Project : LOGTUNG-BC Comments:

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Analytical Chemists \* Geochemists \* Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218 To: NORDAC RESOURCES LTD. C/O ARCHER, CATHRO BOX 4127, 2054 SECOND AVE. WHITEHORSE, YT Y1A 3S9 Pa. Der :1 Tota, uges :1 Certificate Date: 02-OCT-1998 Invoice No. :19832494 P.O. Number : Account :MTT

Project : LOGTUNG/BC Comments:

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NORDAC RESOURCES LTD. C/O ARCHER, CATHRO BOX 4127, 2054 SECOND AVE. WHITEHORSE, YT Y1A 3S9

Project : Comments: LOGTUNG-BC



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SAMPLE	PREP CODE	Au ppb FA+AA	Be %	WO3 %						
N33986 59643M 59644M	244 244 244	< 5 20	0.64	1.10						



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Project : LOGTUNG/BC Comments: Pa Tota. Auges :1 Certificate Date: 02-OCT-1998 Invoice No. :19831918 P.O. Number : Account :MTT

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SAMPLE	PR CO		Be %	WO3 %	Ag ppm	A1 %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cđ ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
059648M 059649M	208 208	226 226	0.28 0.05	0.83 0.10	0.2 0.2	0.68 2.03	2 10	250 740	33.0 3.5	974 658	1.06 5.98	< 0.5 0.5	< 1 < 1	229 157	10 5	0.35 0.22	< 10 < 10	< 1 < 1	0.62 2.00	< 10 < 10	0.05 0.02
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Project : LOGTUNG/BC Comments: Pa Tota es :1 Certificate Date: 02-OCT-1998 Invoice No. : I9831918 P.O. Number : Account : MTT

**CERTIFICATE OF ANALYSIS** A9831918 PREP Ni ₽ Pb Sb Sc Тi T1 υ V W Zn Mn Mo Na  $\mathbf{sr}$ SAMPLE CODE % % ppm ppmppm ppm 059648M 208 226 685 19 0.05 5 < 10 34 < 2 43 < 0.01 < 10 < 10 5 360 18 1 059649M 208 226 165 7 0.22 4 10 28 < 2 < 1 110 < 0.01 < 10 < 10 4 720 40 Hartfuchler CERTIFICATION:



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LOGTUNG-BC Project : Comments:

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Pa: ber :1-A Tota. :1 Js. Certificate Date: 26-SEP-1998 Invoice No. : [9831421 P.O. Number : імтт Account

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SAMPLE	PRI COI		Be ppm	Ag ppm	A1 %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cđ ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
59642M 59643M 59644M	205	226 226 226	>1000	< 0.2 < 0.2 9.8	0.06 0.04 0.05	6 6 2	20 < 10 < 10	10.5 65.5 1.0	10 10 5640	0.11	< 0.5 < 0.5 < 0.5	< 1 < 1 1	391 355 246	8 6 27	0.37 0.41 0.37	< 10 < 10 < 10		0.03 < 0.01 0.01	< 10 < 10 < 10	< 0.01 < 0.01 < 0.01	20 30 1140
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Project : LOGTUNG-BC Comments: Pa Totu Certificate Date: 26-SEP-1998 Invoice No. : 19831421 P.O. Number : Account : MTT

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SAMPLE	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	T1 ppm	U ppm	V ppm	W ppm	Zn ppm	
9642M 9643M 9644M	205 220 205 220 205 220	6 3 6 6 6 7	0.01 0.01 0.01	6 6 6	< 10 < 10 < 10	< 2 2 200	2 2 110	< 1 1 12	< 1 <	0.01 0.01 0.01	< 10 < 10 < 10	< 10 < 10 10	1 1 1	< 10 < 10 300	2 2 < 2	
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Pa ber :1-A Tota. :1 Js Certificate Date: 25-SEP-1998 Invoice No. : 19831420 P.O. Number : MTT Account

Project : Comments: LOGTUNG-BC

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SAMPLE	PREP CODE	Ag ppm	A1 %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
N33986	201 202		1.37	464	90	1.5	32	0.22	< 0.5	8	29	20	2.35	< 10	< 1	0.08	30	0.41	840	33
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Project : LOGTUNG-BC Comments:

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SAMPLE	PREP CODE	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	T1 ppm	U mqq	V ppm	W ppm	Zn ppm	
N33986	201 202	< 0.01	24	810	78	< 2	4	25	0.08	< 10	10	41	< 10	82	
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Project : LOGTUNG/BC Comments:

A9831099 **CERTIFICATE OF ANALYSIS** ĸ Mn Mo PREP Bi Сa Cđ Co  $\mathbf{Cr}$ Cu Fe Ga Hg La Mg A1 Ba Be Ag As % % % ppm % ppm ppm CODE % ppm ppm SAMPLE ppm ppm ppm ppm ppm ppm ppm ppm ppm 299 229 204 1 0.26 < 10 < 1 0.02 < 10 0.01 35 10 2 0.12 < 0.5 < 1 59628M < 0.2 0.03 4 < 10 11.0 166 2 0.23 < 10 < 1 0.05 < 10 0.01 85 73 < 0.5 < 1 59629M 299 229 < 0.2 0.09 4 10 64.0 56 0.46 188 0.51 < 10 < 1 0.06 < 10 < 0.01 4730 9 299 229 0.5 < 1 2 59630M < 0.2 0.09 6 30 44.0 14 1.21 2920 20 0.5 210 7 0.45 < 10 0.12 < 10 0.01 < 1 < 1 59631M 299 229 < 0.2 0.15 2 60 98.0 1240 0.97 2170 16 25.5 4.17 20.0 153 19 0.75 < 10 < 1 0.29 < 10 0.22 59632M 299 229 0.8 1.10 8 600 60 1 229 3140 9.5 6 7.60 < 0.5 < 1 32 2 0.06 < 10 < 1 2.82 < 10 < 0.01 40 < 1 59633м 299 < 0.2 3.29 2 8 0.53 0.35 < 10 < 0.01 3630 9 299 229 10 360 21.0 400 1.32 1.5 < 1 200 < 10 < 1 2.6 0.46 59634M < 10 0.01 1120 2.09 1.0 < 1 153 8 0.42 < 10 < 1 0.63 2950 9 299 229 10 660 13.5 59635M 8.8 0.73 299 229 206 30 43.5 >10000 1.09 2.5 3 197 248 3.57 < 10 < 1 0.03 < 10 < 0.01 >10000 541 0.2 0.10 59641M

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Project : LOGTUNG/BC Comments: Pa Totanges :1 Certificate Date: 22-SEP-1998 Invoice No. : 19831099 P.O. Number : Account :MTT

**CERTIFICATE OF ANALYSIS** A9831099 Pb Sb Sr Ti т1 ΰ V W Zn PREP Na Ni Ρ Sc % SAMPLE CODE % ppm < 10 < 2 59628M 299 229 < 0.01 з < 10 < 2 < 2 < 1 3 < 0.01< 10 < 1 120 299 229 < 0.01 2 < 10 2 < 2 1 6 < 0.01< 10 < 10 1 180 2 59629M < 2 250 6 299 229 0.01 3 < 10 < 2 39 26 < 0.01< 10 < 10 < 1 59630M 250 18 299 229 0.02 < 10 32 < 2 14 45 < 0.01 < 10 < 10 < 1 59631M 4 420 1095 299 229 0.25 8 260 44 < 2 12 216 0.01 < 10 < 10 34 59632M 170 48 457 < 0.01 < 10 < 10 < 1 59633M 299 229 0.50 2 10 14 < 2 < 1 250 58 59634M 299 229 0.05 3 < 10 48 < 2 20 88 < 0.01 < 10 < 10 1 < 2 21 133 < 0.01 < 10 < 10 1 230 58 59635M 299 229 0.07 3 < 10 186 94 54 < 0.01 < 10 < 10 2 490 50 368 130 59641M 299 229 0.01 8 20

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Project : LOGTUNG/BC Comments: Pac ber :1 Tota. Jes :1 Certificate Date: 29-SEP-1998 Invoice No. : I9831096 P.O. Number : Account : MTT

							CERTIFIC	CATE OF /	ANALYSIS	A98	31096	
SAMPLE	PRI		W ppm	Be ppm	WO3 %	Be %						
59628M 59629M 59630M 59631M 59632M	208 208 208 208 208 208	226	155  	37.0	<pre>&lt; 0.01     4.50     4.50     4.40</pre>	0.16 0.71 0.33 0.59						
59633M 59634M 59635M 59641M	208 208 208 208 208	226 226	150  	21.0 46.0 25.0 >1000	4.30 4.60 16.80							
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Project : LOGTUNG-BC Comments:

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Page Der :1 Total 35 :1 Certificate Date: 31-JUL-98 Invoice No. : I9825423 P.O. Number : Account :MTT

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SAMPLE	PREP CODE	Be %				
N110413 N110414 N110415 N110416 N110417	208 226 208 226 208 226 208 226 208 226 208 226	< 0.01 < 0.01 < 0.01				
N110418 N110419 N110420 N110421 N110422	208         226           208         226           208         226           208         226           208         226           208         226           208         226	< 0.01 0.01 < 0.01				
N110423 N110424 N110425 N110426 N110427	208 226 208 226 208 226 208 226 208 226 208 226	< 0.01 < 0.01 < 0.01				
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LOGTUNG - BC Project : Comments:

Page )er :1 Total . Certificate Date: 23-JUL-98 Invoice No. : 19823803 P.O. Number : імтт Account

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SAMPLE	PREP CODE	Li ppm	A1203 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	Mg0 % XRF	MnO % XRF	Na20 % XRF	P205 % XRF	SiO2 % XRF	TiO2 % XRF	LOI % XRF	TOTAL %
959613M	244 232	36	15.60	11.51	0.01	0.16	10.01	0.17	0.01	2.05	0.06	53.79	0.04	1.50	94.91
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Project : LOGTUNG - BC Comments:

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SAMPLE	PR CO		Be ppm	WO3 %	Ag ppm	A1 %	As ppm	Ba ppm		Bi ppm	Ca %	Cđ ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
059611M	208	226	0.7	0.10	2.0	0.07	10	< 10	< 0.5	138	0.45	< 0.5	< 1	290	5	0.45	< 10	< 1	0.03	10	0.01
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Project : LOGTUNG - BC Comments:

Page ber :1-B Total jes :1 Certificate Date: 25-JUN-98 Invoice No. :19821626 P.O. Number Account MTT

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SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	T1 ppm	U ppm	V ppm	W ppm	Zn ppm		
59611M	208 226	120	3 <	: 0.01	3	10	32	14	2	4 <	0.01	< 10	< 10	2	450	4		
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Project : Comments: LOGTUNG -BC

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Page ber :1 Total. :1 Certificate Date: 29-JUN-98 :19822625 Invoice No. P.O. Number Account :MTT

CERTIFICATE OF ANALYSIS	A9822625
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North Vancouver

V7J 2C1

212 Brooksbank Ave.,

British Columbia, Canada

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NORDAC RESOURCES LTD. C/O ARCHER, CATHRO BOX 4127, 2054 SECOND AVE. WHITEHORSE, YT Page ber :1-A Total Jes :1 Certificate Date: 25-JUN-98 Invoice No. : 19821603 P.O. Number • MTT Account

Project : LOGTUNG - BC Comments:

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#### **CERTIFICATE OF ANALYSIS** A9821603

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PREP CODE	Be %	WO3 %	Ag ppm	A1 %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cđ ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
208 226	0.56		< 0.2 < 0.2	0.39 0.33 3.96 0.15	< 2 < 2 < 2 < 2	90 2710	32.0 5.0	116 < 2 < 2 240	8.26	< 0.5	< 1 < 1 < 1 < 1	251 153 34 222	3 < 1 1 3	0.61 0.19 0.10 0.37	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.23 0.36 3.34 0.07	< 10 < 10 < 10 < 10 < 10	0.03 0.01 0.06 0.01
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	CODE 208 226 208 226 208 226	CODE         %           208         226         2.83           208         226         0.56           208         226         0.04	CODE         %         %           208         226         2.83         0.47           208         226         0.56            208         226         0.04	CODE         %         ppm           208         226         2.83         0.47         < 0.2	CODE         %         ppm         %           208         226         2.83         0.47          0.2         0.39           208         226         0.56           0.2         0.33           208         226         0.04           0.2         0.33	CODE         %         ppm         %         ppm           208         226         2.83         0.47         < 0.2	CODE         %         ppm         ppm         ppm         ppm           208         226         2.83         0.47         < 0.2	CODE         %         ppm         ppm	CODE         %         ppm         %         ppm         pm         pm         pm	CODE         %         ppm         %         ppm         ppm         ppm         ppm         ppm         ppm         %           208         226         2.83         0.47         < 0.2	CODE         %         ppm         %         ppm         ppm	CODE         %         ppm         ppm	CODE         %         %         ppm         %         ppm         ppm         ppm         %         ppm         ppm	CODE         %         %         ppm         %         ppm         pm         pm	CODE         %         ppm         ppm <td>PREP CODE         Be         W03         Ag         A1         As         Ba         Dpm         Dm         Dm</td> <td>PRDP         Be         W03         Ag         Al         As         Ba         Be         Bi         Ca         Cd         Co         Ct         Cu         Fe         Ga         Bg           208         226         2.83         0.47         0.2         0.39         &lt;2</td> 100         >100         116         1.36         1.5         <1	PREP CODE         Be         W03         Ag         A1         As         Ba         Dpm         Dm         Dm	PRDP         Be         W03         Ag         Al         As         Ba         Be         Bi         Ca         Cd         Co         Ct         Cu         Fe         Ga         Bg           208         226         2.83         0.47         0.2         0.39         <2	PREP         Be         W03         Ag         Al         As         Ba         Be         Bi         Ca         Cd         Co         CC         Cu         Pe         Ga         Bg         K         ppm         pm	PREP         Be         MO3         Ag         Al.         As         Ba         Be         Bi         Ca         Cd         Co         Cr.         Cu         Fe         Ga         Bg         K         La           208         226         2.63         0.47         <0.2



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British Columbia, Canada



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Project : LOGTUNG -BC Comments: Page ber :1-B Total es :1 Certificate Date: 25-JUN-98 Invoice No. : [9821603 P.O. Number : Account :MTT

**CERTIFICATE OF ANALYSIS** A9821603 PREP Ni Mn Mo Na Ρ Pb Sb Sc  $\mathbf{sr}$ Ti т1 U V W Zn SAMPLE CODE % % ppm ppm059610M 208 226 890 7 3 6 730 0.01 40 8 < 2 25 < 0.01< 10 < 10 5 50 208 226 059612M 50 2 < 1 0.05 < 10 10 < 2 < 1 38 < 0.01 < 10 < 10 1 30 8 059613M 208 226 90 0.72 3 160 30 477 < 0.0140 28 < 1 < 2 1 < 10 < 10 10 059614M 208 226 1860 5 < 0.01 2 250 < 10 10 < 2 14 19 < 0.01 < 10 < 10 1 2

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APPENDIX IV ROCK SAMPLE DESCRIPTIONS

### **NORTHERN DANCER SAMPLE DESCRIPTIONS**

Sample Number	Description					
059648M	<ul> <li>4 cm quartz vein with pale blue, milky to clear beryl crystal plus traces of wolframite and scheelite. Veins traced from ridge crest toward (040°) main beryl/wolframite float area.</li> <li>20 cm thick feldspar pegmatite on uphill side of ridge locale. Part of an extensive system of dykes and veins mostly purple fluorite rich but often with beryl and occasionally wolframite. This specimen contains about 3% pale blue beryl, a bleb of bismuthinite, small crystals of wolframite, rims and blebs of scheelite and a few grains of a mineral that fluoresces bright orange. It is about 60% coarse feldspar and 40% coarse quartz in one large block.</li> </ul>					
059649M						
059642M	Quartz vein from swarm at head of cirque. Minor $\sim 1\%$ beryl. Veins up 1 m wide. Swarm $\sim 50$ m long by 20 m wide $\sim 15\%$ quartz veins. Veins localized in quartz monzonite immediately adjacent to schist contact.					
059643M	Quartz vein float with ~5% beryl. Other float contains wolframite and molybdenite rosettes. Most talus quartz monzonite but adjacent to schist contact. Vein fragments up to 10 cm thick. Most unmineralized.					
059644M	Quartz vein float with ~0.1% acicular silver crystals (bismuthinite?), som with yellow ochre coating them.					
059610M	Upper talus zone - 40x30x6 cm slabs. ~50% coarse grained, white to pa blue beryl crystals up to 0.7 mm in diameter intergrown and crosscut by ~46% glassy to milky, white to pale grey quartz, 1% wolframite surrounded by dark brown oxide; ~1% beige mica - mostly along edges or rock; 2% scheelite mostly along one side; trace clear fluorite.					
059611M	Head of cirque - 40x60x80 cm boulders "barren quartz"; 1% wolframite a couple of large blebs; 2% red to yellow limonite; 1% purple fluorite in bleb with wolframite; trace scheelite; one large grain bright gold fluorescence under quartz.					
059612M	Talus fragment uphill from main talus zone, 5 cm thick with 1 cm quartz vein in centre; ~20% light to medium grey glassy quartz; ~20% pale gree - blue to white beryl crystals intergrown with ~60% hackly weathering, white feldspar.					

059613M	Upper talus zone; 60x60x20 cm slabs; ~5% pale green-blue beryl intergrown with 75% white, hard, hackly weathering feldspar; ~10% purple fluorite; 5% medium to pale grey quartz; 5% silver-grey mica mostly in a band (8 mm wide) running across the rock; trace scheelite.					
059614M	Main talus zone; "typical" white quartz with beryl 30x20x15 cm block; ~80% white milky quartz; ~18% pale blue-green to white beryl crystal aggregates, mostly along edges; ~2% wolframite; from bright yellow to red limonite (some likely after molybdenite); minor scheelite usually on edge of wolframite; trace clear fluorite.					
59628M	Typical beryl-quartz vein outside of high grade core; ~7% coarse beryl; 10x5x5 cm.					
59629M	Typical beryl-quartz vein in the high grade core; $10x10x10$ cm fragment off larger boulder; ~15% beryl, especially on edges; no wolframite; minor scheelite.					
59630M	Typical quartz-beryl-wolframite vein from high grade core, 20x10x10 cm fragment off larger boulder; ~10% beryl and 4% wolframite, also about 1% scheelite rimming wolframite crystals.					
59631M	Typical quartz-beryl-wolframite vein from high grade core, $10x10x5$ cm fragment; ~7% beryl and 7% wolframite plus 5% scheelite along margins and with wolframite.					
59632M	Quartz-wolframite vein, $10x8x8$ cm from 10 cm thick, $50x50$ cm slab; $\sim 3\%$ wolframite, no beryl. All wolframite crystals rimmed with scheelite $\sim 2\%$ .					
59633M	Quartz-fluorite vein from a 12 cm thick vein paralleling banding in skarn - subhorizontal. Fluorite is purple. No visible scheelite, wolframite or beryl.					
59634M	A 20 cm thick, quartz-wolframite vein from a 3x1.5 m outcrop 040°/55° SW. No visible beryl; wolframite ~2% rimmed by scheelite ~1%. Quartz-fluorite vein about 20 m east of 59634M. This set of veins at ~160°/steep. 1% wolframite occurs as 1 mm to 1 cm bladed crystals surrounded by ~2% scheelite. A few glassy clear to green beryl crystals. These veins are poddy compared to the 040° which are more tabular. Veins are exposed along and adjacent to a ridge crest. Sample 8x8x8 cm.					
59635M						
	a ser a A ser a s					

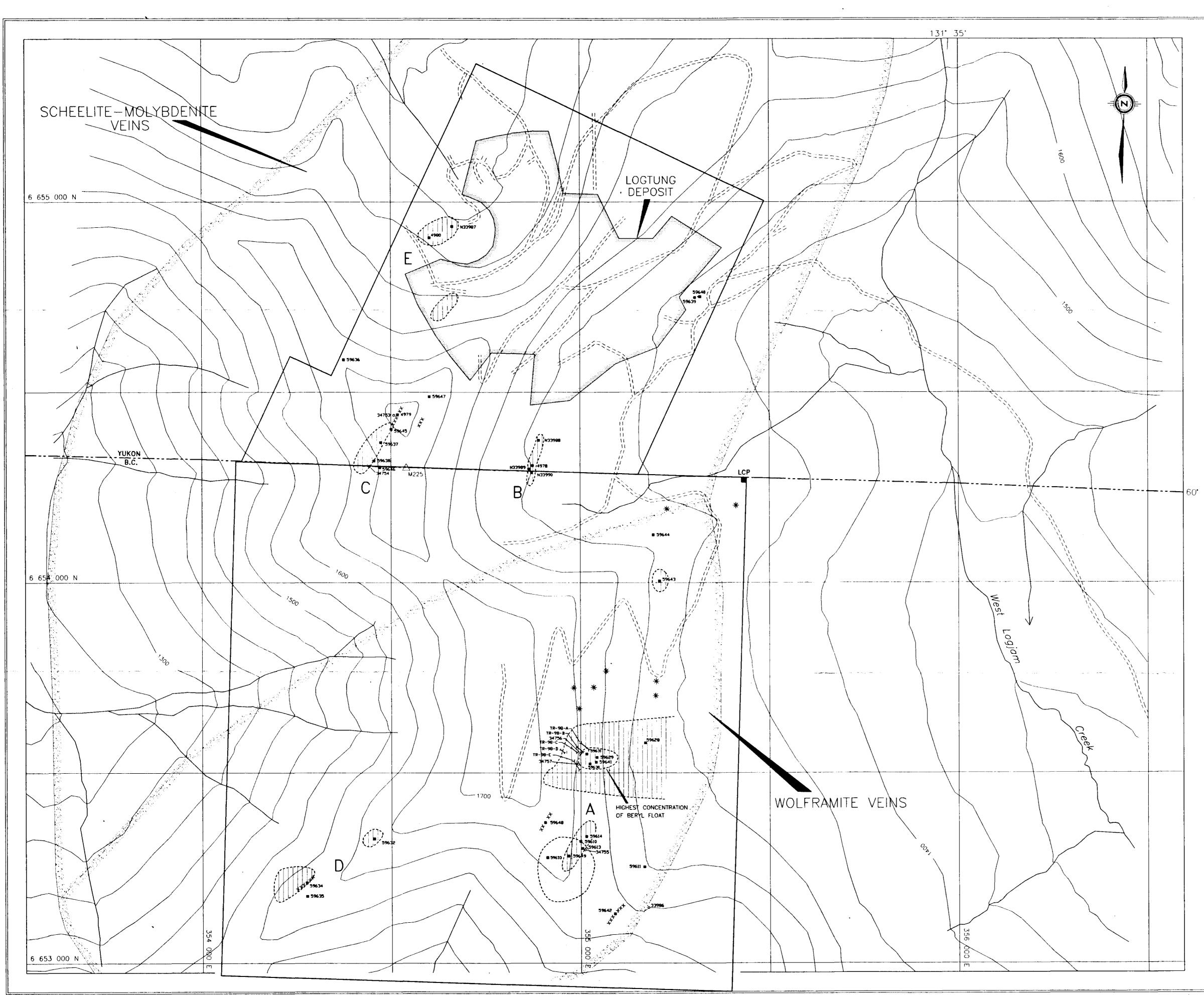
### Sample Number De

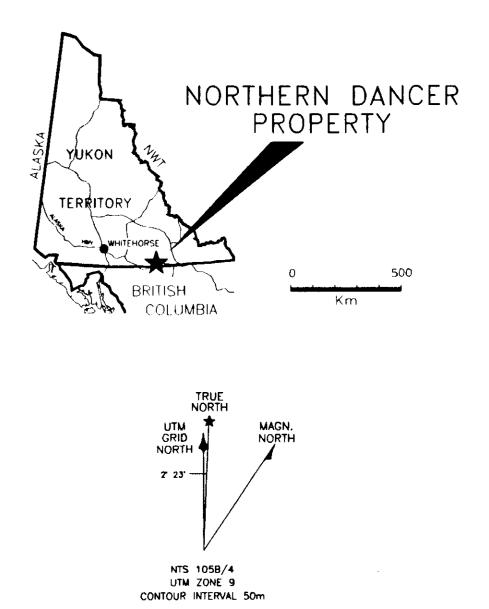
### **Description**

59641M

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Quartz-wolframite-beryl vein, 16x8x8 cm, wolframite ~30%, 5% scheelite plus yellow ochre stained, dull grey, striated mineral (5%). Beryl very patchy - little or none in this sample.





	****	Quartz vein with beryl <u>+</u> wolframite <u>+</u> scheelite					
		Abundant quartz vein float with beryl <u>+</u> wolframite <u>+</u> scheelite					
00'	*	Scattered quartz vein float with beryl <u>+</u> wolframite <u>+</u> scheelite					
		Pegmatite dykes with fluorite <u>+</u> beryl					
	А	Area of mineralization					
	Ĭ	1998 hand trench					
	•	1998 rock sample location					
	o	1998 soil sample location					
		Road					
		Claim boundary					

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT 25,9333 NORDAC RESOURCES LTD. FIGURE 3 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# MINERALIZATION

NORTHERN DANCER PROPERTY

SCALE 1:5000									
0	50 100	200	300	400	500	m			
DRAWN/REVISED BY: AG					PROJECT:	· · · ·			
FILE: NORDAC\ND\ACAL	D99\ND5-MIN	(	DATE: MA	Y, 1999					