COMMERCE RESOURCES CORP

2003 EXPLORATION AT THE BLUE RIVER PROPERTY

NORTH OF BLUE RIVER, BRITISH COLUMBIA
(KAMLOOPS MINING DIVISION)

CLAIMS

Verity 1-13, Mara 1-7, Paradise 1-3, 5-6, 9-11,
Serp 1-6, Gum 1-6, Fir 1-12 and Thunder 5

Geographic Coordinates

52° 18' N
119° 09' W

NTS Sheet 83 D/6

Owner/Operator: Commerce Resources Corp.
1450-789 West Pender Street
Vancouver, B.C. V6C 1H2

Consultant: Dahrouge Geological Consulting
18, 10509 - 81 Avenue
Edmonton, Alberta T6E 1X7

Authors: Jody Dahrouge, B.Sc., P. Geol.
Robin Wolbaum, B. Sc., Geol. I.T.

Date Submitted: 2004 05 07

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF APPENDICES

1. INTRODUCTION

Throughout this report the term Blue River Property refers to mineral claims Verity 1 to 13, Mara 1 to 7, Paradise 1-3, 5-6, 9-11, Fir 1 to 12, Serp 1 to 6, Gum 1-6 and Thunder 5 which encompass a number of tantalum-niobium-phosphate bearing carbonatites, located approximately 30 km northeast of Blue River, British Columbia. Claims Verity 1 to 9 and Fir 1 to 9 were acquired by Commerce Resources Corp. during February, 2000; Mara 1 to 7 during August, 2000; and Verity 10 to 13 and Fir 10 to 12 during October, 2000. Claims Paradise 1 to 13 were acquired during December, 2000; Thunder 5 during April, 2001; Serp 1 to 6 during March, 2002; and Gum 1 to 6 during December, 2003. These claims have been referred to as the Verity, Mara, Paradise, Gum and Fir properties in prior assessment reports.

Work, consisting of limited prospecting and soil sampling, was conducted in July 2003 by Dahrouge Geological Consulting Ltd., on behalf of Commerce Resources Corp. Additional work included mineral processing and gravity concentration tests on material from the Fir Carbonatite by International Metallurgical and Environmental Inc.

As information on regional and property geology, mineralization, regional structure, stratigraphy and lithology are available in prior assessment reports by Dahrouge (2001a, 2001b), Dahrouge and Reeder (2001, 2002a, 2002b) and Smith and Dahrouge (2002, 2003), it has not been included herein. Throughout this report, attitudes of bedding and other planar features are given as A°/B° SW, where A° is the azimuth of the strike and B° is the amount of dip in the direction indicated. A magnetic declination of 20.4° east was used.

1.1 GEOGRAPHIC SETTING

1.1.1 Location and Access

The Blue River Property is located along the east side of North Thompson River valley of east-central British Columbia, within NTS map area 83 D/6 (Fig. 1). The northern carbonatites (Verity, Mill, Paradise, Roadside-Serpentine Creek) are within the Verity-Paradise-Mara claims and the southern carbonatites (Fir, Upper Fir, Bone Creek) are within the Fir claims.

The property is approximately 30 km north of Blue River, 45 to 65 km south of Valemount, British Columbia and is accessible from British Columbia Highway 5 (Yellowhead South Highway). The Fir claims can be reached via Gum Creek forest service road which branches from Highway 5 about 23 km north of Blue River. Other areas on the property can be reached through a network of well-maintained logging roads. Remote and high-altitude locations are restricted to access by foot or helicopter. The main line of the Canadian National Railway, which parallels the Yellowhead

Highway, passes through the western part of the property. Limited supplies and accommodations are available at either Blue River or Valemount.

1.1.2 Topography, Vegetation, Climate and Geographic Names

The Blue River Property is between about 700 m and 2300 m elevation above sea level and is located along the steep, west-facing slopes of the Monashee Mountains. Slopes are typically covered by thick undergrowth consisting of buckbrush, devil's club and huckleberry. Areas not subjected to recent logging are covered by dense stands of hemlock, cedar, fir and white pine. Timber line is usually between 1800 to 2000 m elevation. Precipitation averages about 120 cm per year and snowfall is generally heavy.

1.2 PROPERTY

The Blue River Property encompasses a contiguous area of about 111 km^2 situated within Kamloops Mining Division (Fig. 1.2; Table 1.1). The property includes 21 two-post mineral claims (Verity 1 - 9; Mara 5 - 7; Fir 1 - 9) and 36 four-post mineral claims (Verity 10 - 13; Mara 1 - 4; Paradise 1-3, 5, 6, 9-11; Gum 1 - 6; Serp 1 - 6; Fir 10 - 12; and Thunder 5). The claims are wholly owned by Commerce Resources Corp.(Fig 2). On December 16, 2003, Commerce Resources Corp. made application to reduce the size of the following four-post claims: Paradise 1, 2, 3, 6 and Gum 2 (Table 1.1).

Previously, the area was divided into four (or more) separate properties. The term Blue River Property is now used to include the Verity Property (claims Verity 1 - 13), the Mara Property (claims Mara 1 - 7), the Paradise Property (claims Paradise 1-3, 5, 6, 9-11), the Gum Property (claims Gum 1-6) and the Fir Property (claims Fir 1 - 12 and Thunder 5). These properties, in addition to the Serp claims, make up a contiguous area and are considered one property.

1.3 HISTORY AND PREVIOUS INVESTIGATIONS

1.3.1 Work by Previous Operators

The Blue River Property was explored sporadically over the past half century for a number of different commodities. The carbonatites have been examined for their potential to host deposits of vermiculite, uranium, niobium, tantalum and phosphate. Exploration work has included prospecting, geological mapping, trenching, geophysical surveys and diamond drilling. The results of this work have identified at least six separate carbonatite intrusions with significant Ta-Nb-P mineralization.

TABLE 1.1: LIST OF MINERAL CLAIMS

Claim Name	Tenure Number	Units/Claim	Record Date	Actual/Expected Expiry Date
Verity 1-6	374654-9	1 each	2000-02-15	2007-02-15
Verity 7-9	374660-62	1 each	2000-02-17	2007-02-17
Verity 10	382159	20	2000-10-28	2009-10-28
Verity 11	382160	12	2000-10-27	2008-10-27
Verity 12	382161	16	2000-10-27	2008-10-27
Verity 13	382162	20	2000-10-27	2008-10-27
Mara 1,3	380030	20 each	2000-08-16	2011-08-16
Mara 2	380031	8	2000-08-16	2011-08-16
Mara 4	380033	8	2000-08-17	2011-08-17
Mara 5-7	380034-6	1 each	2000-08-16	2011-08-18
Paradise 1*	383334	8	2000-12-30	2004-12-30
Paradise 2*	383335	6	2000-12-30	2004-12-30
Paradise 3*	383336	15	2000-12-30	2004-13-30
Paradise 5,9	383338,42	6 each	2000-12-29	2004-12-29
Paradise 6*	383339	12	2000-12-29	2004-12-29
Paradise 10	383343	8	2000-12-29	2004-12-29
Paradise 11	383344	10	2000-12-29	2004-12-29
FIR 1-9	374663-71	1 each	2000-02-16	2012-02-16
FIR 10-12	382163-5	20 each	2000-10-28	2011-10-28
Thunder 5	385831	20	2001-04-23	2005-04-23
Serp 1	392389	12	2002-03-11	2005-03-11
Serp 2, 4	392390, 92	18 each	2002-03-10	2005-03-10
Serp 3	392391	20	2002-03-11	2005-03-11
Serp 5	392393	18	2002-03-09	2005-03-09
Serp 6	392394	18	2002-03-08	2005-03-08
Gum 1,3-6	383846, 48-51	16 each	2001-01-31	2004-12-23
Gum 2*	383847	8	2001-01-31	2004-12-23
	Totals	**488**		

*Claim size reduced Dec. 16, 2003

The Verity Carbonatite (once described as a limestone unit) was originally discovered in 1949 by Mr. O.E. French and briefly examined for its vermiculite potential by Zonalite Corporation (McCammon, 1950). Further work by Mr. French in 1951 and the B.C. Department of Mines identified radioactive pyrochlore and the property was optioned by St. Eugene Mining Corporation Ltd. for its uranium potential (McCammon, 1952). Between 1952 and 1955 the company conducted road-building, geological mapping, prospecting, trenching and sampling (McCammon, 1954).

The area surrounding the Paradise Carbonatite, to the east of Verity, was staked in 1967 by Anthony Rich and a reconnaissance exploration program of prospecting, mapping and sampling was completed (Rich, 1968). During the late 1960s the Blue River carbonatites were examined by Dr. Anthony Mariano, on behalf of Kennecott Copper Corporation (Mariano, 1982).

In 1976, the property was re-staked by John Kruszewski for its uranium and columbium (niobium) potential and an exploration program involving ground geophysical surveys (magnetometer and scintillometer), stripping and trenching was conducted (Meyers, 1977; Jackson et al., 1978; Ahroon, 1980).

In 1980, the property was optioned by Anschutz (Canada) Mining Ltd. primarily as a tantalum and niobium prospect. An aggressive exploration program was initiated including airborne and ground geophysical surveys, geological mapping and diamond drilling. This work resulted in the discovery of the Bone Creek and Fir carbonatites and the definition of a small (~2 mT) deposit at the western extremity of the Verity Carbonatite (Aaquist 1982a, 1982b). Between 1980 and 1982, approximately 4000 m of drilling was completed on the Verity, Mill, Bone Creek and Fir carbonatites. Due to a drop in the price of tantalum, no further exploration work was conducted and the properties were allowed to lapse.

TABLE 1.2: SUMMARY OF PRIOR EXPLORATION AT THE BLUE RIVER PROPERTY

Year	Description	Reference
1950	Geological mapping, sampling, several hand trenches on the Verity Carbonatite (limestone)	McCammon, 1950
1951-52	Geological mapping, test-pitting and sampling	McCammon, 1952
1953	Road-building, stripping and trenching	McCammon, 1954
1954	Minor sampling	McCammon, 1954
1967	Mapping and sampling of Paradise Carbonatite	Rich, 1968
1977-78	Ground magnetometer and scintillometer surveys, prospecting, trenching and sampling	Meyer, 1977 Jackson et. al., 1978
1979-80	Airborne and ground geophysics, geological mapping, sampling and core drilling	Ahroon, 1980
1981	Extensive diamond drilling, geological mapping, sampling and 1:4000 scale topographic map constructed	Aaquist, 1982a
1982	Detailed mapping and sampling	Aaquist, 1982b

1.3.2 Work by Government or Academic Agencies

Despite the rarity of carbonatite occurrences worldwide, the unusual mineralogy of the Blue River carbonatites and their accessibility, they have yet to be the primary focus of any detailed scientific studies. The Canoe River area, which encompasses the Blue River Property was mapped by R.B. Campbell of the Geological Survey of Canada in 1967 (Campbell, 1968). A more detailed study involving mapping of the stratigraphy, structure and metamorphism of the surrounding Cariboo Mountains area was completed by Pell and Simony (1981). The Mount Cheadle area, which was the focus of a metamorphic study by Digel et al. (1989), resulted in the discovery of the Serpentine Creek and Gum Creek carbonatites.

Because of the unusual minerals and original mis-identification of the carbonatites as sedimentary rocks, early studies involved petrological, geochemical and isotopic tests to correctly identify the igneous nature of the rocks (Rich, 1968; Mariano, 1979, 1982). The most detailed work on the mineralogy, petrology and geochemistry of the Blue River carbonatites was conducted by Dr. Anthony Mariano on behalf of Anschutz (Canada) Mining Ltd. (Mariano, 1979; 1982). A number of the carbonatites were also studied as part of a provincial-wide examination of alkaline intrusions by Pell (1987) and Pell and Hoy (1989). More recently, Hogarth et. al. (2000) examined chemical zoning in Verity pyrochlore crystals and Simandl et al. (2002) compared the chemical composition of pyrochlore and columbite crystals in the Verity and Fir carbonatites.

1.3.3 Work by Commerce Resources Corp.

During 2000, Commerce Resources Corp. re-staked the Verity and Fir Carbonatites with the present claim boundaries now covering an area of approximately 111 km^2. Exploration during 2000 consisted of a limited reconnaissance program including the examination of the known carbonatite exposures and confirming the tantalum-niobium-phosphate mineralization (Dahrouge, 2001a, 2001b). Two additional outcrops of carbonatite were discovered, one of which was named the Roadside Carbonatite.

During 2001, the company continued exploration on the Verity and Fir carbonatites with an extensive program consisting of prospecting, stream sediment sampling, ground geophysical surveys, soil sampling and diamond drilling (Dahrouge and Reeder 2001, 2002a, 2002b; Smith and Dahrouge, 2002). A total of 410 m was drilled at the Verity Deposit and 1245.21 m at the Fir Deposit. An inferred resource was calculated for both deposits using the prior drill data of Anschutz (Canada) Mining Ltd. and those results obtained by Commerce Resources Corp. (Table 1.3). Additional information and full descriptions of the 2000 to 2002 exploration can be found in prior reports.

During December 2003, claims Gum 1 to 6 were purchased by Commerce Resources Corp. from International Arimex Resources Corp.

1.4 PURPOSE OF SURVEY

The 2003 soil sampling survey was undertaken to determine the possible extent of carbonatite outcrop (Upper Fir Carbonatite) discovered in the summer of 2002. This outcrop, which is predominately covered by vegetation and overburden of various thickness, lies east of the previously discovered and extensively drilled Fir Carbonatite. Prior exploration in the vicinity of the

TABLE 1.3: INFERRED RESERVES OF TANTALUM AND NIOBIUM AT THE BLUE RIVER PROPERTY

Carbonatite Deposit	Cut-Off Grade Ta_2O_5 (g/t)	Tonnes (mT)	Ta_2O_5 (g/t)	Nb_2O_5 (g/t)	P_2O_5 (wt%)
Verity[1]	150	3.06	196	646	3.2
Fir[2]	150	5.24	194	897	3.5
Fir[3]	120	12.08	203.1	1074	-

[1]McCrea (2001), Verity beforsite specific gravity 2.93
[2]McCrea (2002), Fir beforsite specific gravity 3.02
[3]Smith and Dahrouge (2003), Fir beforsite specific gravity 3.02

Fir Carbonatite was not extensive enough to have identified any soil anomalies of Ta, Nb, and Mo relating to the Upper Fir. Samples were also collected from the Upper Fir Carbonatite to confirm high values of tantalum obtained from prior grab samples.

In addition, mineral processing by International Metallurgical and Environmental Inc., was undertaken on 800 kg of drill core from the Fir Carbonatite to determine its amenability to gravity recovery.

1.5 SUMMARY OF WORK

In July 2003, Brent Gonek, Geol.I.T. and Steven Robson of Dahrouge Geological Consulting Ltd., conducted exploration on the Blue River Property. The work included the establishment of 2.4 line km of grid, as well as collecting 121 soil samples and 3 whole rock samples (Appendices 2A; 2B; 4). Soil samples were analysed for trace elements, including niobium and phosphate and rock samples were analysed for trace elements and whole rock constituents. All samples were analysed by ICP-MS methods by Acme Analytical Labs Ltd. of Vancouver, B.C. The work was authorized by Commerce Resources Corp.

International Metallurgical and Environmental Inc. processed approximately 800 kg of drill core to determine its amenability to gravity recovery (Appendix 5).

1.6 FIELD OPERATIONS

Field work was conducted by a 2-person crew in July, 2003. Personnel were based at a motel in Blue River, British Columbia. Four-wheel-drive vehicles were used for transportation to the Blue River Property.

2. PROPERTY GEOLOGY

As Smith and Dahrouge (2002; 2003), and Dahrouge and Reeder (2002a), describe the property geology and mineralization, most of that information is not repeated herein; new information is however, included.

2.1 STRATIGRAPHY, STRUCTURE AND LITHOLOGY

2.1.1 Fir Carbonatite

The Fir Carbonatite has been identified in outcrop and intersected by ten core holes over an area measuring 350 m east-west and 450 m north-south. It consists of two sub-parallel beforsite sill-like bodies that are between 10 and 60 m thick. The variation in thickness and drill-intersections could be related to pinching and swelling or from repetition due to isoclinal folding.

The Fir carbonatite is characterized by having consistent significant Ta-Nb-P mineralization with Ta_2O_5 >200 g/t, Nb_2O_5 >1000 g/t and P_2O_5 > 3.00 wt%. Values below 100 g/t Ta_2O_5 are rare with generally low concentrations of U and Th. Chemically, the Fir Carbonatite possess distinctive Ca/MgO and Ce/Yb ratios from the other carbonaties (e.g. Verity).

2.1.2 Upper Fir Carbonatite

The Upper Fir Carbonatite, with significant tantalum-niobium-phosphate mineralization, was discovered in 2002. The showing is currently interpreted to represent the footwall block with the Fir Deposit being the down-dropped hangingwall block. This interpretation is based on two lines of evidence: a major fault zone encountered in holes FDDH-6 and FDDH-11, and geochemical characteristics (e.g. CaO/MgO ratio, Ce/Yb ratio) that are almost identical to the Fir Carbonatite. *The Upper Fir Carbonatite is recessive and exposed under three uprooted trees at the edge of a* cut-block, and approximately 8 m further upslope below a gneissic cliff-face. Three representative grab samples of the carbonatite and one of the upper fenite alteration showed significant tantalum-niobium-phosphate mineralization (Table 3.1).

3. 2003 EXPLORATION

3.1 GRID ESTABLISHMENT

In preparation for soil surveys and mapping, a grid was established based on the UTM NAD 83 Grid System (Figures 4.1, 4.2). The base line (BL 2700 East) was placed north-south and was corrected for variations in slope. East-West cross lines were spaced 100 metres apart and were marked with flagging at 20-m intervals. In total, 2.46 line-km of grid was established. The grid was surveyed using topofill and compass. Global Positioning Systems (GPS instruments) were also used in grid placement.

3.2 SOIL SAMPLING

One hundred and eighteen soil samples were collected at 20-metre intervals along the lines placed to test the extension of the Upper Fir Carbonatite. All samples were collected from the B-Horizon, which varied from 20 to 30 centimetres depth.

Soil sampling identified an extensive zone of highly anomalous tantalum and niobium in soils associated with the Upper Fir Carbonatite (Figures 3.1, 3.2). An area with more than 20 ppm tantalum and 100 ppm niobium extends more than 200m north-south and remains open to the south. Furthermore, a second anomalous zone about 100m downslope of the upper soil anomaly extends across two lines and also remains open to the south.

3.3 PROSPECTING

Prospecting along Gum Creek revealed no outcroppings of carbonatite. This constrains future work in the area to the south of this creek. The area between the Upper Fir and the Fir revealed a zone of carbonatite rich till, 250 meters northwest of the Upper Fir. The exposed till is dark-red-brown and fairly well consolidated. Angular casts of gneiss, carbonatite and fenite are exposed and range in size from 3 to 4 cm, with some up to 20 or 30 cm.

Grab samples of the Upper Fir Carbonatite contained values similar to those previously reported in 2002 (Table 3.1). The 2003 samples had tantalum values ranging from 302.2 to 419.6 g/t and niobium values between 2792.7 and 3386.6 g/t. A sample of the lower fenite returned high values of molybdenum and lower tantalum and niobium values, which contrasts with samples collected in 2002.

TABLE 3.1: COMPARISON OF THE 2002 AND 2003 SAMPLES (Figs. 3.1, 3.2)

Location	Samples, Location	Ta_2O_5 (g/t)	Nb_2O_5 (g/t)	P_2O_5 (%)	MoO_3 (%)
Upper Fir Beforsite (2003)	19127, 19129 (UTM 352893E, 5797574 N)	302.2 -419.6	2792.7 – 3386.6	2.87–4.67	0.45
Upper Fir Beforsite (2002)	13934, 13936 (UTM 353087E, 5797667N)	134.8 – 266.2	2260 - 6738	2.64–4.34	
Upper Fir Fenite Contact (2003)	19128 (UTM 352898E, 5797583N)	4.3	46.6	0.55	273.05
Upper Fir Fenite (2002)	13937 (UTM 353087E, 5797667N)	78	1822	2.20	

3.4 MINERAL PROCESSING

In addition to the soil and rock samples collected from the Blue River Property, 800 kilograms of split HQ core was used in mineral processing. The core, which consisted entirely of carbonatite, was ground to approximately 325 microns and processed in a Continuous Volume Discharge (CVD) concentrator. Density differences between the host rock and valuable minerals provide the basis for this process, which allows for the recovery of Tantalum and Niobium from the Fir Carbonatite. The estimated recovery of 85 to 91 percent of the available feed of Tantalum and Niobium is significantly higher than that from similar deposits, due to the nature of the host rock and associated mafic minerals. From this test work, Tantalum feed and tailings grades of 244 and 25 g/t Ta were produced, respectively, with approximately 11.5 percent of the feed weight recovered. Less than one percent of the feed weight of the sample was recovered using traditional magentic separation techniques. However, the traditional magnetic separator would be able to remove 15 to 20 percent of the high-grade concentrates.

4. DISCUSSION AND CONCLUSIONS

The 2003 soil survey identified a diffusion pattern to the south and west of the Upper Fir occurrence. The anomaly remains open to the south and west of the new grid, warranting further work. Grab samples collected during the program reaffirm the prevously reported tantalum concentrations for the Upper Fir occurrence.

Robin Wolbaum, B. Sc., Geol. I.T.

PROFESSIONAL GEOLOGIST OF ALBERTA
J. R. DAHROUGE

J. R. Dahrouge, B. Sc., P. Geol.

Edmonton, Alberta
2004 05 07

5. REFERENCES

Aaquist, B. (1982a). Blue River Carbonatites, British Columbia, Final Report; B.C. Min. Energy, Mines Petr. Res. Ass. Rept. 10 274, 30 p.

Aaquist, B. (1982b). Assessment Report Blue River Carbonatites, British Columbia; B.C. Min. Energy, Mines Petr. Res. Ass. Rept. 11 130, 15 p.

Ahroon, T.A. (1980). Geologic Report on the Blue River Project, British Columbia; B.C. Min. Energy, Mines Petr. Res. Ass. Rept. 9566, 13 p.

Campbell, R.B. (1968). Canoe River, British Columbia; Geol Surv. Can., Map15-1967.

Currie, K.L. (1976). The Alkaline Rocks of Canada; Geol. Surv. Can., Bull. 239., 228 p.

Dahrouge, J. (2001a). 2000 Geologic Mapping and Sampling on the Verity Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26550, 7 p.

Dahrouge, J. (2001b). 2000 Geologic Mapping and Sampling on the Fir Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26549, 7 p.

Dahrouge J. and Reeder J. (2001). 2001 Geologic Mapping, Sampling and Geophysical Surveys on the Mara Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26733, 13 p.

Dahrouge, J. and Reeder J. (2002a). 2001 Geologic Mapping, Sampling and Geophysical Surveys on the Fir Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26781, 9 p.

Dahrouge, J. and Reeder J. (2002b). 2001 Magnetometer Survey and Diamond Drilling on the Verity Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26796, 14 p.

Digel, S.G., Ghent, E.D. and Simony, P.S. (1989). Metamorphism and Structure of the Mount Cheadle area, Monashee Mountains. Geol. Surv. Can. Paper 89-1E, p. 98-100.

Hogarth, D.D., Williams, C.T. and Jones P. (2000). Primary zoning in pyrochlore group minerals from carbonatites. Mineralogical Magazine, v. 64(4), p. 683-697.

Jackson, E.V., James, G.L. and Forester, J.E. (eds.) (1978). Canoe River 83D: Verity. B.C. Min. Mines Petr. Res. Exploration in B.C. 1978, p. 117.

Mariano, A.N. (1979). Report on Nb-Ta-U Mineralization in the Blue River Carbonatites; Confidential Report prepared for Anschutz (Canada) Mining Ltd., 360 p.

Mariano, A.N. (1982). Petrology, Mineralogy and Geochemistry of the Blue River Carbonatites; Confidential Report prepared for Anschutz (Canada) Mining Ltd., 129 p.

McCammon, J.W. (1950). Vermiculite: Verity. B.C. Min. Mines Petr. Res., Ann. Rept. 1950, p. 229-230.

McCammon, J.W. (1952). Uranium: Verity. B.C. Min. Mines Petr. Res., Ann. Rept. 1952, p. 115-119.

McCammon, J.W. (1954). Uranium-Niobium: Verity. B.C. Min. Mines Petr. Res., Ann. Rept. 1954, p. 111.

McCrea, J. (2001). Summary Report on the Blue River Carbonatite Property, East-central British Columbia; prepared for Commerce Resources Corp., 34 p.

McCrea, J. (2002). Fir Carbonatite Property, Resource Estimate; prepared for Commerce Resources Corp.

Meyers, E. (1977). Paradise Creek Uranium-Columbium Prospect, Blue River British Columbia. B.C. Min. Energy Mines Petr. Res. Ass. Rept. 7236, 23 p.

Pell, J. (1987). Alkaline Ultrabasic Rocks in British Columbia: Carbonatites, Nepheline Syenites, Kimberlites and Related Rocks; B.C. Min. Energy, Mines Petr. Res.; Open File 1987-17, 109 p.

Pell, J. and Hoy, T (1989). Carbonatites in a continental margin environment - the Canadian Cordillera. *in:* Carbonatites: Genesis and Evolution (K. Bell ed.), Unwin Hyman, London, p. 200-220.

Pell, J. and Simony, P. (1981). Stratigraphy, structure and metamorphism in the southern Cariboo Mountains, British Columbia: *in* Current Research, Part A, Geol. Surv. Can., Paper 81-1A, p. 227-230.

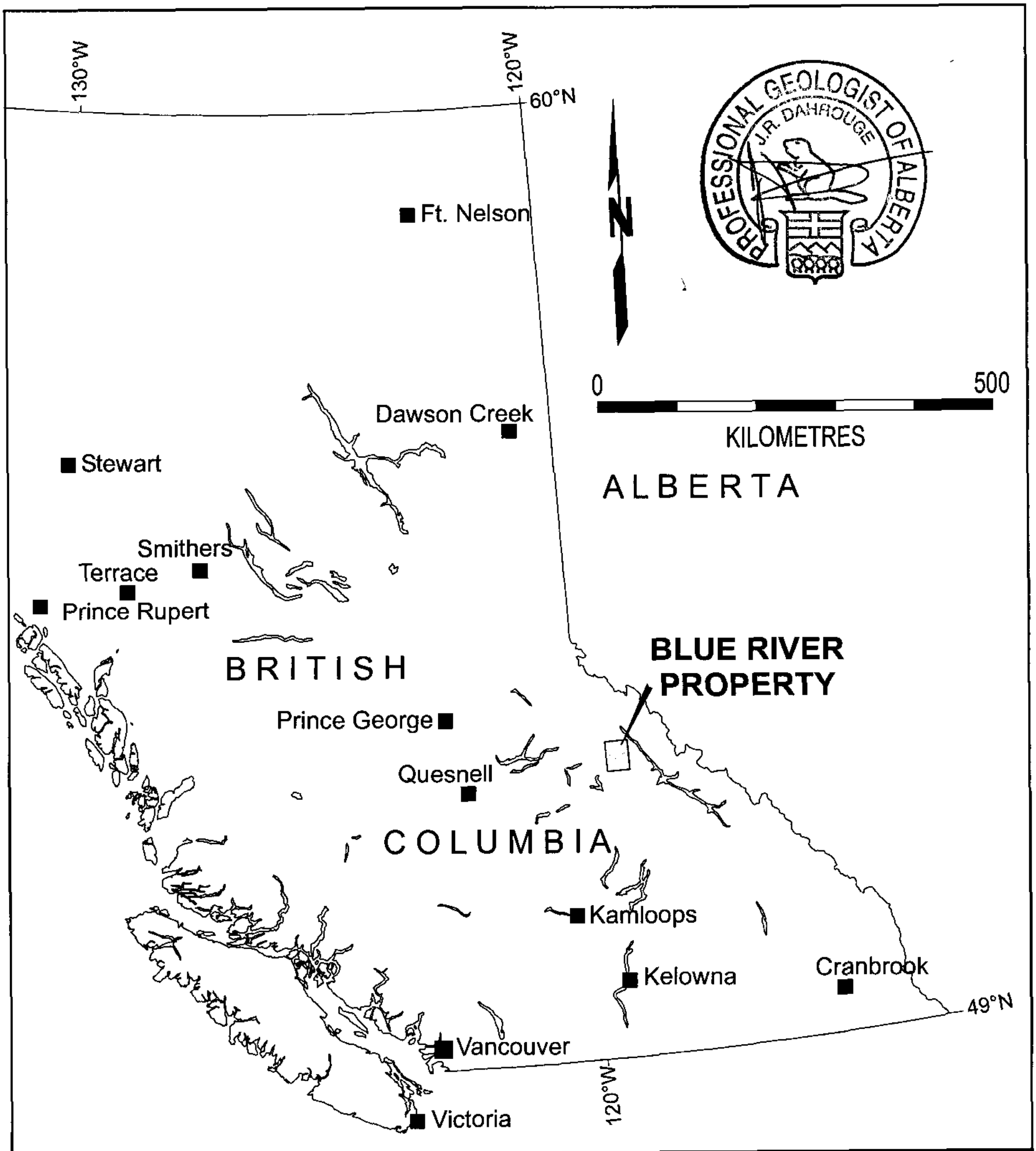
Rich, A. (1968). Geological Report on the Paradise Group. B.C. Min. Energy Mines Petr. Res. Ass. Rept. 1630, 13 p.

Smith, M. and Dahrouge, J. (2002). 2001 Diamond Drilling on the Fir Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #26911, 13 p.

Smith, M. and Dahrouge, J. (2003). 2002 Diamond Drilling and Exploration on the Blue River Property; B.C. Min. Energy, Mines Petr. Res. Ass. Rept #27131, 21p.

Simandl, G., Jones, P, and Rotella, M. (2002). Blue River Carbonatites, British Columbia - Primary Exploration Targets for Tantalum: *in:* Exploration and Mining in British Columbia, 2001. 10p.

F1



LEGEND

Property Location

Victoria City, Identifier

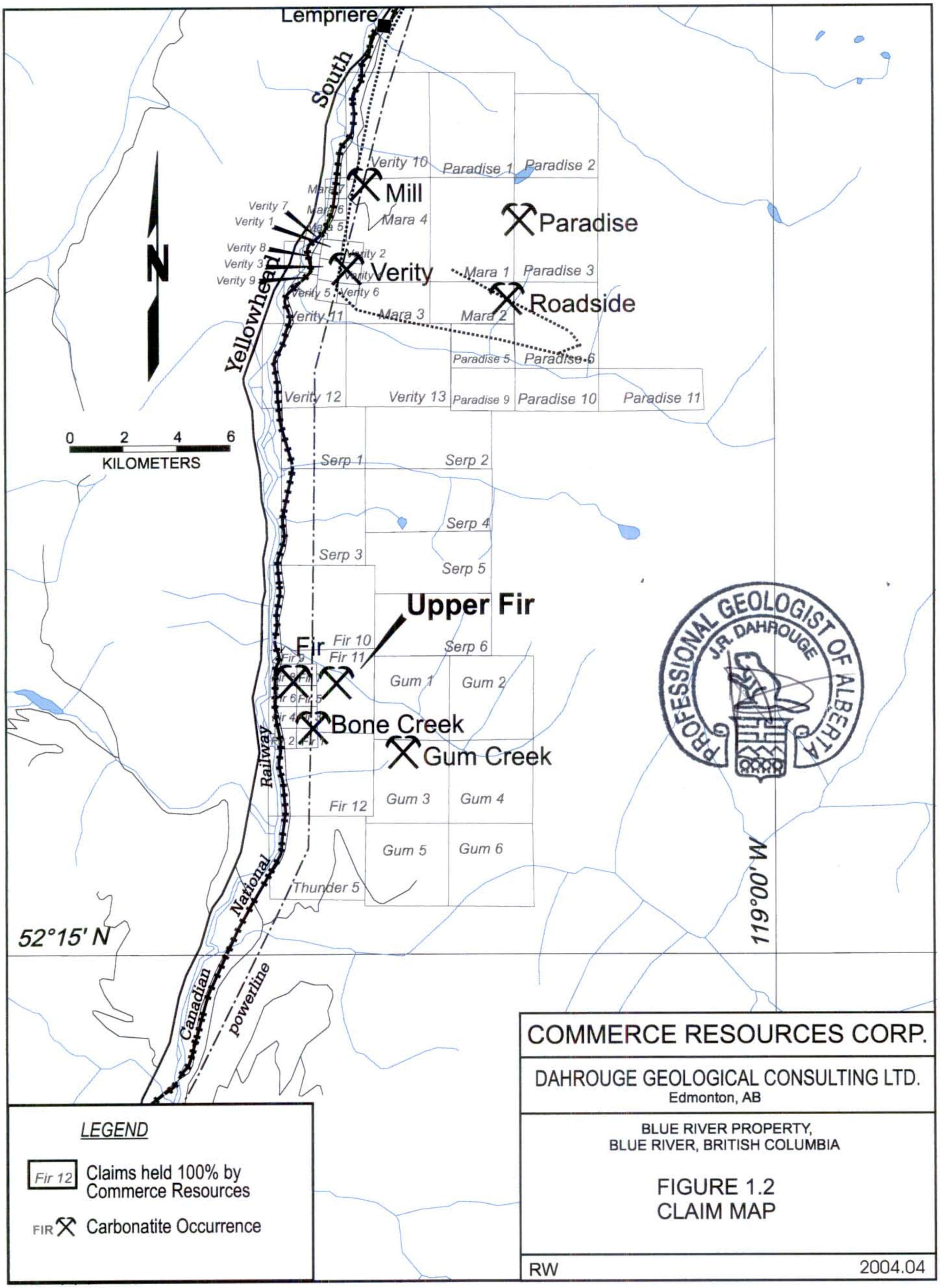
COMMERCE RESOURCES CORP.

DAHROUGE GEOLOGICAL CONSULTING LTD.
Edmonton, AB

BLUE RIVER PROPERTY,
BLUE RIVER, BRITISH COLUMBIA

FIGURE 1.1
PROPERTY LOCATION

RW 2004.04



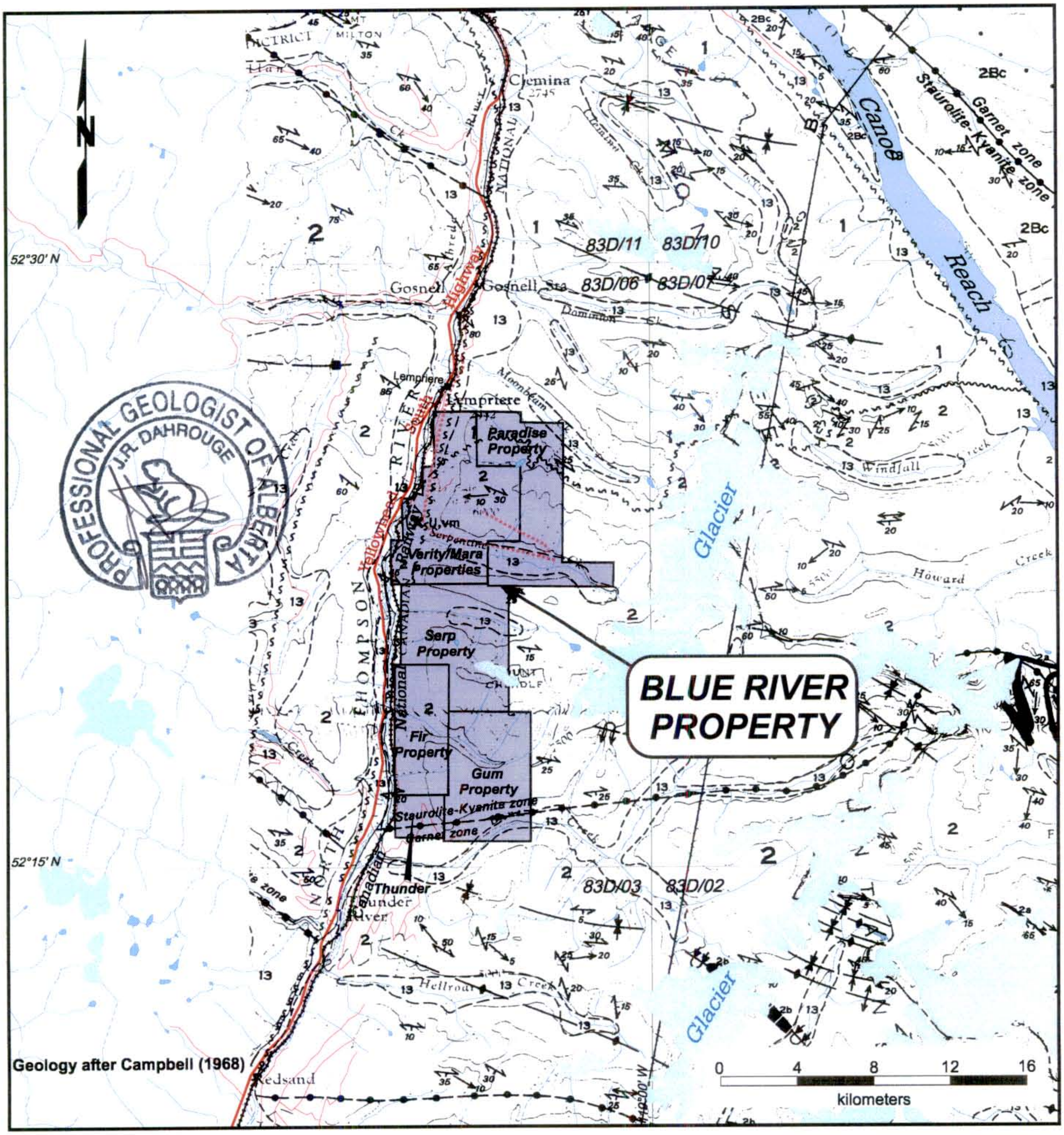
COMMERCE RESOURCES CORP.

DAHROUGE GEOLOGICAL CONSULTING LTD.
Edmonton, AB

BLUE RIVER PROPERTY,
BLUE RIVER, BRITISH COLUMBIA

FIGURE 1.2
CLAIM MAP

RW 2004.04



LEGEND AND SYMBOLS

Property held by Commerce Resources Corp.

PLEISTOCENE AND RECENT

13 Alluvium and glacial deposits

WINDERMERE

2 **Horsethief Creek Group:** quartzite, phyllite, schist, garnet, gneiss, 2a - marble, 2b - amphibolite

AGE UNKNOWN

1 Gneiss, amphibolite, schist, minor quartz

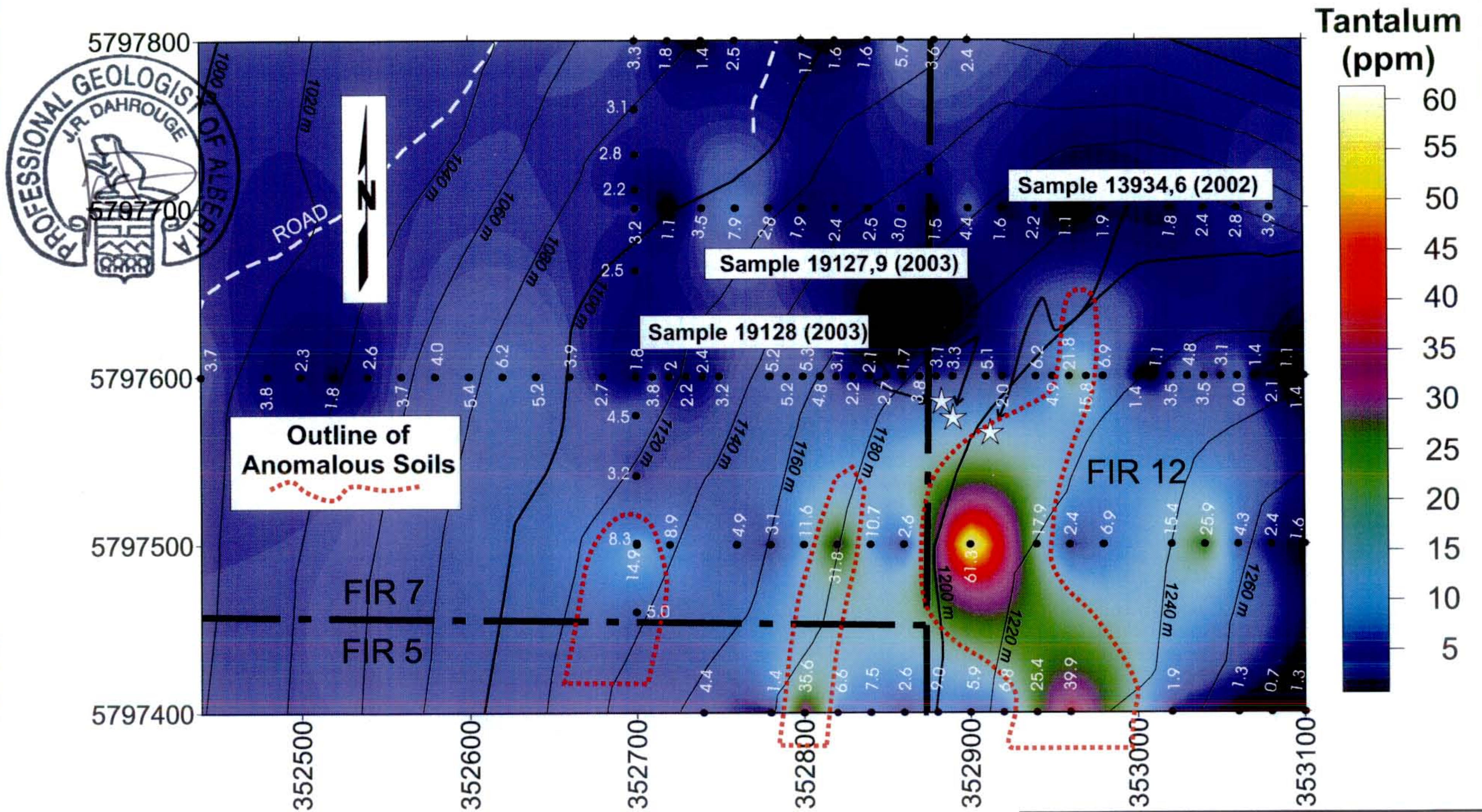
COMMERCE RESOURCES CORP.

DAHROUGE GEOLOGICAL CONSULTING LTD.
EDMONTON, ALBERTA

PART OF NTS MAP SHEET 83D

Figure 2.1
Regional Geology

RW 2004.04



Symbols

☆ Rock Sample Location, Number

8.3 ● 2003 Soil Sample Location; Ta (ppm)

0 100 200

Meters

UTM Grid is NAD 83.
Contours are metres above sea level.

COMMERCE RESOURCES CORP.

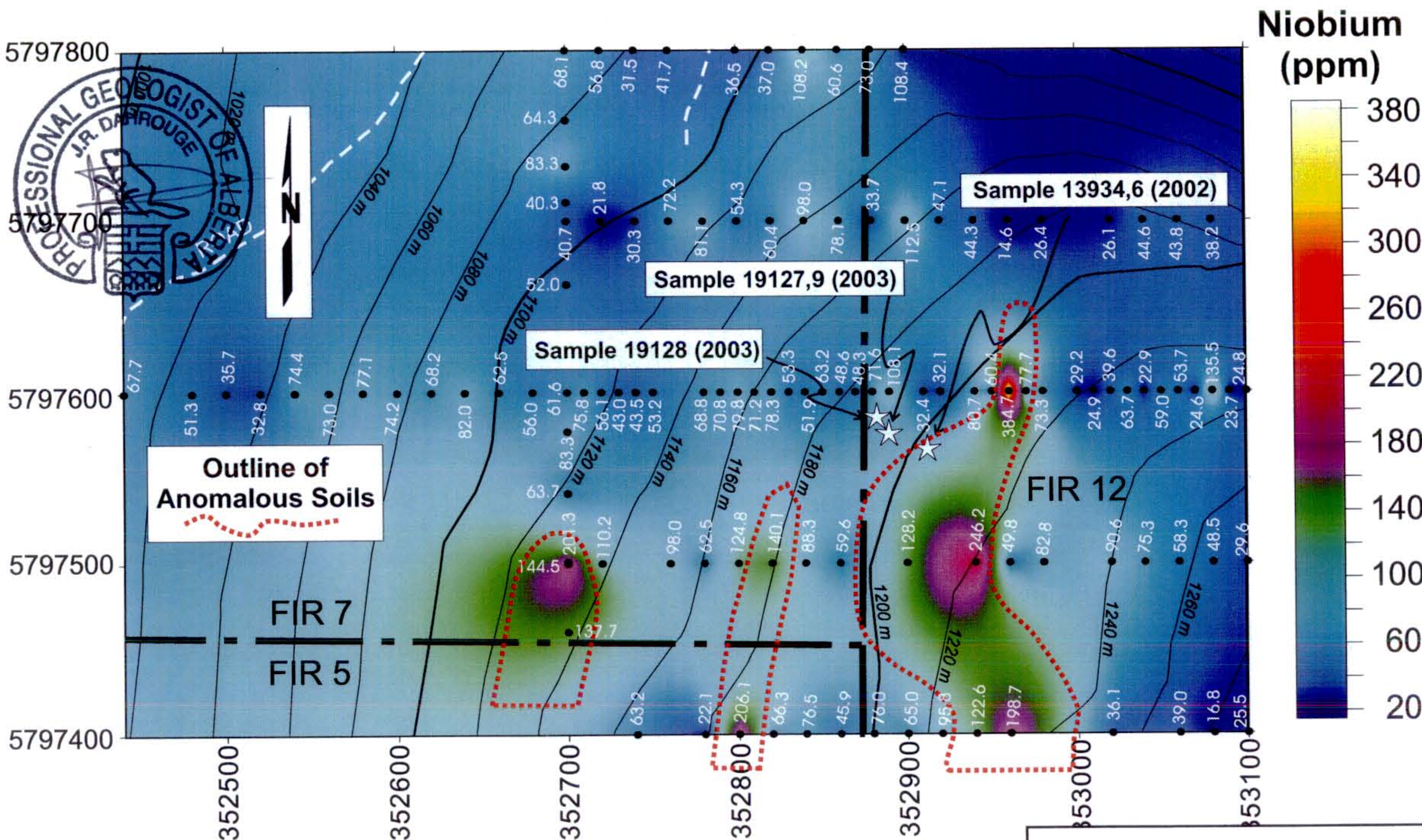
DAHROUGE GEOLOGICAL CONSULTING LTD.
Edmonton, AB

BLUE RIVER PROPERTY,
BLUE RIVER, BRITISH COLUMBIA

FIGURE 3.1
Tantalum Anomalies

RW 2004.04

F4



Symbols

☆ Rock Sample Location

35.7 ● 2003 Soil Sample Location; Nb (ppm)

0 100 200
Meters

UTM Grid is NAD 83.
Contours are metres above sea level.

COMMERCE RESOURCES CORP.

DAHROUGE GEOLOGICAL CONSULTING LTD.
Edmonton, AB

BLUE RIVER PROPERTY,
BLUE RIVER, BRITISH COLUMBIA

FIGURE 3.2
Niobium Anomalies

RW 2004.04

F5

APPENDIX 1: ITEMIZED COST STATEMENT

a) Personnel

J. Dahrouge, geologist					
6.00	days		supervising and report preparation		
6.00	days	@	$ 481.50	$ 2,889.00	
B. Gonek, geologist					
3.00	days		supervising and report preparation		
5.00	days		field work and travel between July 15 to 19, 2003		
5.90	days		organize and pack field gear;		
13.90	days	@	$ 390.55	$ 5,428.65	
S. Robson, assistant					
5.00	days		field work and travel between July 15 to 19, 2003		
15.30	days		organize and pack field gear; update base maps and plot sample locations, edit sample descriptions		
20.30	days	@	$ 251.45	$ 5,104.44	
W. McGuire, assistant					
4.10	days		assist with preparation of maps and figures		
4.10	days	@	$ 433.35	$ 1,776.74	
					$ 15,198.82

b) Food and Accommodation

10	man-days	@	$ 53.88	accommodations	$ 538.76	
10	man-days	@	$ 30.35	*groceries, meals and other*	$ 303.49	
						$ 842.26

c) Transportation

Vehicles:	*4x4 Truck (2639 km @ 0.42)*	$ 1,108.42	
			$ 1,108.42

d) Instrument Rental
n/a

e) Drilling
n/a

f) Analyses

				Mineral Processing (bulk sample, HQ Drill Core) International Metallurgical and Enviromental Inc.	$ 12,906.88	
121	samples	@	$ 1.37	soil sample preparation	$ 165.72	
121	samples	@	$ 24.56	analysis for trace elements by ICP Group 4B of Acme Labs	$ 2,971.34	
3	samples	@	$ 4.55	rock sample preparation	$ 156.43	
3	samples	@	$ 34.56	analysis for trace elements and whole rock constituents by ICP, Group 4A-B of Acme Labs	$ 103.68	
						$ 16,304.05

g) Report

Reproductions and assembly	$ 38.50	
		$ 38.50

APPENDIX 1: CONTINUED

h) Other

Courier and Shipping	$ 67.57		
Digital Data	$ -		
Field Equipment and Supplies	$ 68.11		
Long distance telephone	$ 6.16		
Plots (E-size Maps)	$ 58.85		
		$	200.70
Total		$	33,692.74

APPENDIX 2A: ANALYTICAL REPORTS FOR TRACE ELEMENT ANALYSES BY ICP FROM ACME ANALYTICAL LABORATORIES LTD. FOR THE 2003 SOIL SAMPLES

ELEMENT	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg	Tl	Se
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
19001	3.8	56.8	10.4	143	106.4	2.3	0.2	< .1	0.4	0.2	< .5	0.06	0.3	0.6
19002	1.8	8.8	6.2	19	8.2	0.9	< .1	< .1	0.2	0.1	< .5	0.01	0.1	< .5
19003	3.9	46.6	10	99	72.6	2.2	0.1	< .1	0.4	0.1	0.5	0.04	0.2	< .5
19004	5	46.4	8.8	92	86.6	2.5	0.1	< .1	0.3	0.1	< .5	0.05	0.2	< .5
19005	2.9	50.1	7.6	101	94.3	1.9	0.2	< .1	0.3	0.1	< .5	0.06	0.3	0.6
19006	3.1	47.7	7.3	79	82.1	2	0.1	< .1	0.3	0.1	< .5	0.06	0.3	0.5
19007	4.4	34.4	9.4	56	51	2.4	0.1	< .1	0.3	0.1	< .5	0.05	0.3	< .5
19008	3.8	54	7.6	70	88.4	1.8	0.2	< .1	0.3	0.2	< .5	0.06	0.3	< .5
19009	5.5	69.1	7.2	75	121.8	1.6	0.3	< .1	0.3	0.1	0.5	0.07	0.4	0.5
19010	5.8	62.9	9.7	93	91.7	2.2	0.4	< .1	0.3	0.2	< .5	0.06	0.3	0.5
19011	5.7	34.5	8.9	49	45.5	1.6	0.1	< .1	0.3	0.2	< .5	0.06	0.2	< .5
19012	4.3	33.1	8.1	85	42.6	2.5	0.2	< .1	0.3	0.1	< .5	0.05	0.3	< .5
19013	5.5	49.1	8.3	96	63.2	1.8	0.2	< .1	0.3	0.2	< .5	0.06	0.2	< .5
19014	3.3	18.7	6.9	79	18.5	1.5	0.1	< .1	0.2	0.1	< .5	0.02	0.1	< .5
19015	4.5	13	10.5	33	10.1	1.7	0.1	0.1	0.3	< .1	< .5	0.03	0.1	< .5
19016	2	35	5.1	49	48.3	1.2	0.1	< .1	0.2	< .1	< .5	0.03	0.2	< .5
19017	3.7	34.9	6.4	57	32.7	1.7	0.2	< .1	0.2	0.1	< .5	0.05	0.2	< .5
19018	6.7	32.5	9.4	57	26.8	2.7	0.2	< .1	0.4	0.1	0.6	0.06	0.2	0.5
19019	4.1	37.8	6.6	86	36.9	1.7	0.3	0.1	0.2	0.2	< .5	0.04	0.2	< .5
19020	3.1	25.2	4.5	37	33.5	1.4	0.2	< .1	0.1	0.1	< .5	0.1	0.1	0.7
RE 19020	3	26.7	4.6	39	32.2	1.5	0.2	0.1	0.1	0.1	0.6	0.09	0.1	0.6
14465 PULP	0.1	1.8	2.5	21	< .1	0.8	0.4	< .1	< .1	0.1	1.4	< .01	< .1	< .5
19021	7.3	60.4	6.5	61	63.9	1.9	0.4	0.1	0.2	0.2	< .5	0.15	0.4	1
19022	6.6	63.5	9.4	83	53.4	2.5	0.2	< .1	0.3	0.1	< .5	0.09	0.2	0.6
19023	4.7	35.7	11.8	27	14.7	2	0.1	0.1	0.3	0.2	< .5	0.06	0.1	< .5
19024	5.3	38.5	11.6	41	28.3	2.1	0.1	0.1	0.3	0.1	< .5	0.05	0.1	< .5
19025	4.6	64.6	7.1	67	77.5	2	0.1	< .1	0.3	0.1	< .5	0.03	0.3	< .5
19026	2.5	43.9	8.3	100	60.6	1.6	0.5	0.1	0.3	0.2	< .5	0.06	0.3	0.8
19027	3.6	40	6.1	44	61.7	1.3	0.2	< .1	0.3	< .1	< .5	0.01	0.3	< .5
19028	2.6	43.2	8.7	99	86.1	2.1	0.7	0.1	0.3	0.1	< .5	0.06	0.2	0.5
19029	3.9	77.4	13.1	173	241.1	3	1.6	0.1	0.2	0.3	< .5	0.11	0.4	0.6
19030	3.7	5.4	16.4	11	5.2	1.3	0.1	< .1	0.4	0.1	< .5	0.02	0.1	< .5
STANDARD DS5	12.6	137.7	24.1	131	24.7	17.2	5.4	3.3	6	0.3	41	0.17	1	4.8
19031	6.2	24.7	8.4	96	46.8	2.1	0.2	0.1	0.3	0.1	0.8	0.07	0.3	< .5
19032	11.9	74.2	6.2	87	428.7	1.5	0.1	< .1	0.9	0.1	< .5	0.03	0.2	< .5
19033	17.7	9.6	11.7	27	6.1	1.1	< .1	0.1	0.3	0.1	< .5	0.02	0.1	< .5
19034	2.3	5.6	9	8	2.1	1	< .1	< .1	0.3	< .1	< .5	< .01	< .1	< .5
19035	3.2	15.1	13.1	22	6.8	2	0.1	0.1	0.3	0.2	4.6	0.04	0.1	< .5
19036	2.7	17.6	8.3	69	23	2	0.2	0.1	0.3	0.2	< .5	0.06	0.2	< .5
19037	5.4	21.5	7.3	47	26.3	1.7	0.3	0.1	0.2	0.2	0.5	0.07	0.1	< .5
19038	3.5	32.3	8.5	85	58.1	1.7	0.2	< .1	0.5	0.1	< .5	0.03	0.2	< .5
19039	4.1	31.2	6.9	49	36.4	2.4	0.1	0.1	0.3	0.1	0.5	0.04	0.2	< .5
19040	2.4	12.7	13.1	35	9.8	2.4	0.1	0.1	0.4	< .1	< .5	0.03	0.1	< .5
19041	3.7	32.7	14.3	127	22.1	2.2	0.8	0.1	0.3	0.3	< .5	0.04	0.2	< .5
19042	15.3	128.3	11.9	142	145.6	2.4	0.9	0.2	0.2	0.4	< .5	0.16	0.9	0.9
19043	4.3	95.5	7	241	289.9	1.8	0.3	< .1	0.3	0.1	< .5	0.05	0.3	< .5
19044	4.2	67.7	4.7	120	189.9	1.3	0.2	< .1	0.2	0.1	< .5	0.09	0.4	< .5
19045	10.1	30.5	12.8	52	19.7	3.3	0.3	0.1	0.4	0.2	< .5	0.11	0.1	< .5
19046	2.8	24.1	5.4	61	27.6	1	0.2	< .1	0.2	0.2	0.5	0.08	0.1	< .5
19047	2	11	8.6	38	10.1	1	0.1	< .1	0.3	0.2	< .5	0.04	0.2	< .5
19048	15.2	58.9	12	101	54.8	3.8	0.5	0.2	0.2	0.1	0.6	0.22	0.5	2.1
19049	6.9	131.8	6.6	188	137.8	2.3	0.1	< .1	0.4	0.1	< .5	0.07	0.2	0.5
19050	3.1	63.1	7	163	128.7	2.2	0.1	< .1	0.2	< .1	< .5	0.05	0.2	0.5

APPENDIX 2A: **CONTINUED**

ELEMENT	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg	Tl	Se
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
RE 19050	3.3	58.5	6.9	153	121.2	1.9	0.1	< .1	0.2	< .1	1.8	0.04	0.2	< .5
19051	5.5	63.1	8.6	60	84.7	2.6	0.2	0.1	0.2	0.1	< .5	0.09	0.2	0.5
19052	6.7	72.1	7.1	54	90.5	2.1	0.1	< .1	0.2	< .1	< .5	0.1	0.2	0.5
19053	1.6	24.9	9.4	33	9.9	0.8	< .1	< .1	0.5	0.1	< .5	0.05	0.1	< .5
19054	0.8	3.6	9.2	9	1.9	0.6	< .1	< .1	0.3	0.2	< .5	0.02	< .1	< .5
19055	2.1	12.1	10	42	8.5	1.7	0.1	0.1	0.2	0.1	< .5	0.05	0.1	< .5
19056	4.3	15.6	11	37	15.9	2.9	0.1	0.1	0.3	0.2	< .5	0.06	0.1	< .5
19057	0.9	6	5	12	5.1	0.7	0.1	< .1	0.2	0.1	< .5	0.02	0.1	< .5
19058	3.6	44.6	5.7	78	95.5	2.8	0.1	< .1	0.2	< .1	0.5	0.06	0.2	< .5
19059	2.9	8.1	15	33	7.9	2	0.2	0.1	0.4	0.1	< .5	0.03	0.1	< .5
19060	2	3.2	8.5	14	2	0.6	< .1	0.1	0.4	< .1	< .5	0.02	0.1	< .5
19061	10.5	11.3	11.1	47	7.3	2.9	< .1	0.1	1	0.1	2	0.02	0.3	< .5
STANDARD DS5	13.1	145.9	25.3	144	24.5	17.5	5.2	3.5	5.9	0.3	44.1	0.17	1.1	4.9
19062	1.2	1.9	6.7	7	1.2	< .5	< .1	0.1	0.2	0.1	< .5	0.02	0.1	< .5
19063	3.8	4.5	8.4	30	4.7	1.2	0.1	0.1	0.3	0.2	0.5	0.06	0.1	< .5
19064	10.3	6	11.3	19	6.1	1.7	< .1	0.1	0.4	< .1	< .5	0.02	0.1	< .5
19065	6	19.2	10	39	21.6	2.2	0.1	0.1	0.3	0.1	0.9	0.05	0.1	< .5
19066	4.6	11.7	10.1	43	10.7	1.9	0.2	0.1	0.4	0.2	0.6	0.07	0.1	0.6
19067	2	3.8	9.5	12	2.4	0.7	< .1	0.1	0.4	0.1	0.7	0.02	0.1	< .5
19068	3.6	9	11	36	9.2	1.2	0.1	0.1	0.3	0.1	0.5	0.02	0.1	< .5
19069	1.1	4.2	6.7	12	2.5	0.5	< .1	< .1	0.2	0.1	< .5	0.01	< .1	< .5
19070	2	16	7.8	113	19.8	1.9	0.2	0.1	0.2	0.1	1.5	0.05	0.1	0.6
19071	4	22.7	11.9	53	16.9	2	0.4	0.1	0.3	0.2	1	0.08	0.1	0.5
19072	4.8	84.9	8.9	82	59.1	1.9	0.1	< .1	0.4	0.1	< .5	0.04	0.2	0.6
19073	3	8.9	12	37	6	2.1	0.1	0.1	0.4	0.1	< .5	0.04	0.1	< .5
19074	4.4	45	7.2	68	52.1	2.3	0.1	< .1	0.2	0.1	< .5	0.05	0.2	0.6
19075	4	39.4	4.2	39	37	1.3	< .1	< .1	0.1	< .1	< .5	0.04	0.2	0.8
19076	3.1	20.8	8.2	48	21.4	1.7	0.1	< .1	0.2	0.1	< .5	0.04	0.1	0.5
19077	3.7	24.7	9.4	59	27.3	2	0.2	< .1	0.3	0.1	< .5	0.05	0.1	< .5
19078	3.6	40.5	5.2	57	42.6	1.8	0.1	< .1	0.2	0.1	0.8	0.04	0.2	0.6
RE 19078	3.4	39.6	5.2	55	40.2	1.9	0.1	< .1	0.2	0.1	0.5	0.05	0.2	0.5
19079	4.8	65.1	7	54	67.7	1.6	0.1	< .1	0.3	< .1	< .5	0.04	0.2	0.5
19080	3.3	14.9	12.3	78	20.8	2.2	0.4	0.1	0.3	0.2	< .5	0.07	0.1	0.5
19081	2.3	16.2	5.4	39	13.3	1	0.1	0.1	0.2	0.1	< .5	0.06	0.1	0.6
14466 PULP	0.1	1.9	2.5	20	< .1	0.8	0.4	< .1	< .1	0.1	3.9	< .01	< .1	0.5
19082	4.2	33.3	10.9	90	39.6	2.1	0.2	0.1	0.4	0.1	0.8	0.05	0.2	0.6
19083	10	33.2	13.3	109	40.4	1.6	0.1	< .1	0.4	0.1	< .5	0.03	0.2	< .5
19084	15.9	32.7	81.8	239	59.1	2.5	0.3	0.1	0.5	0.2	< .5	0.04	0.2	0.5
19085	5	11.9	12.4	96	16.1	1.3	0.3	0.1	0.3	0.2	< .5	0.04	0.1	< .5
19086	7.3	22.8	10.2	56	35.9	1.7	0.1	0.1	0.3	0.2	< .5	0.04	0.1	0.5
19087	2.4	11.4	14.2	30	7.3	1.6	0.1	0.1	0.3	0.1	< .5	0.04	0.1	< .5
19088	3.1	18.8	8.3	75	13.4	1.9	0.2	0.1	0.3	0.1	< .5	0.05	0.1	0.5
19089	5.1	10.3	25.7	89	52.2	1.7	0.1	0.1	0.5	0.1	< .5	0.04	0.1	< .5
19090	5	12.7	17.7	55	10.3	2	0.2	0.1	0.4	0.1	< .5	0.03	0.2	0.5
19091	36.4	25.8	14.5	33	5.3	1.5	< .1	0.1	0.3	0.1	< .5	0.02	0.1	< .5
STANDARD DS5	12.4	145.5	25.8	138	25.7	18.2	5.7	3.5	6	0.3	42	0.17	1	4.8
19092	54	26.8	10.7	68	25.3	1.7	< .1	< .1	0.4	0.1	< .5	0.04	0.2	< .5
19093	13.1	109.2	9.6	77	159.7	2.9	0.3	< .1	0.4	0.2	0.9	0.09	0.3	0.8
19094	11	88.6	5.3	76	98.6	1.3	0.1	< .1	0.2	< .1	1.1	0.03	0.5	< .5
19101	3.8	55.7	6.3	83	124.4	1.4	0.3	0.1	0.3	0.1	0.5	0.08	0.4	0.7
19102	3.9	55	8.6	93	88	1.6	0.5	0.1	0.3	0.2	< .5	0.09	0.3	0.8
19104	3.8	41.2	6.2	67	65.5	1.8	0.1	< .1	0.2	0.1	< .5	0.05	0.3	< .5
19105	2.1	31.5	3.3	36	42.3	0.5	< .1	< .1	0.2	< .1	< .5	0.01	0.3	< .5
19106	10.7	84.7	9.9	106	202.8	2.3	0.9	0.1	0.3	0.1	< .5	0.11	0.9	0.7

APPENDIX 2A: **CONTINUED**

ELEMENT	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg	Tl	Se
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
19107	5.5	65.5	9	84	124	1.9	0.7	0.1	0.3	0.2	< .5	0.08	0.3	0.7
19108	3.8	23.8	9.4	53	12.2	1.9	0.3	0.1	0.3	0.2	< .5	0.07	0.1	0.5
19109	0.9	3.7	9.1	12	1.8	0.6	< .1	1.7	0.3	0.1	< .5	0.02	0.1	< .5
19110	1.3	6.4	7.5	17	4.1	0.8	0.1	< .1	0.2	< .1	0.5	0.02	0.1	< .5
19111	4.1	27.1	14.3	61	20.8	2	0.2	0.1	0.4	0.2	< .5	0.05	0.1	< .5
19112	5.3	42	7.9	106	62.3	2.6	0.7	0.1	0.5	0.3	< .5	0.11	0.3	< .5
19113	2.1	13.6	6.4	58	17.5	0.9	0.2	0.1	0.3	0.1	< .5	0.04	0.2	< .5
19114	3.5	31.6	4.4	41	49.1	1.3	0.1	< .1	0.2	0.1	0.8	0.06	0.2	< .5
RE 19114	3.4	33.7	4.6	43	46.9	1.5	0.1	< .1	0.2	0.1	1.4	0.07	0.2	< .5
19115	3.3	49.1	5.7	54	45.1	1.1	0.2	< .1	0.2	0.1	< .5	0.05	0.2	< .5
19116	4.2	31	6	51	35.9	2.1	0.3	0.7	0.2	0.1	0.5	0.06	0.1	< .5
19117	3.3	19.5	8.4	71	22.2	1.5	0.3	0.1	0.3	0.2	< .5	0.03	0.1	< .5
19118	3.4	25.8	6.2	125	27.8	1.8	0.1	< .1	0.3	< .1	< .5	0.04	0.2	< .5
19119	4.9	58.5	6.5	77	76.6	2.1	0.2	0.1	0.3	0.1	< .5	0.1	0.3	0.6
19120	4.2	57.3	6.1	67	147.4	1.2	0.2	< .1	0.3	0.1	< .5	0.06	0.4	0.5
19121	3.3	35.7	6.5	77	57.2	1.5	0.1	< .1	0.2	0.1	0.8	0.04	0.3	< .5
19122	4.3	26	7.4	73	35.7	1.6	0.2	< .1	0.3	0.1	0.5	0.04	0.2	< .5
19123	4.7	21.9	7.9	95	24	1.9	0.2	0.1	0.2	0.1	< .5	0.04	0.1	< .5
19124	5	99.7	8	69	172.7	1	0.2	< .1	0.3	0.2	< .5	0.06	0.4	< .5
19125	4.9	24.1	10	77	18.2	2.4	0.2	0.1	0.4	0.3	0.5	0.06	0.2	< .5
19126	7.6	53.8	10.1	179	62.1	2.1	0.3	0.1	0.4	0.2	0.6	0.09	0.2	0.6
STANDARD DS5	13.2	142.5	25.7	130	24.6	17.9	5.7	3.6	6.3	0.3	40.4	0.17	1.1	5.1

APPENDIX 2B:

ANALYTICAL REPORTS FOR RARE EARTH ELEMENT ANALYSES BY ICP FROM ACME ANALYTICAL LABORATORIES LTD. FOR THE 2003 SOIL SAMPLES

ELEMENT	Ba	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
19001	823	23.1	6.5	23.8	7.9	53.2	125.7	4	267.5	3.2	24.9	4.6	125	3	260.1	36.6	69.9	142.1	13.96	52.7	9.6	1.53	7.88	1.21	6.66	1.25	3.54	0.57	3.69	0.53
19002	658.5	7.1	4.2	24.5	8.7	43.5	82.2	3	302.4	2.4	15.1	3.6	80	2	293.1	29.3	51.6	96.6	10.25	40.8	7	1.27	5.54	0.83	4.73	0.97	2.59	0.44	2.85	0.46
19003	656.7	20.6	5.8	25.8	8	43	91.7	3	330.2	2.2	17.5	4.4	118	4.1	256.9	41	56.2	112.8	11.57	44.2	8.6	1.36	6.66	1.13	6.53	1.43	3.92	0.61	3.8	0.55
19004	630.5	20	6.2	24.3	6.5	56.1	104.4	3	267.7	2	22.7	3.6	130	2.9	212.2	33	65.9	119.9	12.29	48.3	8.8	1.52	7.07	1.03	6.02	1.18	3.25	0.54	3.35	0.5
19005	700.4	28	6.9	21.9	5.5	75.8	129.8	3	328.1	3.8	27.3	5.7	109	2.2	188.5	45.8	73.9	136.5	15.02	58.5	10.5	1.85	8.8	1.31	7.48	1.45	4.42	0.7	4.58	0.65
19006	653.2	28.1	6.9	20.8	6.3	61.6	134.7	3	251.6	1.8	22.9	4.5	104	1.8	204	34.6	66.8	128.9	13.63	53.3	9.8	1.78	8.12	1.17	6.05	1.23	3.19	0.49	2.98	0.44
19007	767.8	19.8	5.9	25.3	8.3	56	138.4	3	330.5	2.7	30.4	4.5	113	3.3	274.6	37.8	88	166.1	17.38	66	11	1.94	9.17	1.24	7.05	1.32	3.56	0.56	3.45	0.54
19008	742.8	31.9	6.1	21.3	7.4	62.5	125.2	3	313.2	3.9	28.7	4.8	110	2.9	271.7	42.8	81.5	158.8	16.28	63	11.7	2.06	9.35	1.41	7.86	1.51	4.32	0.64	4.07	0.59
19009	773.5	35.9	6.5	20.5	8	82	130.1	3	310.5	5.2	28.3	4.9	108	2.3	258.3	48.8	76.8	151.2	16.2	63.8	12.1	2.44	10.5	1.47	8.06	1.67	4.69	0.71	4.53	0.72
19010	714.8	34.7	6.4	24.3	6.4	68.2	137.9	3	293.5	6.2	17.8	4.5	101	2.4	207.1	34.7	63.7	119.6	12.92	50.2	9.1	2.02	7.76	1.16	6.44	1.26	3.43	0.54	3.29	0.49
19011	572.3	27.8	5.2	26.1	7	74.2	90.4	2	289.7	5.4	19.8	5	92	2.5	256.6	36.8	64.6	114.5	13.3	52.5	9.7	1.85	7.33	1.16	6.34	1.32	3.51	0.52	3.36	0.52
19012	628.9	19.2	5.2	24.8	9.4	77.1	110.9	3	232.7	4	31.4	4.6	120	2.5	327.5	36.9	90.2	167.1	17.14	66.6	11.1	1.78	9.67	1.28	7.07	1.37	3.86	0.57	3.84	0.53
19013	673.8	29.4	5.7	22.6	7.8	73	111.4	3	270.9	3.7	33.3	5.7	101	10.1	260.3	43.9	87.2	158.8	18.41	72.7	13.1	2.48	10.8	1.59	8.63	1.6	4.35	0.68	4.32	0.65
19014	716.2	12.2	3.3	22	10.9	74.4	83.3	3	286.6	2.6	28.4	4.9	105	7.1	359.1	46.5	87.7	154.2	16.73	63.6	11.1	1.79	8.76	1.5	7.92	1.69	4.94	0.77	4.87	0.79
19015	581.3	10.6	5	24.6	9.1	32.8	81.5	3	283.8	1.8	16.5	3.9	93	1.8	285.5	26.5	50.8	92.8	10.2	38.3	6.9	1.31	5.68	0.93	4.93	1.03	2.9	0.46	2.96	0.44
19016	641.6	14.3	6.5	19.2	10.1	35.7	88	3	183.9	2.3	25.7	4.6	104	2.5	325.7	39.7	66.2	129.7	14.27	56.7	9.8	1.73	8.2	1.41	7.43	1.49	4.09	0.68	4.28	0.61
19017	535.2	13	4.6	16.4	9.7	51.3	65.2	3	190.3	3.7	36.7	5.7	88	2.8	337.7	48.5	103	186.8	19.72	77.5	13.1	2	10.8	1.77	9.07	1.81	5.22	0.78	5.04	0.77
19018	664.8	11.1	5.7	19.5	8.8	67.7	100	3	256.6	3.8	22.7	4.3	117	2.8	289	40.3	72.8	126.1	13.67	54.4	8.5	1.61	7.19	1.24	6.87	1.43	4.34	0.72	3.99	0.64
19019	619.2	25.9	5.9	24.6	7.5	63.2	170	3	259.1	4.4	32.1	6.1	125	2.6	235	35.4	90.1	160.5	17.7	67.1	10.6	1.89	8.3	1.38	7.09	1.36	3.61	0.55	3.28	0.54
19020	405.6	27.5	3	18.8	5.3	22.1	42.4	2	286.4	1.4	12.4	4	64	2.6	162.6	28	35.2	70	7.73	31.5	6	1.27	5.01	0.86	4.93	1.01	2.91	0.44	2.8	0.42
RE 19020	413	26.5	4.2	17.2	4.8	18.2	41.6	1	276.3	1	10.6	3.9	65	1	167.7	22	37.4	73.1	8.13	32	6.1	1.33	5	0.81	4.27	0.83	2.26	0.35	2.27	0.35
14465 PULP	125.9	25.5	0.2	2.3	< .5	805.7	3.9	<1	4353.6	116	3.4	71.5	31	0.5	3	18.2	155	294.5	33.96	130.5	19.2	5.03	12	1.46	5.53	0.74	1.33	0.17	0.81	0.11
19021	397.3	80.6	4.8	15.9	5.6	206.1	51.5	1	242.6	35.6	27.5	11.1	71	2.1	206.2	48.7	96.6	188.2	20.56	78.2	14.2	2.83	11.9	1.77	9.76	1.78	4.84	0.69	4.25	0.67
19022	590.9	24.7	7.9	21.5	8.4	66.3	103.3	3	207.4	6.6	24.5	4.9	115	2.6	305.9	37	78.4	140.9	15.4	55.9	10.3	2.08	8.58	1.24	7.07	1.39	3.65	0.57	3.73	0.55
19023	605.7	7.9	5	23.3	8.8	76.5	96.9	3	240.9	7.5	16.4	4.5	91	2.1	293.9	30.4	67.7	118.3	12.88	45	7.5	1.51	6.33	1.04	5.57	1.05	2.99	0.43	2.99	0.48
19024	606.1	12.2	4.2	22.9	11.3	45.9	84.7	3	215.3	2.6	27.6	5.4	105	2.4	370.2	53.3	82.5	149.2	16.36	61	10.8	1.89	9.48	1.49	9.05	1.82	5.68	0.85	5.8	0.92
19025	619.2	35.2	5.5	20.8	12.6	76	126.4	3	233.7	9	65.9	9.2	128	3.8	423.4	58	126	248	25.76	95.8	17.1	3.04	15	2.13	11	2.13	6.09	0.94	6.01	0.91
19026	591.1	27.9	5.3	21.3	8.6	65	106.8	2	314.4	5.9	26.7	5.8	96	2.1	275.4	49	94.3	177.5	20.72	81.1	13.7	2.62	12.2	1.74	8.72	1.8	4.88	0.73	4.53	0.69
19027	582.2	40	4.5	18.4	24.7	95.8	150.8	3	327.7	6.8	76.3	10.4	121	2.7	830.5	101	212	367	42.57	155.8	26.4	4.44	22.4	3.66	18.3	3.64	10.6	1.59	10.1	1.5
19028	491.2	37.9	5	20	6.2	122.6	80.6	2	417.7	25.4	15.2	8.2	103	1.2	209.6	36	69.3	179.2	16.08	60.4	10.5	2.53	9.45	1.4	7.27	1.34	3.83	0.56	3.83	0.53
19029	954.5	61.7	4.9	21.5	6.9	198.7	83	2	419.4	39.9	23.4	8.8	76	1.7	241.6	68	184	347.1	43.65	172.4	27.7	7.41	23.3	3.19	15.3	2.74	6.74	0.99	6.12	0.94
19030	620.5	5.1	3	22.1	12.5	36.1	56	4	244.3	1.9	28.5	5.1	92	3.1	385.2	39.1	80.6	142.1	16.69	61.4	10.7	1.51	8.54	1.38	7.16	1.45	4.07	0.63	3.89	0.63
STD SO-17	397.5	19.3	4	19.4	12.4	25.1	23.1	12	298.9	4.5	12.5	11.6	127	11	369.8	27.4	11.4	23.6	3.03	14	3.4	1.03	3.7	0.67	4.18	0.95	2.83	0.43	2.84	0.46
19031	675.1	20.3	11	22.7	12.3	39	104.3	3	229.4	1.3	25.7	5.1	145	2.3	405.2	52.3	88.9	154.7	16.3	65.4	10.5	1.97	8.96	1.51	7.93	1.6	4.48	0.75	4.82	0.74
19032	273.1	57.6	6.6	19.7	6.3	16.8	46.9	2	84.1	0.7	11.4	2.9	162	0.8	200	19	37.2	64.3	7.33	30.2	4.8	0.76	3.8	0.6	3.21	0.63	1.67	0.27	1.87	0.29
19033	693.6	8.4	6.3	23.7	9.5	25.5	90.7	3	329.8	1.3	13.6	3.7	103	1.9	306	26.9	46.4	81.9	8.82	35.4	5.9	1.41	5.06	0.87	4.24	0.89	2.35	0.41	2.61	0.41
19034	750.3	4.1	6.2	21.9	12.1	29.6	77	3	271.3	1.6	13	4	66	2.1	403.8	32.7	52.8	92.9	9.98	40.3	6.6	1.51	6.03	0.92	4.97	1.05	2.84	0.49	3.27	0.52
19035	606.5	7.6	7.4	26.3	12.6	48.5	102.2	3	271.8	2.4	21.4	4.9	111	2.4	408.7	47.2	69.6	127.7	13.82	55.5	8.8	1.8	8.25	1.43	6.85	1.58	4.22	0.73	4.81	0.72
19036	588.3	19.9	6.3	20.7	11.5	58.3	117.3	4	244.2	4.3	25.3	6	121	2	360.4	40.5	82.8	155.6	16.61	65.8	10.1	2.13	9.31	1.5	6.82	1.29	3.47	0.62	4.07	0.59
19037	454.4	32.3	4.3	22.1	6.3	75.3	66	2	272.1	25.9	12.2	4.2	85	1.1	214.5	22.8	47.3	90.9	9.55	37.8	6.3	1.75	5.86	0.84	4.23	0.76	2.03	0.32	2.28	0.31
19038	562.2	22.8	11.1	23.6	10.3	90.6	122.2	3	237.8	15.4	28.5	8.2	132	2.4	328.3	46.2	86	168.8	18.39	69.2	12.2	1.97	10.5	1.55	7.74	1.55	3.78	0.65	3.76	0.56
19039	580.4	16.9	6.5	22.8	10.8	82.8	93.6	4	231.3	6.9	25.1	6.6	129	2	345.1	49.2	82.1	155.9	16.25	61.2	10.4	2.01	9.11	1.43	8.18	1.69	4.27	0.72	4.91	0.67
19040	592.5	10.2	4.4	30.9	12.4	49.8	80.4	3	226.5	2.4	23.1	4.4	156	2.3	384	39.5	75	139.9	15.11	57.5	9.6	1.98	7.8	1.32	6.55	1.38	3.62	0.55	3.52	0.58
19041	775.2	26.4	4.7	24.2	8.8	246.2	126.7	3	361.4	17.9	25.5	4.5	107	1.7	312	27.1	88.2	171.6	15.99	63.1	8.4	2	6.76	0.96	4.63	0.98	2.31	0.37	2.54	0.38
19042	478.9	104	6.8	15.9	4.1	128.2	62.7	2	261.7	61.3	19.5	14.4	69	1.1	138.3	42.5	89.9	241.5	20.86	86.5	14.3	4.27	12.5	1.96	8.67	1.69	3.59	0.53	3.54	0.46
19043	773.5	47.9	8.2	21.9	9.2	59.6	178.8	3	305.9	2.6	33.4	7	127	2.3	299.6	68.2	113	239.5	24.28	97.1	16	3.46	14.4	2.34	11.4	2.2	5.72	0.95	5.68	0.91
19044	633.6	64.7	5.2	19.8	12.8	88.3	156.7	2	245.8	10.7	57.7	12.8	128	2.4	427.9	87.4	161	448.2	35.55	147.4	23	5.55	21.4	3.33	15.6	3	7.94	1.24	7.87	1.05
19045	466.3	16.2	2.4	22.2	9	108.1	43.4	2	223	3.3	25.6	4.8	146	2.8	314.9	40.9	84.4	156.8	16.34	67.7	10.7	1.91	9.45	1.44	7.26	1.38	3.71	0.58	3.47	0.58
19046	636.8	14	3.6	19.5	5.5	32.4	71.5	2	300.7	5.1	12.7	3.5	77	1	189.3	23.3	41.9	77.2	8.31	33.6	5.5	1.3	4.93	0.74	3.57	0.82	2.06	0.35	2.38	0.36
19047	612.7	9.3	10.3	26.3	11.7	32.1	152.9	3	252.8	2	19.8	5.5	120	3.8	357.7	47.2	70.9	136.9	15.21	65.2	10.8	2.11	10.1	1.56	7.88	1.57	4.37	0.7	4.78	0.67
19048	383.6	58.1	2.9	8.9	4.1	80.7	27.1	1	121.8	6.2	18.7	5.1	54	1.1	150.9	32.3	65.4	232.4	15.03	60.8	10.9	3.08	9.85	1.46	7.49	1.36	3.15	0.49	2.95	0.4

APPENDIX 2B: CONTINUED

ELEMENT	Ba	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
19049	476.5	40.1	5.1	20.1	9.8	60.4	47.4	3	229.5	4.9	20.9	6.3	156	8.9	315.5	49.6	80.1	178.2	16.33	65.2	11	2.64	9.81	1.71	8.5	1.69	4.35	0.71	4.42	0.6
19050	589.9	53.8	4.5	19.1	12	384.7	101.9	3	246.9	21.8	26.7	5.8	119	3.2	405.1	44.5	92.3	173.3	18.22	76.7	11.8	2.7	10.6	1.6	8.37	1.53	4	0.63	3.98	0.56
RE 19050	541.1	50	4.7	21.6	11	294.3	98.1	3	234.6	20.7	25.3	7.5	116	2.5	346.7	43.5	83.6	160	17.04	69.9	11	2.54	9.37	1.56	7.55	1.54	3.99	0.65	4.31	0.61
19051	453.5	37.5	4	18.5	12.1	77.7	77.4	2	239.1	15.8	30	10.5	118	2.4	391.2	54.4	116	217.5	21.74	86	12.9	2.96	11.9	1.81	10	1.91	5.13	0.8	4.93	0.73
19052	508.8	28.3	4.2	16.9	10.6	73.3	78	2	239.3	6.9	27.4	6.8	122	2.6	352.8	54.9	95.8	187.1	19.84	81.3	12.9	2.89	12.3	1.89	10.1	1.99	4.73	0.8	4.95	0.7
19053	547.8	15.3	3.5	23.1	7.2	29.2	59	2	261.9	1.4	10.9	3.3	171	1.5	221.5	36	43.9	80	8.96	36.7	6.6	1.44	6.76	1.07	5.74	1.26	3.33	0.54	3.56	0.47
19054	644.9	7.8	1.4	17.8	7.2	24.9	44.8	2	306.2	1.1	10.7	2.8	99	2.1	218.4	23.7	38.1	66	7.48	29.7	5	1.21	4.35	0.77	4.11	0.85	2.2	0.35	2.6	0.33
19055	580	13.5	4.4	24.6	7.3	39.6	80	1	288.1	3.5	12.5	4	175	1.4	223.4	26.8	45.9	77.1	8.32	35.3	5.4	1.17	4.88	0.74	4.37	0.87	2.41	0.36	2.89	0.4
19056	484.3	12.7	3.8	22.3	9.8	63.7	67.1	2	201.4	4.8	21.5	4.4	133	2.5	308.7	38	70.6	127	13.44	57.7	8.1	1.76	7.16	1.11	6.46	1.21	3.21	0.49	3.43	0.48
19057	563.2	7.2	3	19.4	7.1	22.9	71.1	2	347.6	3.5	12.9	4.6	78	1.4	213.9	21.5	62.8	103.6	10.85	43.6	6.7	1.34	6	0.85	4.22	0.74	1.92	0.33	2.27	0.3
19058	502.9	29.3	3.9	14.1	10.3	59	54.5	1	216.3	3.1	32.9	5	105	2.6	318.6	50.1	98.8	189.4	18.55	74.8	11	2.42	10.4	1.73	9.36	1.81	4.82	0.77	5.3	0.76
19059	508.3	9.4	3.9	25.3	10.1	53.7	74.6	3	220.9	6	18	4.3	116	2.1	308.2	34	70.6	125.2	13.07	53.7	7.9	1.59	6.79	1.05	5.96	1.2	3.07	0.51	3.43	0.51
19060	666.6	6	3.9	20.6	11.4	24.6	66.3	3	335.9	1.4	16.6	4	75	2.3	348.2	34.6	61.7	108.4	11.63	45.9	7.4	1.55	6.88	1.07	5.96	1.15	3.2	0.5	3.58	0.51
19061	648.8	8.8	9.1	24.3	9.1	135.5	156	5	588	2.1	16	2.7	119	1.6	264.4	30	87.1	135.5	13.28	50.2	7.1	1.65	6.5	0.94	5.05	1.02	2.57	0.45	2.82	0.39
STD SO-17	391.8	19.2	4	19.6	12.6	24.9	23.3	10	301.5	4.2	11.9	11.7	127	10.2	358.8	26.5	11.8	23.5	2.95	13.9	3	1.04	3.68	0.66	4.29	0.98	2.74	0.43	2.86	0.42
19062	542.1	5.2	2.4	19.4	7.2	23.7	54	2	319.4	1.1	14.3	3.1	54	1.7	259.9	27.1	44.7	80.7	8.42	35.8	5.7	1.05	4.6	0.72	3.95	0.86	2.83	0.39	2.58	0.39
19063	433.1	9.6	5.2	26.2	7.5	24.8	87.4	4	311.7	1.4	13.4	2.5	104	1.4	267.9	25.2	46.7	84.4	8.71	37.4	6	1.08	5.29	0.76	4.41	0.82	2.41	0.39	2.36	0.38
19064	530.4	9.2	4.1	23.7	13.2	38.2	66.4	3	280.5	3.9	24.8	5.5	114	3	438.6	41.3	88	160.8	16.43	63.5	10.2	1.65	9.16	1.32	7.07	1.37	4.3	0.6	3.79	0.59
19065	499.6	15	4.7	20.2	13	43.8	61.7	3	242.6	2.8	26.5	6.2	122	7.1	470.1	46.4	86.3	162.7	16.6	64.5	11.2	1.68	9.96	1.48	7.68	1.44	4.72	0.64	4.42	0.65
19066	577	9.7	6	26.2	8.8	44.6	99.8	2	228.5	2.4	22.5	4.5	104	2.7	318.5	52.9	76.8	141.8	14.76	60.6	9.9	1.57	9.12	1.42	8.23	1.67	5.27	0.79	4.87	0.68
19067	611.7	4.8	3.1	19.2	10.2	26.1	68.8	3	245.1	1.8	19.6	4.9	73	2.4	356.8	45	67.3	126.6	13.35	52.4	9.5	1.38	8.51	1.19	6.88	1.46	4.87	0.67	4.48	0.64
19068	635.7	8.7	6.7	21.6	8.1	26.4	121.8	3	287.4	1.9	13.4	3.4	102	2.1	264.5	29.2	51.1	94.6	10.08	41.2	7.1	1.19	5.76	0.86	5.06	1.04	2.99	0.44	2.92	0.42
19069	562.9	5.7	4.2	19.2	5.3	14.6	70.7	2	317.1	1.1	6.6	2.1	49	1.1	191.1	15.7	25.8	45.4	4.77	19.9	3.1	0.77	3	0.44	2.53	0.49	1.49	0.25	1.58	0.24
19070	459.8	16.5	4	21	9.3	44.3	113.6	3	203.5	2.2	25	4.4	110	1.8	334.3	43.1	84.1	159.4	16.41	64.7	11.1	1.77	9.09	1.33	7.43	1.48	4.33	0.61	3.88	0.6
19071	543	16.5	6.5	21.9	8.8	47.1	106.1	2	228.9	1.6	43.5	5.2	120	2	279.3	41.5	97.6	196.2	19.81	80.1	13	1.97	10.9	1.48	7.57	1.38	4.14	0.59	3.8	0.53
19072	480.7	35.6	6.5	18.6	11.6	112.5	78.3	3	219.5	4.4	31.6	5.7	115	2.5	404.8	48	99.5	198.4	20.28	83.4	12.6	2.34	11.1	1.64	8.23	1.56	4.75	0.68	4.64	0.68
19073	547.5	9.6	5.4	26.9	7.2	33.7	109.5	3	287.2	1.5	11.7	2.5	100	1.6	235.9	21.9	40.4	78.5	8.45	34.4	5.6	1.15	4.61	0.69	3.65	0.71	2.28	0.34	1.93	0.31
19074	489.4	33.5	4.4	18.1	10.8	78.1	78.9	3	206.3	3	28.5	4.7	111	2.4	342.5	48	80.9	166.7	16.87	69.8	11.1	1.92	9.5	1.55	8.11	1.63	4.43	0.66	4.35	0.62
19075	594.7	16.1	2.9	16	13.2	98	76	2	252	2.5	33.2	5.5	118	2.6	369.9	58.2	92	198	18.84	78.2	11.4	2.14	10.7	1.73	9.39	1.9	5.68	0.9	5.19	0.82
19076	504.7	13.2	2.7	21.2	10.9	60.4	60.2	2	245.2	2.4	30.3	4.5	105	2.2	361	41.1	79.9	161.5	16.15	64.1	10.4	1.75	8.43	1.37	7.03	1.37	3.83	0.6	3.84	0.54
19077	522.7	17.5	3.5	21.1	12.7	54.3	85	2	223.3	1.9	37.7	5.2	118	2.8	404	51.9	99.9	196.4	20.01	77.7	12.5	2.03	11	1.71	8.48	1.68	4.93	0.78	4.3	0.68
19078	506.8	25.6	3.2	15.9	18.8	81.1	77.9	1	242.2	2.8	49.7	7.7	103	2.7	616.5	71.1	134	271.8	27.39	110.8	16.7	2.78	14.1	2.22	11.8	2.31	6.99	1.09	6.53	0.92
RE 19078	515.9	25.7	2.8	15.3	21.8	89.5	75.4	2	241.8	7.2	63.8	9.4	106	2.4	659	79.5	169	342.6	34.18	134.1	20.6	3.34	17.4	2.85	14	2.61	7.34	1.16	6.94	0.98
19079	493	33.8	3.3	13.9	7.3	72.2	65.5	2	237.8	7.9	20.6	4.3	103	2.6	238.6	56.4	79	166.5	15.92	66	10.3	2.06	8.47	1.55	8.56	1.73	5.43	0.84	5.1	0.76
19080	502.7	19.9	5.7	27.4	7.7	30.3	92.1	3	168.5	3.5	19.1	3.3	110	3.5	252.5	35.8	52.6	105.1	11.23	47.3	7.9	1.18	6.42	1.12	5.82	1.22	3.69	0.54	3.18	0.49
19081	392	30.7	3.6	19.5	5.2	21.8	62.5	2	309.6	1.1	12.3	2.6	65	1.3	191.5	19.7	37.8	71.2	7.51	30.8	5.5	1.22	4.33	0.71	3.75	0.69	1.98	0.28	1.72	0.25
14466 PULP	119.7	26.2	0.1	1.9	< .5	729.2	3.5	< 1	4066.9	106	1.9	64	26	0.1	2.9	18.8	138	294.2	31.41	129.4	17.6	4.62	12.1	1.36	5.33	0.71	1.34	0.15	0.81	0.09
19082	633.1	21.4	9.8	27.6	8	40.7	126.2	3	182	3.2	19.9	4.5	125	2.4	263.2	37.2	71.6	139.3	14.03	57.6	9.3	1.56	8.08	1.08	6.47	1.29	3.42	0.55	3.37	0.49
19083	794.8	23.1	5.9	23.4	12.2	68.1	103.7	2	302.5	3.3	29.9	5	113	2.1	398.3	46	86.2	160.1	17.16	69.1	11.2	2.08	9.21	1.45	7.9	1.58	4.32	0.65	4.36	0.61
19084	996.3	24.6	16.2	26	9	56.8	180.3	3	248	1.8	28.6	3.5	133	2.1	294	39.1	102	217.1	18.94	77.1	10.6	2.3	8.88	1.24	6.44	1.36	3.73	0.59	3.51	0.51
19085	877.7	20.6	9.3	27.5	8	31.5	155	3	298.2	1.4	19.8	3.8	115	1.9	260.5	33.1	63.3	117.6	12.82	52.7	8.1	1.44	7.92	1.03	5.72	1.16	3.23	0.5	3.09	0.41
19086	582.3	14.2	5.9	21.7	10.1	41.7	96.4	2	232.1	2.5	23.7	4.2	107	1.9	332.5	35.7	69.2	129.7	13.23	53.1	8.3	1.47	7.6	1.07	6.44	1.26	3.41	0.56	3.44	0.48
19087	468.6	8.7	2.6	22.8	9	36.5	56.7	3	286	1.7	19.4	4	114	2.3	329.3	35.2	71.3	130.3	14.18	56.5	8.9	1.71	7.22	1.08	6.49	1.23	3.49	0.53	3.55	0.49
19088	459.5	15	4.2	16.8	10.5	37	81	3	190.1	1.6	27.7	4.7	106	2.6	381.7	59.2	88.8	161.4	17.42	69.5	11.4	1.96	10.5	1.61	9.78	2.18	6.14	0.94	6.05	0.88
19089	942.7	17.5	7.9	24.5	7.9	108.2	74	3	362.8	1.6	64.8	3.2	110	1.2	291.8	39.3	427	651.4	54.07	179.5	18.8	4.33	12.9	1.47	7.23	1.23	3.22	0.48	3.07	0.4
19090	725.4	10.7	6.2	24.8	10.1	60.6	92.7	3	306.6	5.7	27.6	7	128	2.2	328.8	43.5	113	202.7	20.56	82.3	11.8	1.98	9.75	1.28	7.59	1.5	4.21	0.65	4.3	0.57
19091	1095.6	6.6	3.9	26.4	9.6	73	58.5	4	278.4	3.6	47.9	4.5	127	1.8	355.6	34.4	173	349.2	33.82	124.4	15.5	2.89	10.2	1.21	6.69	1.15	2.95	0.51	3.25	0.41
STD SO-17	403.7	20.2	4	18.9	13	25	24.3	10	307.5	4	12.4	11.6	129	10.3	376	27	11.9	23.8	3.02	13.9	3.3	1.05	3.79	0.68	4.29	0.9	2.74	0.44	2.82	0.43
19092	1783.3	10	6.9	26.9	11.1	108.4	63.6	6	301	2.4	70	4.4	162	7.3	400.3	67.3	365	676.2	62.3	218.3	26.3	5.58	18.1	2.45	12.2	2.11	6.05	0.92	6.41	0.93
19093	649.5	43.4	5.8	19.8	7.4	62.6	90.7	3	219.5	8.8	33.4	5.4	119	3.2	263.2	54.2	94.7	219.5	19.62	75.2	13.9	2.89	10.9	1.84	9.64	1.79	5.11	0.79	4.93	0.79
19094	860.2	29.7	12.3	25.8	7.7	221.4	135	4	358.7	34.9	31.7	11.8	128	2.4	277.5	52.2	108	256.5	22.6	90.5	15.1	3.35	11.7	1.87	9.67	1.68	5.03	0.72	4.6	0.76
19101	609	47.3	6.4	19.7	7.1	201.3	93.8	2	343.2	14.9	37.9	6.5	119	3.8	270.4	78.4	113	269.1	24.69	99.1	16.4	3.58	13.9	2.36	13	2.59	7.42	1.17	7.33	1.08
19102	679.5	25.7	4.9	20.7	5.9	110.2	110.3	3	370.5	8.9	34.5	6.8	107	2.7	209.2	58.6	108	223.8	24.16	99.5	17.1	3.41	14.1	2.08	10.2	1.87	5.19	0.75	5.45	0.73

APPENDIX 2B: CONTINUED

ELEMENT	Ba	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
19104	636.9	25.1	5.4	20.8	9.6	98	131.1	2	277.3	4.9	31.3	5.1	119	2.2	330.1	51.5	85.4	183.9	17.76	73.7	12.1	2.63	9.91	1.62	8.73	1.6	5.14	0.72	5.15	0.73
19105	759	17	3.7	20	10	62.5	110.3	3	292.5	3.1	31	4.8	120	2.6	352.1	51.8	99.4	195.9	20.01	78.8	13.4	2.61	11.2	1.71	9.36	1.76	4.83	0.7	4.94	0.73
19106	777.8	68.5	7.5	20.4	6.5	124.8	146.4	2	304.4	11.6	27.5	7.1	102	2.2	218.6	56.5	104	319.5	25.69	106.3	17.9	4.61	15.2	2.2	11.5	2.01	5.58	0.79	5.4	0.75
19107	643.7	53.4	7.2	23.4	6.4	140.1	142.8	2	303.8	31.8	27.4	12.9	97	1.7	221.2	47.5	94	207.9	20.84	86.7	14.7	3.61	12.3	1.77	9.31	1.65	4.27	0.57	4.2	0.55
19108	582	15.3	4	24.7	10.2	71.6	69.9	3	288.7	3.1	27.4	4.6	119	2.4	352.1	49.1	80.7	153.6	15.49	61.8	10.6	1.95	9.04	1.36	8.02	1.59	4.8	0.73	5.21	0.75
19109	540.9	4.9	2.8	22.5	8.2	48.3	55.4	4	321.1	3.8	16.2	3.7	65	1.9	292.9	35.2	51.7	96.9	9.97	40.6	7.2	1.44	6.01	0.95	5.55	1.15	3.5	0.56	3.65	0.55
19110	610	5.8	3.4	23.2	8.4	48.6	63.7	2	316.4	1.7	16.1	3.7	86	1.8	287	32.2	43.7	87	9.73	40.7	7.3	1.44	5.5	0.96	5.5	0.98	3.01	0.46	3.31	0.51
19111	542	17.3	6.1	28.3	7.8	63.2	86.5	3	259.3	2.7	19.6	3.7	141	2.4	282.8	34	57.8	113.9	11.93	49.6	7.7	1.64	6.85	1.08	5.59	1.18	3.34	0.5	3.08	0.51
19112	771.4	28.4	10.5	23.3	6.1	51.9	109.3	5	184.8	2.1	41.2	4.3	130	7.1	202.9	40.6	52	112	11.73	52.1	9.8	2.06	8.07	1.39	7.35	1.4	3.84	0.54	3.92	0.5
19113	612.8	17.8	5.8	26.4	8.5	53.3	104.8	5	284.9	2.2	22	4	116	3.3	297.7	43.5	66.9	132.5	14.24	56.7	9.9	1.87	8.02	1.34	7.07	1.49	4.23	0.61	4.4	0.68
19114	644.6	19.2	3.6	17.1	10.4	78.3	90.6	3	238.3	3.1	30.7	4.8	130	2.6	375.8	48.8	88.9	183.9	18.5	72.5	11.9	2.26	10	1.52	8.54	1.71	4.77	0.67	4.78	0.69
RE 19114	586.7	17.9	3.7	18.8	9.5	54	92.3	3	245.8	3.9	28.4	4.6	129	2.1	342	51.4	85.1	173.1	17.26	68.4	11.4	2.27	9.13	1.6	8.55	1.74	4.58	0.71	4.92	0.68
19115	620.5	24.3	3.7	19.7	10.2	71.2	97	3	239.5	4.8	26.4	4.4	128	14	334.6	45.2	84.2	168.4	16.92	67.1	11	2.27	9.07	1.43	7.45	1.54	4.54	0.64	4.37	0.67
19116	538.8	19.7	3	18.6	11.7	79.8	63.1	2	239.9	5.3	33.9	5.6	125	2.8	384.1	54.6	96.4	204.6	19.99	79.4	13.5	2.38	11.2	1.74	8.77	1.84	5.51	0.8	5.82	0.86
19117	625.1	15.7	4.9	24.3	11.5	70.8	115.9	3	249.3	5.2	36.4	5.9	133	1.9	413.7	53	104	216.2	21.95	90.3	14.2	2.5	12.2	1.86	9.39	1.82	4.87	0.7	5.16	0.72
19118	649.7	21.2	4.1	21.5	10.5	68.8	97.2	3	252.1	5.2	38.9	5.7	125	4.1	358.9	57	97.4	199.4	20.52	84.7	13.5	2.34	11	1.83	9.58	1.96	5.56	0.84	5.59	0.84
19119	716.6	43.3	7.1	20.6	7.7	137.7	118.3	3	266.5	5	38.4	6.7	120	2.6	284.5	57.5	110	225.9	24.17	98.4	16.2	3.49	14.5	2.17	10.3	1.97	5.49	0.78	5.76	0.77
19120	685.2	42.1	7.5	23.2	8.9	144.5	118.1	3	270.1	8.3	29.2	5.7	140	2.5	303.6	47.9	103	218.6	21.53	84.8	14.1	2.87	11.5	1.85	9.04	1.65	4.58	0.63	4.33	0.63
19121	719.2	21.4	5.2	21.9	9.2	63.7	123.7	3	274.9	3.2	31.1	4.3	136	14.6	324.2	44.5	73.8	151	15.71	62.8	10	1.87	8.7	1.43	7.71	1.44	4.22	0.65	4.18	0.63
19122	723.4	20	5.8	27.8	8.1	83.3	155.4	3	274	4.5	26.8	4	152	2.8	282.8	33.8	75.2	145.4	14.76	61.5	9.4	1.67	7.65	1.13	6.23	1.1	3.24	0.46	3.31	0.47
19123	588.9	18	3.5	22.9	10.7	52	73	3	246.8	2.5	31.4	5.1	120	2.3	383.7	50.6	92	175.4	18.04	70.8	11.5	2.08	9.81	1.6	8.36	1.74	4.91	0.74	5.05	0.76
19124	711.7	46.2	6.8	20.2	9.1	40.3	128.2	3	272.7	2.2	30	7.2	117	2.2	288.9	53.8	76.3	148.5	16.25	69.1	11.2	2.37	10.1	1.67	8.8	1.74	5.14	0.72	5.24	0.73
19125	750.5	12.8	5.8	30	8.4	83.3	108.6	3	395.6	2.8	22	3.5	134	1.7	293.6	34	69.1	131.8	13.71	55.8	9.1	1.86	7.39	1.13	5.83	1.16	3.33	0.48	3.65	0.51
19126	732.3	23.5	7.6	29	8.5	64.3	159.2	3	214.7	3.1	25.9	4.7	142	3.2	295.6	44.4	80.9	156.6	16.2	65	10.5	1.88	8.78	1.46	7.88	1.57	4.46	0.64	4.49	0.64
STD SO-17	396.8	18	3.7	19.5	11.6	25.3	23.4	11	309.1	4.4	13.2	11.5	135	11	364.8	27.4	11.1	24.1	3.01	13.8	3.3	1.07	3.73	0.68	4.35	0.91	2.81	0.43	2.9	0.45

APPENDIX 3: Soil Sample Locations With Ta, Nb and Mo Concentrations

Sample	Location		Nb	Ta	Mo
Number	Easting	Northing	ppm	ppm	ppm
19001	352750	5797600	53.2	3.2	3.8
19002	352740	5797600	43.5	2.4	1.8
19003	352730	5797600	43	2.2	3.9
19004	352720	5797600	56.1	2	5
19005	352710	5797600	75.8	3.8	2.9
19006	352700	5797600	61.6	1.8	3.1
19007	352680	5797600	56	2.7	4.4
19008	352660	5797600	62.5	3.9	3.8
19009	352640	5797600	82	5.2	5.5
19010	352620	5797600	68.2	6.2	5.8
19011	352600	5797600	74.2	5.4	5.7
19012	352580	5797600	77.1	4	4.3
19013	352560	5797600	73	3.7	5.5
19014	352540	5797600	74.4	2.6	3.3
19015	352520	5797600	32.8	1.8	4.5
19016	352500	5797600	35.7	2.3	2
19017	352480	5797600	51.3	3.7	3.7
19018	352440	5797600	67.7	3.8	6.7
19019	352740	5797400	63.2	4.4	4.1
19020	352780	5797400	22.1	1.4	3.1
19021	352800	5797400	206.1	35.6	7.3
19022	352820	5797400	66.3	6.6	6.6
19023	352840	5797400	76.5	7.5	4.7
19024	352860	5797400	45.9	2.6	5.3
19025	352880	5797400	76	9	4.6
19026	352900	5797400	65	5.9	2.5
19027	352920	5797400	95.8	6.8	3.6
19028	352940	5797400	122.6	25.4	2.6
19029	352960	5797400	198.7	39.9	3.9
19030	353020	5797400	36.1	1.9	3.7
19031	353060	5797400	39	1.3	6.2
19032	353080	5797400	16.8	0.7	11.9
19033	353100	5797400	25.5	1.3	17.7
19034	353100	5797500	29.6	1.6	2.3
19035	353080	5797500	48.5	2.4	3.2
19036	353060	5797500	58.3	4.3	2.7
19037	353040	5797500	75.3	25.9	5.4
19038	353020	5797500	90.6	15.4	3.5
19039	352980	5797500	82.8	6.9	4.1
19040	352960	5797500	49.8	2.4	2.4
19041	352940	5797500	246.2	17.9	3.7
19042	352900	5797500	128.2	61.3	15.3
19043	352860	5797500	59.6	2.6	4.3
19044	352840	5797500	88.3	10.7	4.2
19045	352890	5797600	108.1	3.3	10.1
19046	352910	5797600	32.4	5.1	2.8
19047	352920	5797600	32.1	2	2
19048	352940	5797600	80.7	6.2	15.2
19049	352950	5797600	60.4	4.9	6.9
19050	352960	5797600	384.7	21.8	3.1
19051	352970	5797600	77.7	15.8	5.5
19052	352980	5797600	73.3	6.9	6.7
19053	353000	5797600	29.2	1.4	1.6
19054	353010	5797600	24.9	1.1	0.8
19055	353020	5797600	39.6	3.5	2.1
19056	353030	5797600	63.7	4.8	4.3
19057	353040	5797600	22.9	3.5	0.9
19058	353050	5797600	59	3.1	3.6
19059	353060	5797600	53.7	6	2.9

Sample	Location		Nb	Ta	Mo
Number	Easting	Northing	ppm	ppm	ppm
19060	353070	5797600	24.6	1.4	2
19061	353080	5797600	135.5	2.1	10.5
19062	353090	5797600	23.7	1.1	1.2
19063	353100	5797600	24.8	1.4	3.8
19064	353080	5797700	38.2	3.9	10.3
19065	353060	5797700	43.8	2.8	6
19066	353040	5797700	44.6	2.4	4.6
19067	353020	5797700	26.1	1.8	2
19068	352980	5797700	26.4	1.9	3.6
19069	352960	5797700	14.6	1.1	1.1
19070	352940	5797700	44.3	2.2	2
19071	352920	5797700	47.1	1.6	4
19072	352900	5797700	112.5	4.4	4.8
19073	352880	5797700	33.7	1.5	3
19074	352860	5797700	78.1	3	4.4
19075	352840	5797700	98	2.5	4
19076	352820	5797700	60.4	2.4	3.1
19077	352800	5797700	54.3	1.9	3.7
19078	352780	5797700	81.1	2.8	3.6
19079	352760	5797700	72.2	7.9	4.8
19080	352740	5797700	30.3	3.5	3.3
19081	352720	5797700	21.8	1.1	2.3
19082	352700	5797700	40.7	3.2	4.2
19083	352700	5797800	68.1	3.3	10
19084	352720	5797800	56.8	1.8	15.9
19085	352740	5797800	31.5	1.4	5
19086	352760	5797800	41.7	2.5	7.3
19087	352800	5797800	36.5	1.7	2.4
19088	352820	5797800	37	1.6	3.1
19089	352840	5797800	108.2	1.6	5.1
19090	352860	5797800	60.6	5.7	5
19091	352880	5797800	73	3.6	36.4
19092	352900	5797800	108.4	2.4	54
19093	352641	5797827	62.6	8.8	13.1
19094	352642	5797828	221.4	34.9	11
19101	352700	5797500	201.3	14.9	3.8
19102	352720	5797500	110.2	8.9	3.9
19104	352760	5797500	98	4.9	3.8
19105	352780	5797500	62.5	3.1	2.1
19106	352800	5797500	124.8	11.6	10.7
19107	352820	5797500	140.1	31.8	5.5
19108	352880	5797600	71.6	3.1	3.8
19109	352870	5797600	48.3	3.8	0.9
19110	352860	5797600	48.6	1.7	1.3
19111	352850	5797600	63.2	2.7	4.1
19112	352840	5797600	51.9	2.1	5.3
19113	352830	5797600	53.3	2.2	2.1
19114	352820	5797600	78.3	3.1	3.5
19115	352810	5797600	71.2	4.8	3.3
19116	352800	5797600	79.8	5.3	4.2
19117	352790	5797600	70.8	5.2	3.3
19118	352780	5797600	68.8	5.2	3.4
19119	352700	5797460	137.7	5	4.9
19120	352700	5797501	144.5	8.3	4.2
19121	352700	5797541	63.7	3.2	3.3
19122	352700	5797577	83.3	4.5	4.3
19123	352700	5797663	52	2.5	4.7
19124	352700	5797711	40.3	2.2	5
19125	352700	5797732	83.3	2.8	4.9
19126	352700	5797759	64.3	3.1	7.6

APPENDIX 4: ANALYTICAL REPORTS FOR WHOLE ROCK ANALYSES BY ICP FROM ACME ANALYTICAL LABORATORIES LTD. FOR THE 2003 ROCK SAMPLES

ELEMENT	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sc	LOI	TOT/C	TOT/S	SUM
SAMPLES	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	%	%
19127	2.11	< .03	7.68	13.88	31.73	0.36	< .02	0.01	4.67	0.82	< .001	55	< 20	4	37.3	11.26	0.1	98.58
19128	62.54	13.77	5	3.04	3.04	9.16	0.89	0.3	0.55	0.14	0.006	752	60	7	0.8	0.06	0.12	99.33
19129	1.99	0.03	7.95	14.78	30.6	0.25	< .02	0.02	2.87	0.81	< .001	55	< 20	4	39.7	11.67	0.05	99.02
STANDARD SO-17/CSB	61.68	13.88	5.87	2.37	4.71	4.09	1.42	0.59	0.98	0.53	0.433	395	40	23	3.4	2.39	5.3	100.01

APPENDIX 5: REPORT ON AN INVESTIGATION OF THE RECOVERY OF TANTALUM AND NIOBIUM MINERALS FROM FIR CARBONATITES

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

An Investigation of

The Recovery of Tantalum and Niobium Minerals

from

Fir Carbonatites

Report No.4

Gravity Concentration Tests of Fir Carbonatite
Using a Knelson CVD Concentrator and a Shaking Table

Prepared for

Commerce Resources Ltd
1450 – 789 West Hastings Street
Vancouver

Attention : Mr. Dave Hodge - President

October 27, 2003

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

SUMMARY

The recovery of tantalum and niobium from the Fir Carbonatite is based on density differences between the host rock and the valuable minerals. This process, known as a gravity recovery processes is common for this type of deposit and has many operating facilities in the world. The test work reported herein represents a larger scale of testing than previously reported and includes some process refinements based on previous metallurgical test results.

The primary grind used in this test work was made slightly coarser relative to previous testing and was set at approximately 325 microns. The larger sample size of approximately 800 kilograms of solids resulted in higher concentration ratios in the operation of the Continuous Volume Discharge (CVD) concentrator. The overall recovery of tantalum and is expected to be in the range of 85 to 91 percent of the available feed to a concentrate of approximately 28 percent contained oxides of tantalum and niobium. This is significantly higher than that reported for other tantalum deposits of similar grade, due primarily to the nature of the host rock and associated mafic minerals in the gravity recovery process.

Tantalum feed grades in this test work was 244 g/tonne Ta and tailings grades of 25 g/t Ta were produced with a recovery of approximately 11.5 percent of the feed weight. This concentrate, which has an upgrade ratio of approximately 9 was sent to a tabling circuit for further upgrading. It is assumed by the author that tailings from the tabling process when returned to the CVD as a circulating load, will not significantly impact the tailing grades of the CVD tailings. It should be noted that all tabling tests resulted in similar upgrading of the CVD concentrates using similar operating conditions.

It was determined that only a small fraction of the feed sample could be recovered using traditional magnetic separation techniques (700 to 900 gauss separator), less than one percent of the feed weight. Approximately 15 to 20 percent of the high-grade concentrates could be removed with a traditional magnetic separator, and this process may have some advantage in upgrading final or intermediate concentrates.

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

TABLE OF CONTENTS

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

INTRODUCTION

International Metallurgical and Environmental Inc. has been providing metallurgical services to Commerce Resources Corp. for the processing of tantalum-niobium carbonatite ores from the Blue River Project in British Columbia.

This report contains results of a bulk gravity test that has been completed on a sample of Fir Carbonatite ore as supplied by Commerce Resources Ltd. Test work was undertaken at Knelson Concentrators Research and Testing Centre in Langley, B.C. and the test samples were analyzed by Teck Cominco Global Discovery Labs in Vancouver.

APPENDIX 5: **CONTINUED**

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

TEST PROCEDURES

A bulk sample of drill core rejects from the Fir carbonatite exploration program was crushed and dry screened using a laboratory jaw crusher and 30" diameter Sweco screen fitted with a 30 mesh (600μm) square aperture screen. The bulk sample was screened, the oversize crushed and then re-screened. The screen oversize product was then returned to the crusher before re-screening and the final screen oversize fraction collected was ground in a stainless steel laboratory mill in batches of 10 kilograms each. The crushed and ground products were combined for processing as a single batch through the Knelson CVD Gravity Concentrator. A simplified test program flowsheet is presented in Diagram 1.

The bulk sample was slurried with water to approximately 25% solids and pumped into a mechanically agitated feed tank. The material was fed under gravity to a CVD (continuous variable discharge) Knelson Concentrator at a controlled rate and the concentrate and tails products circulated back to the feed tank. During this period a technician adjusted the settings of the CVD Concentrator unit to give a concentrate mass recovery of approximately 2.5 – 3 percent on the first pass. The product streams were then diverted, the concentrate being collected and the tails were pumped to a separate holding tank.

The Knelson CVD concentrate collected was then processed on a Gemini GT60 lab-scale shaking table. The table concentrate product was retained and the table tails were combined with the CVD tails for the second pass through the Knelson CVD unit. This procedure was repeated three times to produce three table concentrates (Ai, Aii and Aiii), a final table tails product and a final CVD tails product. Each of the various test products was comprehensively sampled and submitted for tantalum, niobium and uranium analysis. A metallurgical balance is given in Appendix 1.

The three primary table concentrate products were then combined and subjected to a magnetic separation process to remove the magnetic components. Previous test work conducted by International Metallurgical and Environmental Inc. had indicated that the gravity concentrate test products from the Fir carbonatite contained a significant quantity of magnetite that could be removed by simple magnetic separation techniques. The magnetic fraction contained relatively low values of tantalum and niobium, thereby upgrading the metal values in the non-magnetic fraction of the gravity concentrate.

APPENDIX 5: **CONTINUED**

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

The non-magnetic fraction of the primary table concentrate composite was then tabled in secondary and tertiary stages with the aim of producing a high-grade concentrate of approximately 40 percent combined tantalum and niobium oxides.

The maximum grade achieved in this series of tabling tests was approximately 30 percent combined oxides and so additional tabling tests were conducted after screening at 150μm (100 mesh), the +150μm and -150μm fractions being processed separately.

The CVD Knelson tailings product from the third pass was processed in a fourth stage to maximize mineral recovery and to determine the overall recovery of tantalum and niobium that could be achieved to a primary rougher concentrate.

Throughout the test program the sample analyses included uranium determinations in order to track the uranium content throughout the various stages of the gravity process as it is seen as a potential contaminant of a saleable tantalum-niobium concentrate product.

APPENDIX 5: **CONTINUED**

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

RESULTS AND DISCUSSION

Knelson CVD Gravity Concentrator Results

The details of the four Knelson CVD stages together with the individual tabling results are given in Appendix 1.

Based on the assayed head value and final tails value from the fourth pass through the Knelson CVD concentrator, the indicated recovery of tantalum and niobium is approximately 91percent to a rougher gravity concentrate.

Calculations based on the concentrate weights and grades from the primary Knelson CVD and tabling tests, give a marginally lower recovery of 85%. See Table 1

Table 1 – Calculated recoveries

	Weight kgs	%	Ta ppm	Nb ppm	Distribution % Ta	Distribution % Nb
Head	394.1		244	1218		
3rd Stage Tails Aiii	370.8	94.1	52	220	20.1	17.0
Calc total 3 stage conc	23.3	5.9			79.9	83.0
4th Stage Conc Aiv	14.6	3.7	207	787	3.1	2.4
Calc total 4 stage conc		9.6			83.1	85.4

Gemini Table Results

The table concentrate products averaged 6366 ppm tantalum and 34500 ppm niobium, representing an upgrade ratio of more than 26 : 1from the original feedstock.

In these primary tabling tests, the three table tails products averaged 96ppm tantalum and 437ppm niobium, this being less than 50 percent of the grade of the original bulk sample and constituting approximately 11 percent of the feed mass. Table tails grades approximated the grades of the tails products from the equivalent process stage of the Knelson CVD concentrator. (See Table 2)

APPENDIX 5: **CONTINUED**

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

Table 2 – Tailings product grade comparisons

Sample	Assays		
	Ta ppm	Nb ppm	U ppm
Ai Table Tails	156	634	27
Ai CVD Tails	123	498	20
Aii Table Tails	53	330	8
Aii CVD Tails	69	321	11
Aiii Table Tails	79	347	16
Aiii CVD Tails	52	220	7

The magnetic fraction constituted approximately 15 percent of the mass and at a grade of 20 ppm tantalum and 274 ppm niobium was significantly lower than the head grade of the original bulk sample.

The non-magnetic fraction, with an assayed grade of 0.78% tantalum, 4.36% niobium and 969ppm uranium (7.2% combined Ta/Nb oxides) was then re-tabled with the aim of producing a high-grade tantalum/niobium oxide gravity concentrate. Detailed results are presented in Appendix 2.

This test (Bi) achieved limited upgrading, producing a concentrate of 21.5% Ta/Nb oxides. A rudimentary microscopic examination of the concentrate and middling products from this test revealed a relatively large proportion of "gangue" material being present in both products, identified as calcite, apatite and some amphibole, with some magnetite identified in the middling fraction (B1 middling). See Table 2.

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

Table 2 – Microscopic Crystal Examination and Count of Tabling Products

Bi conc.

Columbite/ Pyrochlore	%	Pyrite/ Pyrrhotite	%	Amphibole	%	Magnetite	%	Calcite / Apatite	%	Total Crystals
20	13.8	71	49	37	25.5	0	0	17	11.7	145
9	9.5	49	51	25	26	0	0	13	13.5	96
11.7		50.0		25.8		0.0		12.6		100.0

Bi Middlings

Columbite/ Pyrochlore	%	Pyrite/ Pyrrhotite	%	Amphibole	%	Magnetite	%	Calcite / Apatite	%	Total Crystals
3	1.7	81	45	35	19.4	15	8.3	46	25.6	180
4	4.5	27	30.7	17	19.3	5	5.7	35	39.8	88
3.1		37.9		19.4		7.0		32.7		100.0

The table concentrate Bi (21.5% Ta/Nb oxides) was again tabled, in an attempt to further upgrade the product. Limited upgrading was achieved with a final grade of 30.6% Ta/Nb oxides being achieved, (Bii Table Conc : 3.06% tantalum, 18.79% niobium).

It was then decided to repeat the tabling tests but to include a prior screening stage to reduce the potential influence of particle size and shape, thereby improving the washability of the table feed material.

Three table concentrate and middling products from the second series of tabling tests were combined, Test C1 (Bi Table Middling, Bii Table Concentrate and Bii Table Middling) and dry screened at 150µm. The single product, Bi Table Tails, was also dry screened at 150µm, Test C2. In both cases the percentage +150µm fraction was approximately 44% and showed significantly higher tantalum and niobium grades than the -150µm fraction.

Table 4 – Combined Ta/Nb oxide grades

	Test C1	Test C2
+150µm	25.4	3.0
-150µm	13.4	0.3
Total	17.9	1.3

The respective coarse (+150µm) and fines (-150µm) fractions were then tabled separately. Detailed results are presented in Appendix 3.

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

The tabling of the +150μm fraction in Test C1, achieved very limited upgrading, from 25% to approximately 27% combined Ta/Nb oxides, with a significant portion of middling at a grade similar to the test feed grade and a tailings product assaying 19% Ta/Nb oxides.

The tabling of the -150μm fraction achieved a relatively low mass recovery to concentrate with a grade of 21.9% Ta/Nb oxides. A more pronounced difference in grades between the various table products was noted, and is more in line as a typical scavenger cleaning stage.

A similar profile of results is indicated in Test C2

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

CONCLUSIONS

The bulk sample of Fir Carbonatite material as tested (grind size P80 = 328μm, and head grade of 244 ppm Ta, 1215 ppm Nb and 25 ppm U), indicated a very good response to gravity concentration techniques using a combination of the Knelson CVD Concentrator and the Gemini shaking table together in a multi-stage configuration and an intermediate magnetic separation stage.

After three stages in series of gravity concentration using a Knelson CVD concentrator and Gemini table, calculated recoveries were 80% of the tantalum and 83% of the niobium in approximately 6% of the feed mass.

A fourth pass through the Knelson CVD Concentrator gave final tailings grades (Test Aiv) of 25ppm tantalum and 118ppm niobium. This increases the overall recovery to a rougher concentrate to approximately 91 percent of the contained tantalum and niobium in approximately 10% of the feed mass before a tabling stage of this fourth concentrate.

The primary tabling tests achieved 88 – 90 percent recovery of the Ta/Nb metal content in the respective table feed products. Grades of these primary tabling products are given in table 5.

Table 5 – Primary Table Product Grades

Sample	Assays			Combined
	Ta %	Nb %	U ppm	Ta/Nb Oxides %
Table Conc Ai	0.83	4.47	1073	7.4
Table Conc Aii	0.62	3.35	868	5.5
Table Conc Aiii	0.46	2.53	692	4.2
Calculated combined grade	0.66	3.57	902	5.9

Subsequent magnetic separation effectively increases the grade by approximately 25% by the removal of the low Ta/Nb grade magnetic component, which is approximately 15% of the mass.

A secondary tabling stage of the non-magnetic fraction effectively increases the grade to over 20% combined Ta/Nb oxides, an upgrade ratio of approximately 3. Subsequent tabling of the

APPENDIX 5: **CONTINUED**

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

concentrate products is less efficient with upgrade ratios of 1.5 and lower with significant loss of final product.

The cursory microscopic examination of gravity table products (Table 2) tends to indicate the Ta/Nb minerals are present in the lower density range of those noted in mineralogical identification text books and this is borne out by the gravity tabling tests after achieving grades of approx 20% combined oxides. Pyrochlore has a density of 4.2- 4.6 while pyrrhotite, present as a gangue mineral, has a density of 4.6 – 4.7. Hence difficulties will be experienced in separating them by gravity processes. Columbite has a wider density range of 5.2 – 8.0, but difficulties will also arise if it is present in the lower density range.

The inherent difficulty in separating near density minerals by gravity techniques may also explain to a large extent why apatite and calcite were also present in significant quantities in gravity concentrate products after 2 stages of tabling in this series of tests.

APPENDIX 5: CONTINUED

INTERNATIONAL METALLURGICAL AND ENVIRONMENTAL INC.
13-2550 Acland Road, Kelowna, B.C., CANADA, V1X 7L4, Telephone (250) 491-1722, Facsimile (250) 491-1723

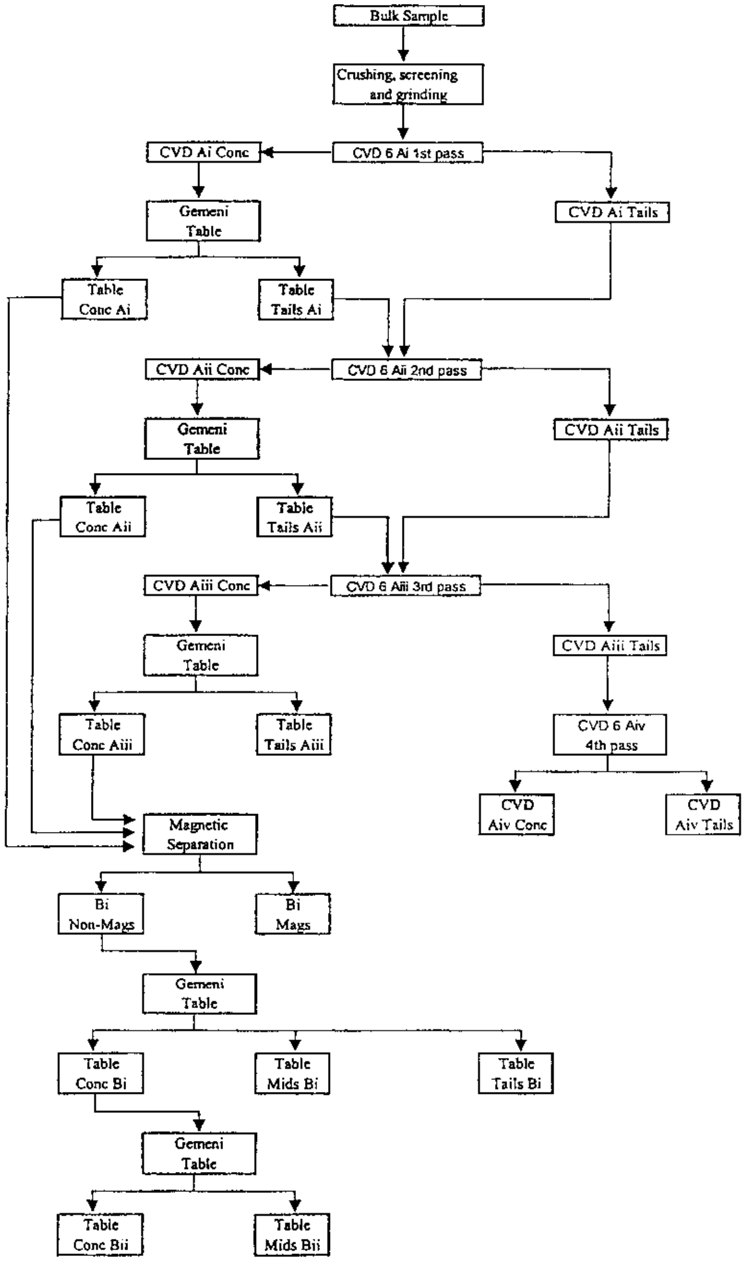


Diagram 1 – Test program Flowsheet

APPENDIX 6: STATEMENT OF QUALIFICATIONS

The work described in this report was supervised by Jody Dahrouge of Dahrouge Geological Consulting Ltd.

Mr. Dahrouge is a geological consultant with Dahrouge Geological Consulting Ltd. based in Edmonton, Alberta. He obtained a degrees in geology and computing science from the University of Alberta, Edmonton in 1988 and 1994, respectively. He is a member of the Canadian Institute of Mining and Metallurgy and is registered as a P.Geol. with the Association of Professional Engineers, Geologists and Geophysicists of Alberta. He has more than 10 years of experience in mineral exploration.