



52J04NE2004 2.19931 SHARRON LAKE

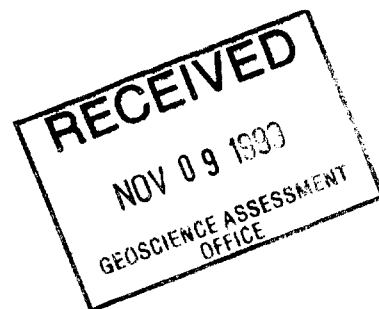
010

**CAMECO CORPORATION**  
**1999 EXPLORATION PROGRAM REPORT**

**BLACK LAKE PROPERTY, ONTARIO**  
Sharron Lake and Zarn Lake Area

N.T.S. 52J/4

2 . 19931



August 25th, 1999

Peter Chubb

## SUMMARY & RECOMMENDATIONS

2 . 1 9 9 3 1

The Black Lake property is located in the Sharron and Zarn Lake townships in northwestern Ontario. This project is located approximately 25km southeast of Sioux Lookout, Ontario. The property consists of 30 contiguous unpatented claims (3232 Ha).

The 1999 exploration program was designed to locate the northeastern extension of the McDermott Occurrence, to expand on the known gold occurrences in the vicinity of Botsford Lake and to explore recently staked parts of the property for further gold mineralization. The property has the potential to host both a Red Lake type (quartz-carbonate stockwork associated with a shear) and Dome Mine type (quartz stockwork set in a shear related sulphidized and gold mineralized porphyry) styles of mineralization. The exploration program consisted of 200m spaced lines of geological mapping.

The Black Lake property lies along the northern margin of the central portion of the Wabigoon Subprovince, within the Abrams-Minnitaki Greenstone belt. The Property is underlain by a series of mafic to felsic volcanic and volcanoclastic lithologies, clastic and chemical sediments. The volcanics and sediments are intruded by multiphase gabbroic to leucocratic intrusions, quartz feldspar porphyry dikes and plugs, and trondjemitic to granitic batholiths. The property is crosscut by a series of northeast and easterly oriented deformation zones that represent splays of the adjacent Minniss River fault/shear and the Pond Deformation Zone.

Geological mapping located the extension of the McDermott Occurrence with a shear hosted quartz vein located 25m West of Martin Creek on the CNR railway line. The deformation zone and quartz veins are similar to those observed at the McDermott occurrence and dip steeply to the northwest.

Geological mapping north of Black Lake along the railway, in claim 1166802, 1202143 and 1202144 observed massive, pillowed and tuffaceous mafic volcanics and volcanoclastics intercalated with greywacke and siltstone that have been intruded by quartz feldspar porphyry dikes. The quartz feldspar porphyry displays carbonate and sericite alteration that is enhanced within the deformation zones. The deformation zones also possess boudinaged quartz veins with limited sulphides and tourmaline, carbonate and sericite are developed within the quartz feldspar porphyry and mafic volcanics.

Geological mapping along the western part of the property was hampered by a lack of rock exposure. In areas of outcrop exposure the geology is characterized by pillowed to massive chloritized and calcite altered mafic volcanics and intercalated sediments that are intruded by younger gabbro. Minor deformation zones are observed and some limited quartz veining is present.

Based on the continued technical success of the 1999 exploration program on the Black Lake Property the following recommendations are made to expand and follow up on the known gold showings and areas of geological interest:

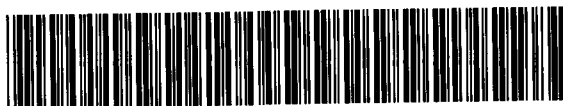
- 1) Diamond drilling to test the strike extent of the Moretti deformation splay that may extend under Black Lake.
- 3) An I.P. survey north of Black Lake to cover the Grand Canyon and Three Witches showings in order to gain a better understanding of the continuity of this gold bearing sulphidized environment.

## TABLE OF CONTENTS

	Page
SUMMARY & RECOMMENDATIONS	i
1.0 INTRODUCTION	
1.1 Location, Access and Power	1
1.2 Physiography	1
1.3 Property and Tenure	1
1.4 Previous Work	4
1.5 Potential and Target Definition	6
1.6 Exploration Program and Objectives	6
2.0 GEOLOGY	
2.1 Regional Geology	8
2.2 Property Geology	8
2.3 Property Structure	9
2.4 Property Alteration	9
2.5 Gold Mineralization	11
2.5.1 Styles of Gold Mineralization	11
3.0 GEOCHEMISTRY	
3.1 Introduction	11
3.2 Geological Mapping and Prospecting Geochemistry Results	12
3.2.1 Assay and Trace Element Results	12
4.0 CONCLUSIONS	12
5.0 RECOMMENDATIONS	13
6.0 REFERENCES	14
STATEMENT OF QUALIFICATIONS	16

## LIST OF FIGURES

Figure 1. Property location map of the Black Lake Project within Ontario	2
Figure 2 Regional geology map and location of property within the Sioux Lookout Area	7
Figure 4. General property geology	10



## LIST OF TABLES

Table 1. Claim listing for the Black Lake Project	3
---	---

## LIST OF MAPS

Map 1a. Geology, Drill holes and Trench Locations	in back pouch
Map 1b. Structure	
Map 1c. Alteration	
Map 1d. Sample Locations	

## LIST OF APPENDICES

Appendix I	Summary of Work
Appendix II	Certificate of Analyses

**BLACK LAKE PROJECT**  
**1999 EXPLORATION PROGRAM**

Sharron and Zarn Lake Townships  
Ontario, NTS 52J

## **1.0 INTRODUCTION**

### **1.1 Location, Access and Power**

The Black Lake Property is situated in the Sharron Lake Area, within the Patricia Mining District. The property lies within the Marchington Lake Map Sheet, N.T.S. 52 L/4 (Figure 1) and is located 22 kilometres east-northeast of Sioux Lookout, Ontario (Figure 2).

Access to the property (Figure 2) is provided by a paved highway (642) and 20km of logging road and heavy equipment trails. Access is also provided by the C.N.R. railway that passes along the northern part of the property, or by float plane to either Botsford Lake, Clamshell Lake or Black Lake.

Power is available from Sioux Lookout.

### **1.2 Physiography**

The property displays low relief with both lithologic and esker controlled topographic highs. The region is covered by a thin to moderately thick veneer of glaciofluvial and glaciolacustrine sands, clays topped by eolian sands, gravels and ablation tills. Rock exposure is limited to approximately 10% of the property and decreases in abundance to the south.

Low land areas on the property possess cedar and alder swamps and dry cedar forests. The topographic highs possess cedar, jackpine, spruce, white birch and rock maple, poplar and balsam forests. Large areas of blow down are prevalent within the topographic highs.

### **1.3 Property and Tenure**

The Black Lake property consists of 30 unpatented claims (3232ha) set within a contiguous claim block (Figure 3) situated in the Sharron Lake and Zarn Lake Area. The property lies within the M.N.R. administrative district of Patricia Mining Division, approximately 25 kilometres east of Sioux Lookout. Cameco Corporation has the right to earn a 100% interest in the property. The claim group is in good standing with the first group of claims requiring assessment work to be filed prior to December, 1999.



**Table 1. Claim Listing for the Black Lake Property**

Claim#	Rec Date	Due Date	Area (ha)	Twp	Work Required
1162704	1993-06-07	2002-06-07	256	Sharron Lake	6400
1162705	1993-06-07	2002-06-07	48	Sharron Lake	1200
1162706	1993-06-07	2002-06-07	16	Sharron Lake	400
1162707	1993-06-07	2002-06-07	16	Sharron Lake	400
1162708	1993-06-07	2002-06-07	48	Sharron Lake	1200
1162727	1993-09-09	2002-09-09	192	Sharron Lake	4800
1162728	1993-09-09	2001-09-09	64	Sharron Lake	1600
1162729	1993-09-09	2002-09-09	16	Sharron Lake	400
1162730	1993-09-09	2002-09-09	96	Sharron Lake	2400
1162731	1993-09-09	2002-09-09	240	Sharron Lake	6000
1162732	1993-09-09	2002-09-09	128	Sharron Lake	3200
1162733	1993-09-09	2002-09-09	48	Sharron Lake	1200
1162734	1993-09-09	2002-09-09	32	Sharron Lake	800
1166801	1997-12-01	1999-12-01	48	Zarn	1200
1166802	1993-08-12	2000-08-12	96	Sharron Lake	1535
1184280	1995-07-17	2001-07-17	48	Zarn	1200
1184281	1995-07-17	2001-07-17	48	Zarn	1200
1184282	1995-07-17	2001-07-17	48	Zarn	1200
1196597	1993-06-07	2002-06-07	64	Sharron Lake	1600
1196598	1993-06-07	2002-06-07	16	Sharron Lake	400
1196599	1993-06-07	2002-06-07	96	Sharron Lake	2400
1202140	1994-01-24	2001-01-24	64	Sharron Lake	1600
1202141	1994-01-24	2001-01-24	224	Sharron Lake	5600
1202142	1994-01-24	2001-01-24	240	Sharron Lake	6000
1202143	1994-01-24	2001-01-24	240	Sharron Lake	6000
1202144	1994-01-24	2001-01-24	160	Sharron Lake	4000
1220543	1997-12-01	1999-12-01	144	Zarn	3532
1229470	1999-02-22	2001-02-22	112	Sharron Lake	2800
1229471	1999-02-22	2001-02-22	240	Sharron Lake	6000
1229472	1999-02-22	2001-02-22	144	Sharron Lake	3600

#### **1.4 Previous Work**

Initial exploration in the area commenced with the settlement of European immigrants in the 1880's. A number of multi-ounce gold occurrences were found including the Auralee Occurrence (near Clamshell Lake) by J. Paquette in 1921. The following is a listing of work conducted on the property.

##### **Government based work**

1951 - **Ontario Geological Survey**, Chisolm, E.O. Sioux Lookout Compilation Map

1979 - **Ontario Geological Survey**, Page, R.O. & Moller, E.B. Zarn Lake Compilation Map P.2233

1980 - **Ontario Geological Survey**, Speed, A.A. & Maxwell, G.J. Sharron Lake Compilation Map P.2326

1989 - **Ontario Geological Survey**, Geological Data Inventory Folio 481 for Sharron Lake Area, compiled by the Resident Geologist's office in Sioux Lookout.

1989 - **Ontario Geological Survey**, Geological Data Inventory Folio 475 for Zarn Lake Area, compiled by the Resident Geologist's office in Sioux Lookout.

##### **Industry based work**

1938 - **Prospector's Airway** conducted prospecting, stripping, trenching and geochemical sampling on the McDermott Occurrence (known as the No. 1,2 and 3 vein)

1941 - **Coniagas Mines Ltd.** Conducted diamond drilling and bulk sampling in the vicinity of the McDermott Occurrence with 23.31g/t Au returned over a width of 0.88m and a strike length of 30m (Hutchinson, 1941). Drill logs and locations for the diamond drilling are vague but are reported to hit the quartz vein stockwork at depth, no assay results were released.

1950 to 1952 - **Floregold Red Lake Mines Ltd.** Conducted diamond drilling and bulk sampling in the vicinity of the McDermott Occurrence. Low Au values were returned from drilling but 19.7g/t Au was obtained from the bulk sampling over a length of 8.8m (McCombe, 1951). A 8.5 tonne bulk sample returned 14.62g/t gold.

1963 - **Bankfield Consolidated Mines Ltd.** Located four showings southeast of Black Lake one of which is known as the Dragfold Vein (Holbrooke, 1963).

1963 - **Consolidated Belekeno Mines Ltd.** Discovered a showing (Belekeno #1) east of Black



Lake that returned Au assays of 624g/t from a quartz vein in the rhyolite.

1987 - **Preston Resources Ltd.** Conducted a ground geophysical program in the vicinity of the McDermott Occurrence to test for en echelon zones to the southeast and for any extensions of known Au-bearing veins (McCance, 1987). Their results indicate that there is a possible extension of the quartz-rich zone to the southwest of the McDermott Occurrence, and that the shear zone that hosts the McDermott Occurrence extends for more than 600m to the northeast.

1988 - **Villeneuve Resources Ltd.** Conducted geochemical soil sampling survey west and north of Black Lake, the results of which outlined several small auriferous zones (Sieb, 1988).

1990 - **Cream Silver Mines Ltd.** conducted geological mapping, soil and rock geochemical survey in the vicinity of the Dragfold and Bonanza Veins, examining the Pond Deformation Zone that extends west of the Dragfold Vein (Hood, 1990). Two anomalies were located west of the Dragfold Vein indicating the possibility of undiscovered Au-bearing systems (Hood, 1990).

1994 - **Placer Dome Canada Ltd.** Conducted an investigation of the eastern and southern portion of the property. The exploration program consisted of geological mapping, prospecting and mapping of old showings and a limited geochemical soil survey. This work delineated extensive carbonate alteration zones and deformation associated with the gold occurrences (Deveau, 1995).

1995 - **Placer Dome Canada Ltd.** Conducted an investigation of the northwestern portion of the property and completed the geological mapping, soil survey and prospecting. This work extended the zone of carbonate alteration and deformation to the west and southwest. A second zone (minimum length of 2.7 kilometres) was located along the shore of Botsford Lake.

1996 - **Placer Dome Canada Ltd.** Carried out a diamond drill program consisting of 10 BQ diamond drill holes totalling 1628m. Drilling was conducted along three fences with 1.7 kilometres of strike and 300m of stratigraphy tested in the Dragfold and Bonanza occurrence area. Significant results obtained from drilling include 7.54g/t gold over 18cm, 1.89g/t gold over 55cm, 1.23g/t gold over 42cm, 4.22 g/t gold over 10cm, 1.65g/t gold over 38cm and 1.83g/t gold 41cm.

1997 - **Cameco Corporation.** Conducted a trenching program that tested portions of the Pond Deformation Zone and some subsidiary deformation structures. Geochemical sampling at the Dragfold has shown that there are some thin basaltic komatiite volcanoclastic rocks present.

1998 - **Cameco Corporation.** Conducted a property wide geological mapping, prospecting, trenching and diamond drill program. Followup soil and till sampling was conducted on specific sites based on previous work by Placer Dome.

### **1.5 Potential and Target Definition**

The mafic and felsic volcanoclastic and porphyry dominated rock types hosting an extensive and highly altered deformation corridor are considered to be excellent environments for possessing a relatively large (>1 million oz.) gold deposit. The mineralization, geology, geochemistry and structure located on the property is of the classic "Quartz-Carbonate Vein Gold Type" (i.e. Campbell, Red Lake; Dome, Timmins). The quartz-carbonate vein gold deposits are generally characterized by simple to complex quartz-carbonate vein systems associated with brittle-ductile shear zones and folds in deformed and metamorphosed volcanic, sedimentary and intrusive lithologies (Robert, F., 1996). A second mineralizing environment present on the property is of the Timmins Camp - type, characterized by disseminated pyrite-gold within quartz stockworks and deformed and altered quartz feldspar porphyries. High grade quartz stockwork deposits are commonly associated with pyrite-gold mineralization in this environment.

The Sharron Lake Township is predominantly overburden covered and is considered to be largely under explored. Previous exploration has focussed largely on quartz-carbonate vein type mineralization set within strongly deformed and altered structures. Observations that favourably enhance the potential of this area include:

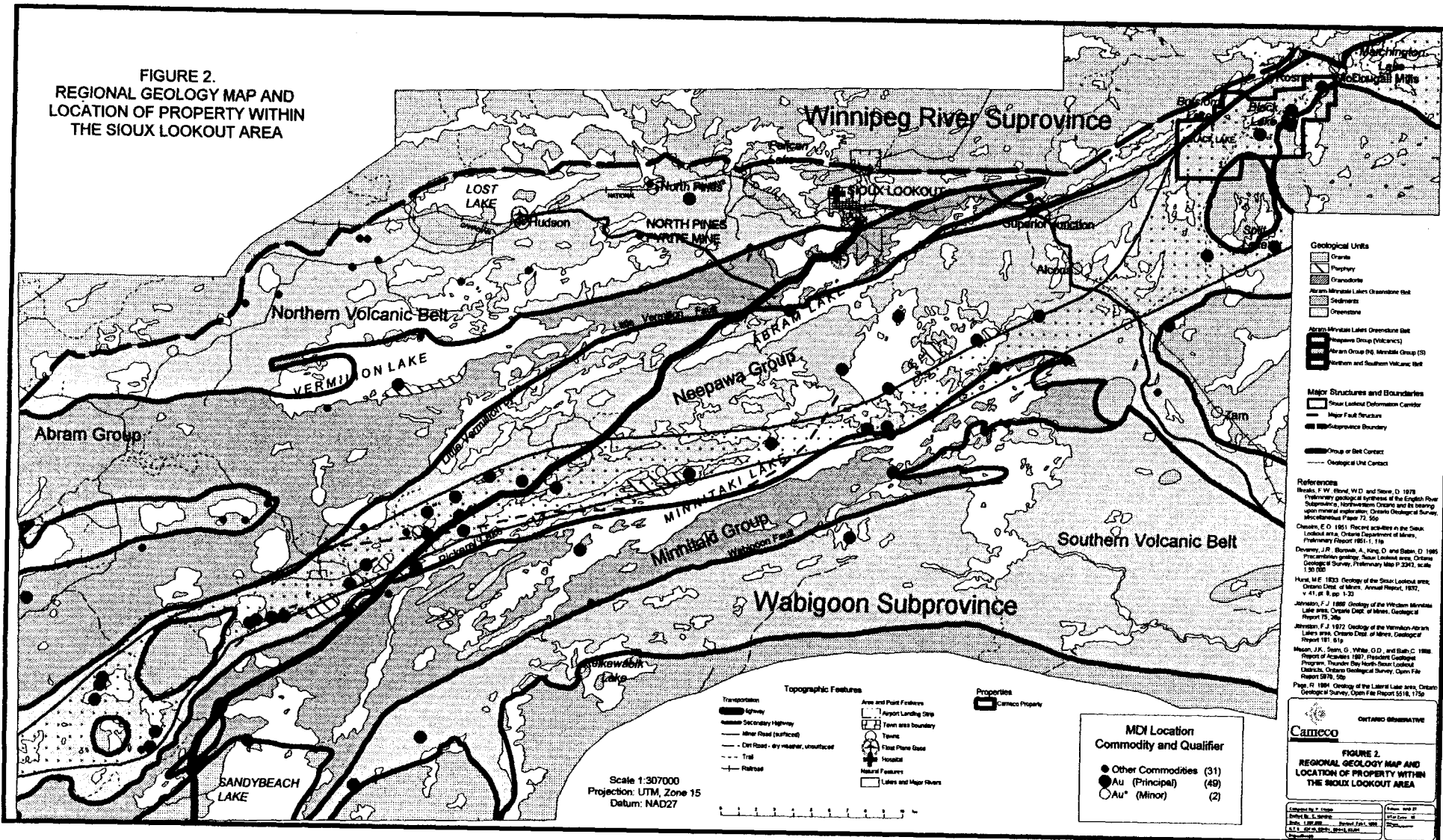
- i) The existence of a reactivated deformation corridor consisting of both ductile and brittle deformation controlled by competency contrasts along existing lithological contacts.
- ii) Strong pervasive alteration associated with the deformation corridor as characterized by an early carbonate event followed by sericite, chlorite, carbonate and fuchsite similar to that observed in other mining camps.
- iii) Distribution of shear hosted auriferous quartz-carbonate veins and breccia zones along a five kilometre strike length within the postulated East-Northeast deformation corridor.

### **1.6 Exploration Program and Objectives**

The objectives of the 1999 exploration program were to conduct geological mapping and geochemical sampling of the remaining parts of the property not already examined by Cameco in order to follow up and expand on previously defined anomalies.

The 1999 exploration program consisted of geological mapping and geochemical sampling (grab). Peter Chubb and Rod Barber conducted the 1999 exploration program on the Black Lake Property. A "Summary of Work" that describes the various work completed and a list of personnel is included in Appendix I.

FIGURE 2.  
REGIONAL GEOLOGY MAP AND  
LOCATION OF PROPERTY WITHIN  
THE SIOUX LOOKOUT AREA



ONTARIO OPERATIVE  
**Cameco**

FIGURE 2.  
REGIONAL GEOLOGY MAP AND  
LOCATION OF PROPERTY WITHIN  
THE SIOUX LOOKOUT AREA

Prepared by: J. L. Jones  
Checked by: L. L. Jones  
Date: 1997-08-28  
Scale: 1:307,000  
Projection: UTM, Zone 15  
Datum: NAD27

Sheet No. 01  
Scale: 1:307,000  
Date: 1997-08-28

## **2.0 GEOLOGY**

### **2.1 Regional Geology**

The property (Figure 2) is located geologically along the northern margin of the Central portion of the Wabigoon Subprovince in the Abrams-Minnitaki Lake Greenstone Belt, Neepawa Group. The Central portion of the Wabigoon Subprovince is dominated by a series of interconnected greenstone belts surrounded by younger massive and foliated elliptical granitic bodies forming large scale dome and basin structures. The Abrams-Minnitaki Lake Greenstone Belt, consists of a broad synclinorium (D<sub>3</sub>) setting with a basal sequence consisting of the Northern Volcanic Belt and the Southern Volcanic Belt that are overlain by the Abrams Group and Minnitaki Group (sediments and volcanoclastics). The Neepawa Group (volcanics and volcanoclastics) overlies the Abrams and Minnitaki Group and is characterized by ultramafic (komatiitic), to mafic (tholeiitic, calc-alkalic, and minor alkalic) rock types, and felsic (mostly calc-alkalic) rocks. Sedimentary sequences of the Abrams and Minnitaki groups are mostly clastic rocks dominated by alluvial fan-fluvial, re-sedimented turbidite and rare platformal facies including minor iron formation. Deformation and syntectonic to post tectonic plutonism occurred from 2711Ma to 2685Ma. The region is characterized by a broad synclinorium centred on the Neepawa Group and crosscut by regional and local reactivated thrust faults. Two regional fault/shear zone: 1) the Vermillion Lake - Minniss River fault that bounds the Winnipeg River Subprovince and Wabigoon Subprovince to the north of the property, and to the west acts as the main divide between the Neepawa Group and underlying Abrams Group; and, 2) the Wabigoon Fault to the south of the property that acts as the divide between the Minnitaki Group and the underlying Southern Volcanic Belt. Both faults are developed as regional sigmoidal patterns with smaller splays that intersect at high angles to the main pattern (a more in depth review of the structure of the region is presented in Appendix IV).

### **2.2 Property Geology (Map 1a)**

Geological mapping was conducted at a scale of 1:2500 over the former Placer Grid where available. The fieldwork was carried out from early July 7th to July 21st, 1999. Overall outcrop exposure is 5%. The area mapped included parts or the whole of claims 11202143, 1202144, 1220543, 1166801, 116802, 1229470, 1229471, and 1229472.

The Black Lake property (Figure 4) lies within the Neepawa Group and is underlain by a basal mafic hyaloclastite. Overlying the mafic hyaloclastite is a felsic pyroclastic unit of tuff to lapilli tuff that is overlain in turn by channelized felsic to mafic volcanoclastic conglomerate, pebble conglomerate, basaltic komatiite volcanoclastics and minor clastic sediments. This is consistent with the tops direction towards the north as observed from the graded bedding and crossbedding features located within the felsic and basaltic komatiite volcanoclastics. Flame structures and graded bedding in the clastic sediments, pillow facing directions in the mafic volcanics also indicate tops towards the north. Overlying these reworked volcanics and sediments is a package

of felsic volcanoclastic sediments and mafic volcanics consisting of massive flows, pillowed flows, flow breccias and pillowed flow breccias. The entire stratigraphic package has been intruded by a series of multiphase gabbroic, leucogabbro to granodiorite stocks, and quartz feldspar porphyry dikes and plugs. A detailed account of the geology is available in Chubb P., 1998.

### **2.3 Property Structure**

The Minniss River Fault system bounds the northern part of the Black Lake Property, and is made up of smaller deformation zones including the Botsford Lake Deformation Zone. The property lies within the most northeasterly culmination of a broad synclinorium. Based on limited tops facing directions, and bedding-cleavage relationships it is postulated that a property-scale fold is present. This inferred property scale fold is East-West trending (related to a regional  $D_1$  event) with an antiformal closure to the southwest and a synformal closure to the northeast. Foliations ( $S_1$ , Figure 6) South of Black Lake are East trending and dipping steeply to the North and become more northeasterly trending North of Clamshell Lake and Black Lake. Numerous shears and faults were outlined based on the degree of schistosity/foliation and brecciation. These features outline larger zones of deformation (Botsford Lake Deformation Zone, Pond Deformation Zone and the Moretti Deformation Zone etc.) that form part of a larger deformation corridor. The areas of most intense deformation (strong schistosity,  $S_2$ ) may represent low angle subsidiary splays of the Minniss River Fault. Extensive areas of deformation and alteration are shown in the hatch pattern (Map 1b), with narrower structures not shown on this map. The Pond Deformation Zone, Moretti Deformation Zone and Botsford Lake Deformation Zone are characterized by pure shear with a strong vertical extension component. The Moretti Deformation Zone displays both a brittle and ductile overprinting indicative of reactivation ( $S_2$  and  $S_3$ ). The main change from ductile to brittle deformation occurs along areas that display competency contrasts such as lithologic contacts. Lithologic contacts strike at approximately  $060^\circ$  and parallel the Minniss River Fault system.


### **2.4 Property Alteration**


The region has been subjected to greenschist facies with higher grade amphibolite facies metamorphism developed as contact aureoles along the margins of the Split Lake intrusion. The greenschist facies metamorphism has resulted in a regional pervasive chloritization of mafic minerals and minor calcite development, and sericitization and saussurization of felsic mineralogy. The development of alteration minerals is greatly enhanced and accentuated within areas of deformation. The majority of the gold occurrences located on this property lie within the most altered and brittle deformed rocks and are coincident with the deformation corridor that transects the property.


A later, largely pre-deformational alteration event was superimposed on the pre-existing regional metamorphism. This later alteration event includes weak to strong pervasive and selective Fe-carbonate replacement within the basaltic komatiitic volcanoclastics (Bonanza-Dragefold Showing

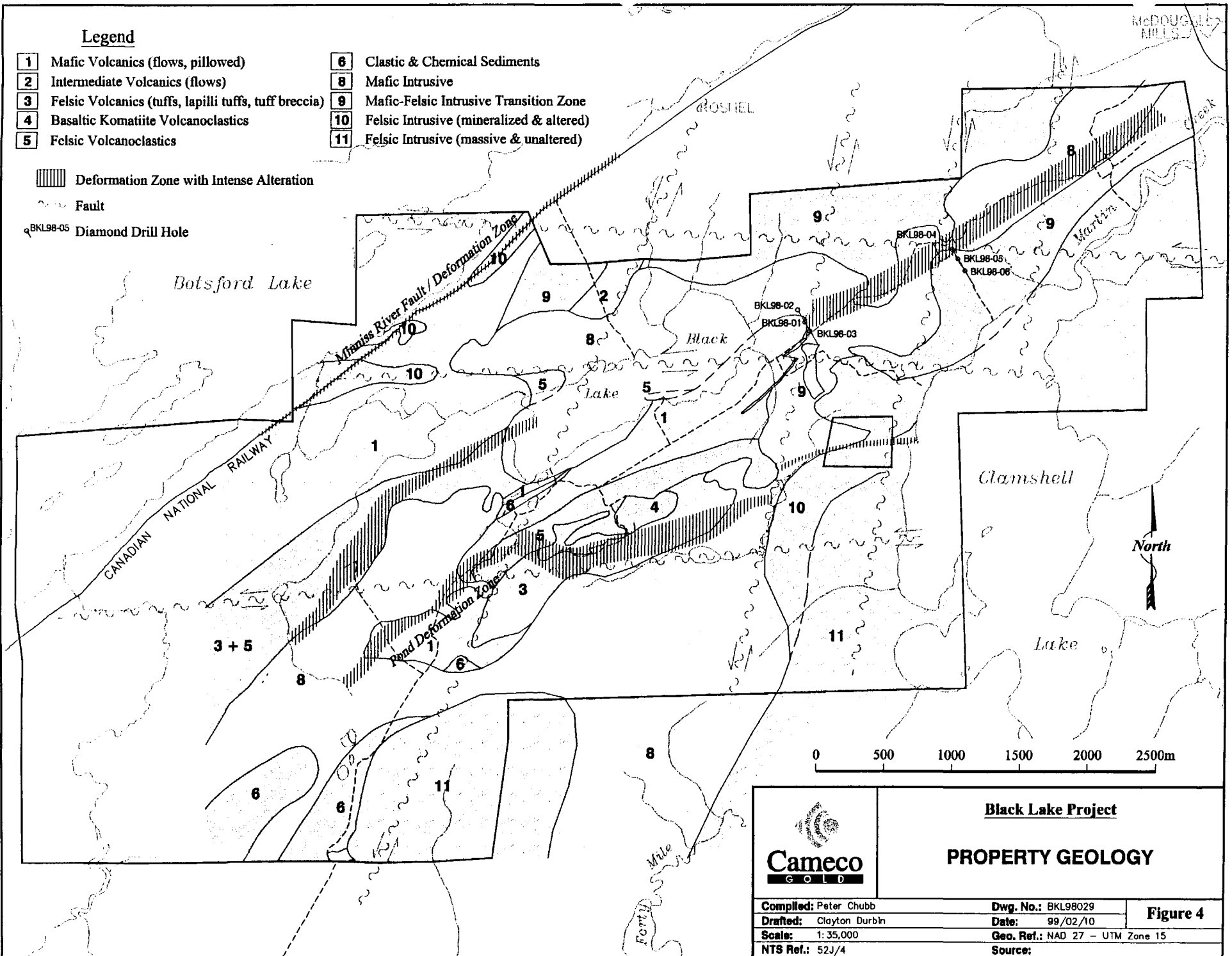
**Legend**


- |  |  |
|--|--|
| <b>1</b> Mafic Volcanics (flows, pillowed)                     | <b>6</b> Clastic & Chemical Sediments              |
| <b>2</b> Intermediate Volcanics (flows)                        | <b>8</b> Mafic Intrusive                           |
| <b>3</b> Felsic Volcanics (tuffs, lapilli tuffs, tuff breccia) | <b>9</b> Mafic-Felsic Intrusive Transition Zone    |
| <b>4</b> Basaltic Komatiite Volcanoclastics                    | <b>10</b> Felsic Intrusive (mineralized & altered) |
| <b>5</b> Felsic Volcanoclastics                                | <b>11</b> Felsic Intrusive (massive & unaltered)   |

 Deformation Zone with Intense Alteration

 Fault

 BKL98-05 Diamond Drill Hole



 <b>Cameco</b> GOLD	<b>Black Lake Project</b>	
	<b>PROPERTY GEOLOGY</b>	
<b>Compiled:</b> Peter Chubb	<b>Dwg. No.:</b> BKL98029	<b>Figure 4</b>
<b>Drafted:</b> Clayton Durbin	<b>Date:</b> 99/02/10	
<b>Scale:</b> 1:35,000	<b>Geo. Ref.:</b> NAD 27 - UTM Zone 15	
<b>NTS Ref.:</b> 52J/4	<b>Source:</b>	

area), mafic volcanics and intrusives (Moretti Occurrence) and to a lesser extent within the felsic volcanoclastics and pyroclastics, and quartz feldspar porphyry intrusives (CNR#1 Occurrence). This early Fe-carbonate event is postdated by the emplacement of quartz±carbonate veins that are crosscut by strong fracture and foliation chlorite-fuchsite-sericite that occurs in all of the rock types within the most intensely deformed areas.

## **2.5 Gold Mineralization**

### **2.5.1 Styles of Gold Mineralization**

There are two styles of gold mineralization observed on the property: The first is the lode gold type, consisting of gold mineralization associated with quartz vein stockworks (McDermott Occurrence, Bonanza Occurrence, and Dragfold Occurrence) in highly altered and deformed rocks similar in style to the Campbell and Cochenour mines in the Red lake Mining Camp. Numerous occurrences of lode gold type mineralization are present on the property. Most of the showings are contained within the deformation zones and are associated with lithologic contacts, that provide areas of competency contrast. This competency contrast allows for the development of brittle deformation and associated emplacement of quartz vein stockworks. Gold mineralization in the high grade areas (McDermott Occurrence) is developed as: 1) Visible gold within late brittle chlorite-carbonate-tourmaline-fuchsite filled fractures and quartz-carbonate-chlorite-tourmaline-fuchsite filled breccia zones within the quartz veins. 2) Visible gold associated with blebby and fracture filled chalcopryite, bismuthite, galena and pyrite mineralization.

The second style of mineralization is gold associated with sulphides in altered and deformed quartz feldspar porphyry (CNR#1, Grand Canyon, and Three Witches showings). Sulphides in the host porphyry consists of coarse euhedral pyrite and minor chalcopryite that account for up to 10% of the host rock. This type of environment also has a component of the lode gold type where gold (<3g/t gold) is associated with sulphide poor quartz veins intruding the porphyry. The style of mineralization is similar to that observed at the Dome Mine (Preston Lake Porphyry) in Timmins.

## **3.0 GEOCHEMISTRY**

### **3.1 Introduction**

All samples from the 1999 mapping, and trenching programs were analysed by Chemex Labs Ltd. through the preparation facility in Thunder Bay, Ontario.

A total of 50 grab samples were collected during the geological mapping program. All quartz vein samples were assayed using the Atomic Absorption/Fire Assay method. All samples sent in for

gold assay were also analysed for 32 trace elements using the ICP<sub>multielement</sub> package.

### **3.2 Geological Mapping and Geochemistry Results**

Samples of mineralized, altered, and/or sheared rocks were collected and a suite of the least altered lithologies were also obtained. Sample locations are presented on Map 1d.

#### **3.2.1 Assay and Trace Element Results**

50 grab samples were collected from a variety of different lithologies on the property. Gold assays returned some up to 845 ppb Au from weakly mineralized (<2% pyrite) highly altered and schistose and veined mafic volcanics, with other anomalous gold values obtained from altered and deformed quartz porphyry that possess minor quartz veining.

Trace element data for samples obtained from the Black Lake property display spot anomalies of silver (<2.0 ppm), arsenic (<136 ppm), molybdenum (<83 ppm) and Zinc (<160 ppm). Gold has a very weak positive correlation to the anomalous spot highs observed in the trace elements, with silver showing the best correlation. This correlation between silver and gold is observed elsewhere on the property (Chubb, 1998).

## **6.0 CONCLUSIONS**

The 1999 exploration program consisted of geological mapping (1:2500), and geochemical sampling that completed the mapping of the property and followed up on previous work.

The property is underlain by Archean felsic to mafic volcanic, volcanoclastics and clastic sediments that have been intruded by a series of multiphase gabbroic intrusions and later intermediate to felsic batholiths and quartz feldspar porphyry dikes, sills and plugs.

A deformation corridor (100-400m wide) transects the property and trends East-northeast (235°) characterized by numerous metre to 100m wide high strain zones. The high strain zones are characterized by a east-northeast trend with steep dips to the northwest. Two of the high strain zones have been identified as gold bearing to date; The Moretti Deformation Zone and the Botsford Lake Deformation Zone. The Moretti Deformation Zone has been traced for a total distance of 2.5 km. The Botsford Lake Deformation Zone has been traced for a distance of 3.5km.

Gold is observed in two different settings: Quartz-ankerite-tourmaline-chlorite vein stockworks similar to that observed in the Red Lake Mining Camp, and quartz-gold-carbonate stockworks set within gold-sulphide mineralized quartz feldspar porphyry similar to the Dome Mine, Timmins Mining Camp.



## **7.0 RECOMMENDATIONS**

The technical success of the 1999 exploration program in delineating the extension of the Botsford Lake deformation corridor and spatially associated mineralized quartz feldspar porphyry prompts the following recommendations.

1) Diamond drilling to test the strike extension of the Moretti Fault/Shear North of Fence 1 and its possible strike extension under Black Lake. Topographic features and the presence of a wide deformation zone on the West side of the lake suggest that the deformation zone continues under the lake through the mafic intrusives and felsic volcanoclastics. The presence of these two rock types may result in the formation of a constricted ductile/brittle zone that could host a gold bearing quartz stockwork.

2) An I.P. survey north of Black Lake to cover the Grand Canyon and Three Witches showings in order to gain a better understanding of the size and nature of the gold bearing sulphidized environment. Prospecting and limited mapping has shown that the gold mineralization is associated with coarse pyrite and minor chalcopyrite mineralization set within altered quartz feldspar porphyry and quartz veins. The sulphides should present a good I.P. anomaly which would allow us to map out the gold bearing sulphide mineralization.

## **8.0 REFERENCES**

- Bayne, A.S.**, 1963. Preliminary report of Gold discoveries on Phillips Mining Claims, Sharron Lake Area, Patricia Mining Division, District of Kenora, Ontario, Canada.
- Blackburn, C.E., Johns, G.W., Ayer, J. and Davis, D.W.**, 1991. Wabigoon Subprovince; in Geology of Ontario, Ontario Geological Survey, Special Volume 4, Part 1, p.303-381.
- Chisolm, E.O.** 1951. Recent Activities in the Sioux Lookout area; Ontario Department of Mines, Preliminary Report 1951-2, 11p.
- Chubb, P. and Leskiw, P.** 1997. Cameco Corporation, 1997 Trenching Report, Black Lake Property, Ontario. Sharron Lake and Zarn Lake Area.
- Chubb, P.** 1998. Cameco Corporation, 1998 Exploration Program Report, Black Lake Property, Ontario. Sharron Lake and Zarn Lake Area.
- Deveau, S.W.**, 1995. Placer Dome Canada Ltd., Project 515 (Black Lake), Geological Report - 1994 Work Programme, Sharron Lake and Zarn Lake Area, Ontario
- HolBrooke, G.L.** 1963. Bankfield Consolidated Mines Ltd., Report on Sharron Lake property, Sioux Lookout area , Ontario.
- Hood, W.C.** 1990. Report on Geochemical mapping, humus geochemistry and sampling on Black Lake Gold property, Sioux Lookout area, Northwestern Ontario.
- Hutchinson, R.H.** 1941. Report on Bulk Sampling of Ghost River Syndicate Group, McDougall Mills, Ontario.
- Kamineni, D.C. Stone, D. and Peterman, Z.E.** 1990 Early Proterozoic deformation in the Western Superior Province, Canadian Shield; Geological Society of America, Bulletin, v.102, p.1623-1634
- Langier, H.B. and Deveau, S.W.** 1996. Placer Dome Ltd., project 515 (Black Lake) Geological Report - 1995 Work Programme, Sharron Lake and Zarn Lake
- Mason, J.K., Seim, G., White, G.D., and Bath, C.** 1998. Report of Activities 1997, Resident Geologist Program, Thunder Bay North Regional Resident Geologist's Report: Thunder Bay North - Sioux Lookout Districts; Ontario Geological Survey, Open File Report 5970, 56p.
- McCance, J.A.**, 1987. Preston Resources Ltd., Moretti Gold Prospect, Sharron Lake Area, Patricia Mining Division, Ontario.
- McCombe, R.** 1951. Report on the property of Floregold Red Lake Mines Ltd., McDougall Mills, Ontario.

**McPhie, J., Doyle, M., and Allen, A.** 1993. Volcanic Textures: A guide to the interpretation of textures in volcanic rocks. Centre for Ore Deposits and Exploration Studies, University of Tasmania. 198p.

**Poulsen, K.H.** 1996. Disseminated and Replacement Gold in Geology of Canadian Mineral Deposit Types, (ed.) O.R. Eckstrand, W.D. Sinclair, and R.I. Thorpe; Geological Survey of Canada. p.383-392.

**Robert, F.** 1996. Quartz-Carbonate Vein Gold in Geology of Canadian Mineral Deposit Types, (ed.) O.R. Eckstrand, W.D. Sinclair, and R.I. Thorpe; Geological Survey of Canada. p.350-366.

**Sieb, M.** 1988. Geochemical report, soil sampling, Rosnel Property, Sioux Lookout

## CERTIFICATE

I, Peter Chubb, of Apt# 201, 1490 Kelly Lake Rd., Sudbury, Ontario, P3E 4L9, do hereby certify that:

I am currently employed as a Geologist by Cameco Corporation,  
1349 Kelly Lake Road, Unit #6, Sudbury, Ontario, P3E 5P5

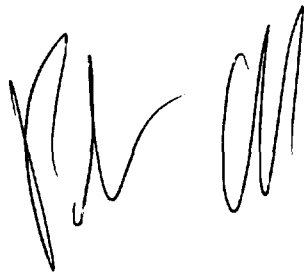
I graduated from Carleton University in 1989 with a Bachelor of Science degree (honours) in Geology, and Laurentian University in 1994 with a Masters of Science degree (1st Class) in Geology. I have been practising my profession continuously since graduation.

I am a member in good standing of the Canadian Institute of Mining, Metallurgy and Petroleum and the Sudbury Geological Discussion Group.

I am directly responsible for the work outlined in this report and was present on the property when the work was being carried out.

Signed at Sudbury, Ontario, this 25th day of August, 1999.

**Peter T.A. Chubb**  
Geologist, M.Sc.

A handwritten signature in black ink, consisting of a stylized 'P' followed by a series of loops and a final vertical stroke.

**Appendix I**  
**Summary of Work**

<b>Activity</b>	<b>Timing</b>	<b>Description</b>
Geological Mapping	July 7th to July 26th, 1999	P. Chubb and R. Barber
Geochemical Sampling	July 7th to July 26th, 1999	P. Chubb and R. Barber

## **Appendix II**

### **Certificate of Analyses**



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
5175 Timberlea Blvd., Mississauga  
Ontario, Canada L4W 2S3  
PHONE: 905-624-2806 FAX: 905-624-6163

Client: CAMECO CORPORATION  
1349 KELLY LAKE RD., UNIT #6  
SUDBURY, ON  
P3E 5P5

Page Number : 1  
Total Pages : 1  
Certificate Date: 27-JUL-1999  
Invoice No. : 19923801  
P.O. Number :  
Account : KPI

Project : BLACK LAKE  
Comments: ATTN: PETER CHUBB CC: MIKE KOZIOL

## CERTIFICATE OF ANALYSIS A9923801

SAMPLE	PREP CODE	Au g/t FA+AA										
BKL99x-001	205 226	< 0.005										
BKL99x-002	205 226	0.010										
BKL99x-003	205 226	0.040										
BKL99x-004	205 226	0.045										
BKL99x-005	205 226	0.040										
BKL99x-006	205 226	0.005										
BKL99x-007	205 226	0.005										
BKL99x-008	205 226	< 0.005										
BKL99x-009	205 226	0.845										
BKL99x-010	205 226	0.310										
BKL99x-011	205 226	0.020										
BKL99x-012	205 226	0.020										
BKL99x-013	205 226	0.025										
BKL99x-014	205 226	0.190										
BKL99x-015	205 226	0.740										
BKL99x-016	205 226	0.025										
BKL99x-017	205 226	0.005										
BKL99x-018	205 226	0.005										
BKL99x-019	205 226	0.015										

**RECEIVED**

AUG 04 1999

Cameco Gold Inc.  
Sudbury District Office

CERTIFICATION: *Alexandra Alexander*





# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
 5175 Timberlea Blvd., Mississauga  
 Ontario, Canada L4W 2S3  
 PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6  
 SUDBURY, ON  
 P3E 5P5

Project: BLACK LAKE  
 Comments: ATTN: PETER CHUBB CC: MIKE KOZIOL

Page Number : 1-A  
 Total Pages : 1  
 Certificate Date: 10-ALG-1999  
 Invoice No. : 19924325  
 P.O. Number :  
 Account : KPI

## CERTIFICATE OF ANALYSIS A9924325

SAMPLE	PREP CODE	Ag ppm	Al %	As ppm	B 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
BKL99x-001	244 229	< 0.2	0.24	12	< 10	60	< 0.5	< 2	0.21	< 0.5	2	84	14	1.62	< 10	< 1	0.14	30	0.03	345
BKL99x-002	244 229	< 0.2	0.44	< 2	< 10	20	< 0.5	< 2	3.73	< 0.5	34	69	63	3.77	< 10	< 1	0.14	< 10	0.95	840
BKL99x-003	244 229	< 0.2	0.32	6	< 10	60	< 0.5	< 2	0.88	< 0.5	3	137	13	1.54	< 10	< 1	0.16	20	0.15	270
BKL99x-004	244 229	< 0.2	0.29	8	< 10	50	< 0.5	< 2	0.09	< 0.5	1	123	5	1.01	< 10	< 1	0.19	30	0.02	110
BKL99x-005	244 229	< 0.2	0.66	6	< 10	20	< 0.5	< 2	1.36	< 0.5	8	212	10	3.38	< 10	< 1	0.03	< 10	0.30	595
BKL99x-006	244 229	< 0.2	1.38	14	< 10	30	< 0.5	< 2	3.54	< 0.5	22	53	38	4.30	< 10	< 1	0.10	< 10	1.30	890
BKL99x-007	244 229	< 0.2	1.37	10	< 10	10	< 0.5	< 2	4.63	< 0.5	64	99	54	4.85	< 10	< 1	0.08	< 10	2.02	900
BKL99x-008	244 229	< 0.2	1.55	< 2	< 10	30	< 0.5	< 2	4.20	< 0.5	31	121	98	4.31	< 10	< 1	0.08	< 10	2.30	925
BKL99x-009	244 229	2.0	1.07	10	< 10	20	< 0.5	< 2	6.45	< 0.5	37	54	317	7.13	< 10	< 1	0.08	< 10	2.38	1590
BKL99x-010	244 229	0.4	0.43	6	< 10	50	< 0.5	< 2	0.05	< 0.5	3	140	8	1.43	< 10	< 1	0.13	30	0.01	40
BKL99x-011	244 229	< 0.2	2.82	48	< 10	< 10	< 0.5	< 2	3.25	< 0.5	47	10	73	10.90	10	< 1	< 0.01	< 10	1.79	1610
BKL99x-012	244 229	0.4	1.04	136	< 10	10	< 0.5	< 2	4.29	0.5	38	61	176	8.78	< 10	< 1	0.04	< 10	1.58	1395
BKL99x-013	244 229	0.6	0.07	14	< 10	< 10	< 0.5	< 2	0.45	< 0.5	1	277	8	0.69	< 10	< 1	< 0.01	< 10	0.04	95
BKL99x-014	244 229	3.0	0.06	44	< 10	10	< 0.5	< 2	0.11	< 0.5	2	305	145	0.81	< 10	< 1	< 0.01	< 10	0.03	85
BKL99x-015	244 229	0.8	0.61	48	< 10	20	< 0.5	< 2	3.38	< 0.5	19	104	49	4.59	< 10	< 1	0.05	< 10	1.19	725
BKL99x-016	244 229	< 0.2	0.28	16	< 10	50	< 0.5	< 2	0.17	0.5	1	166	5	0.86	< 10	< 1	0.17	20	0.04	105
BKL99x-017	244 229	< 0.2	1.64	10	< 10	< 10	< 0.5	< 2	1.59	< 0.5	13	260	3	2.20	< 10	< 1	< 0.01	< 10	1.36	445
BKL99x-018	244 229	< 0.2	0.94	10	< 10	< 10	< 0.5	2	1.24	< 0.5	7	292	1	2.03	< 10	1	0.03	< 10	0.95	285
BKL99x-019	244 229	< 0.2	0.59	< 2	< 10	< 10	< 0.5	< 2	5.46	< 0.5	8	58	9	3.58	< 10	< 1	0.03	< 10	2.25	1110
ON-443-01	244 229	4.4	0.40	50	< 10	20	< 0.5	< 2	5.63	2.5	9	131	51	4.08	< 10	< 1	0.12	< 10	1.63	585
ON-443-02	244 229	1.0	0.94	68	< 10	50	< 0.5	< 2	3.00	< 0.5	12	46	18	2.95	< 10	< 1	0.20	< 10	0.96	395
ON-443-03	244 229	5.6	2.46	14	< 10	30	< 0.5	< 2	2.08	< 0.5	53	52	462	5.97	< 10	< 1	0.06	< 10	1.65	550
ON-443-04	244 229	3.4	0.79	64	< 10	30	< 0.5	< 2	1.18	< 0.5	6	77	44	1.82	< 10	< 1	0.11	20	0.30	175
ON-443-05	244 229	>100.0	0.11	1110	< 10	< 10	< 0.5	< 2	1.04	9.5	5	201	4040	1.28	< 10	< 1	0.03	< 10	0.30	155
ON-443-06	244 229	8.8	1.38	180	< 10	40	< 0.5	< 2	4.68	< 0.5	22	78	174	4.61	< 10	< 1	0.17	< 10	1.37	820
ON-443-07	244 229	>100.0	0.49	160	< 10	10	< 0.5	< 2	2.36	3.0	8	163	224	2.25	< 10	< 1	0.08	< 10	0.62	360
ON-443-08	244 229	0.6	2.08	10	< 10	10	< 0.5	< 2	2.08	< 0.5	75	446	212	14.55	< 10	< 1	0.07	< 10	3.12	4120
ON-443-09	244 229	1.2	0.03	< 2	< 10	< 10	< 0.5	< 2	0.04	< 0.5	1	367	19	0.73	< 10	< 1	< 0.01	< 10	0.04	70

CERTIFICATION:



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers

5175 Timberlea Blvd., Mississauga  
Ontario, Canada L4W 2S3  
PHONE: 905-624-2806 FAX: 905-624-6163

Client: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6  
SUDBURY, ON  
P3E 5P5

Project: BLACK LAKE  
Comments: ATTN: PETER CHUBB CC: MIKE KOZIOL

Page Number: 1-B  
Total Pages: 1  
Certificate Date: 10-AUG-1999  
Invoice No.: 19924325  
P.O. Number:  
Account: KPI

## CERTIFICATE OF ANALYSIS A9924325

SAMPLE	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
BKL99x-001	244 229	2	0.06	1	210	< 2	0.01	< 2	< 1	7	< 0.01	< 10	< 10	1	< 10	30
BKL99x-002	244 229	< 1	0.07	65	750	8	0.60	< 2	5	66	< 0.01	< 10	< 10	25	< 10	36
BKL99x-003	244 229	3	0.06	2	130	2	0.41	< 2	1	21	< 0.01	< 10	< 10	2	< 10	28
BKL99x-004	244 229	< 1	0.06	2	80	2	0.06	2	< 1	5	< 0.01	< 10	< 10	1	< 10	32
BKL99x-005	244 229	< 1	0.05	3	510	< 2	0.11	2	3	28	< 0.01	< 10	< 10	14	< 10	64
BKL99x-006	244 229	< 1	0.10	85	690	< 2	0.13	2	5	62	< 0.01	< 10	< 10	25	< 10	74
BKL99x-007	244 229	< 1	0.11	153	630	< 2	0.04	2	7	69	< 0.01	< 10	< 10	31	< 10	70
BKL99x-008	244 229	< 1	0.08	108	550	< 2	0.01	2	6	68	< 0.01	< 10	< 10	30	< 10	70
BKL99x-009	244 229	< 1	0.09	62	300	2	1.10	6	10	125	< 0.01	< 10	< 10	40	< 10	102
BKL99x-010	244 229	1	0.09	4	60	6	0.58	2	1	12	< 0.01	< 10	< 10	3	< 10	16
BKL99x-011	244 229	< 1	0.03	6	370	< 2	0.15	8	27	69	< 0.01	< 10	< 10	432	< 10	160
BKL99x-012	244 229	< 1	0.08	26	290	< 2	2.60	2	19	68	< 0.01	< 10	< 10	122	< 10	102
BKL99x-013	244 229	1	0.01	5	90	24	0.07	< 2	< 1	14	< 0.01	< 10	< 10	8	< 10	30
BKL99x-014	244 229	< 1	0.02	7	60	6	0.07	< 2	< 1	7	< 0.01	< 10	< 10	3	< 10	18
BKL99x-015	244 229	7	0.09	67	770	4	1.76	< 2	5	103	< 0.01	< 10	< 10	16	< 10	86
BKL99x-016	244 229	1	0.06	4	70	2	0.08	< 2	< 1	7	< 0.01	< 10	< 10	< 1	< 10	82
BKL99x-017	244 229	< 1	0.01	41	70	14	< 0.01	< 2	2	17	0.05	< 10	< 10	33	< 10	44
BKL99x-018	244 229	5	0.04	22	40	2	< 0.01	< 2	2	37	< 0.01	< 10	< 10	21	< 10	32
BKL99x-019	244 229	83	0.07	30	160	< 2	0.23	< 2	6	164	< 0.01	< 10	< 10	16	< 10	32
ON-443-01	244 229	< 1	0.06	29	350	30	0.08	6	1	66	< 0.01	< 10	< 10	8	< 10	634
ON-443-02	244 229	< 1	0.10	30	500	16	0.02	< 2	1	36	< 0.01	< 10	< 10	8	< 10	46
ON-443-03	244 229	< 1	0.11	29	850	< 2	0.84	8	7	23	< 0.01	< 10	< 10	74	< 10	52
ON-443-04	244 229	2	0.11	5	120	12	0.36	< 2	1	16	< 0.01	< 10	< 10	2	< 10	32
ON-443-05	244 229	1	0.02	17	30	314	0.53	2820	< 1	11	< 0.01	< 10	< 10	3	< 10	572
ON-443-06	244 229	< 1	0.12	62	790	40	0.07	2	3	47	< 0.01	< 10	< 10	20	< 10	98
ON-443-07	244 229	< 1	0.07	23	180	766	0.23	50	1	23	< 0.01	< 10	< 10	6	< 10	742
ON-443-08	244 229	< 1	< 0.01	245	70	< 2	>5.00	2	7	28	0.02	< 10	< 10	55	< 10	106
ON-443-09	244 229	1	< 0.01	7	10	4	0.10	< 2	< 1	< 1	< 0.01	< 10	< 10	1	< 10	6

CERTIFICATION: \_\_\_\_\_



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers

5175 Timberlea Blvd., Mississauga  
Ontario, Canada L4W 2S3  
PHONE: 905-624-2806 FAX: 905-624-6163

Client: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6  
SUDBURY, ON  
P3E 5P5

Project: BLACK LAKE  
Comments: ATTN: PETER CHUBB CC: MIKE KOZIOL

Page Number: 1-A  
Total Pages: 1  
Certificate Date: 05-ALG-1999  
Invoice No.: 19923866  
P.O. Number: 0277  
Account: KPI

## CERTIFICATE OF ANALYSIS A9923866

SAMPLE	PREP CODE	Au g/t FA+AA	Au ppb calc.	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm
ON-449-01	205 226	< 0.005	< 5	< 0.2	1.37	4	< 10	< 10	< 0.5	< 2	0.35	< 0.5	15	289	8	2.22	< 10	< 1	< 0.01	< 10
BKL99x-020	205 226	< 0.005	< 5	< 0.2	0.45	8	< 10	< 10	< 0.5	< 2	7.80	< 0.5	8	151	1	5.11	< 10	< 1	0.02	< 10
BKL99x-021	205 226	< 0.005	< 5	< 0.2	1.23	< 2	< 10	10	< 0.5	< 2	0.16	< 0.5	8	123	31	2.26	< 10	< 1	0.14	< 10
BKL99x-022	205 226	0.105	105	0.2	3.13	< 2	< 10	60	< 0.5	< 2	0.91	< 0.5	21	83	271	11.30	< 10	< 1	0.34	10
BKL99x-023	205 226	< 0.005	< 5	< 0.2	3.56	< 2	< 10	10	< 0.5	< 2	1.02	< 0.5	9	99	4	2.69	< 10	< 1	0.04	< 10
BKL99x-024	205 226	< 0.005	< 5	< 0.2	0.92	< 2	< 10	10	< 0.5	< 2	0.87	< 0.5	28	194	28	3.25	< 10	< 1	0.07	< 10
BKL99x-025	205 226	< 0.005	< 5	< 0.2	1.57	< 2	< 10	< 10	< 0.5	< 2	1.62	< 0.5	13	200	147	2.88	< 10	< 1	0.01	< 10
BKL99x-026	205 226	0.010	10	< 0.2	1.20	< 2	< 10	< 10	< 0.5	< 2	1.62	< 0.5	18	129	323	2.17	< 10	< 1	0.01	< 10
BKL99x-027	205 226	< 0.005	< 5	< 0.2	0.11	< 2	< 10	< 10	< 0.5	< 2	0.34	< 0.5	1	245	8	0.37	< 10	< 1	< 0.01	< 10
BKL99x-028	205 226	< 0.005	< 5	0.2	0.91	< 2	< 10	20	< 0.5	< 2	3.39	2.5	18	147	1275	4.75	< 10	< 1	0.04	< 10
BKL99x-029	205 226	< 0.005	< 5	< 0.2	0.24	< 2	< 10	< 10	< 0.5	< 2	1.78	< 0.5	2	224	18	0.53	< 10	< 1	0.01	< 10
BKL99x-030	205 226	0.055	55	0.8	4.22	< 2	< 10	10	< 0.5	< 2	6.78	< 0.5	52	26	136	9.28	10	< 1	0.04	< 10
BKL99x-031	205 226	0.035	35	0.2	4.58	< 2	< 10	10	< 0.5	< 2	3.69	< 0.5	35	36	121	7.71	10	< 1	0.08	< 10
BKL99x-032	205 226	< 0.005	< 5	< 0.2	0.40	< 2	< 10	40	< 0.5	< 2	0.79	< 0.5	5	216	15	1.28	< 10	< 1	0.08	< 10
BKL99x-033	205 226	< 0.005	< 5	< 0.2	0.40	< 2	< 10	40	< 0.5	< 2	0.79	< 0.5	6	218	15	1.27	< 10	< 1	0.08	< 10
BKL99x-034	205 226	< 0.005	< 5	< 0.2	1.00	< 2	< 10	50	< 0.5	< 2	0.49	< 0.5	5	145	14	1.30	< 10	< 1	0.16	10
BKL99x-035	205 226	< 0.005	< 5	< 0.2	2.91	< 2	< 10	50	< 0.5	< 2	1.47	< 0.5	32	101	42	6.62	< 10	< 1	0.11	< 10
BKL99x-036	205 226	< 0.005	< 5	< 0.2	0.99	< 2	< 10	< 10	< 0.5	< 2	0.23	< 0.5	10	255	4	2.25	< 10	< 1	< 0.01	< 10
BKL99x-037	205 226	0.015	15	< 0.2	2.56	< 2	< 10	20	< 0.5	< 2	5.78	< 0.5	41	155	125	7.38	< 10	< 1	0.01	< 10
BKL99x-038	205 226	< 0.005	< 5	0.2	3.34	4	< 10	10	< 0.5	< 2	3.71	< 0.5	43	67	212	8.58	10	1	< 0.01	< 10
BKL99x-039	205 226	< 0.005	< 5	< 0.2	1.78	< 2	< 10	< 10	< 0.5	< 2	1.25	< 0.5	17	249	25	2.74	< 10	< 1	0.01	< 10
BKL99x-040	205 226	0.015	15	< 0.2	1.41	< 2	< 10	30	< 0.5	< 2	0.74	< 0.5	16	210	59	2.71	< 10	< 1	0.02	< 10
BKL99x-041	205 226	< 0.005	< 5	< 0.2	1.65	< 2	< 10	< 10	< 0.5	< 2	2.10	< 0.5	20	166	32	3.10	< 10	< 1	< 0.01	< 10
BKL99x-042	205 226	< 0.005	< 5	< 0.2	2.21	6	< 10	30	< 0.5	< 2	4.66	< 0.5	35	131	106	6.36	< 10	< 1	0.02	< 10
BKL99x-043	205 226	0.165	165	1.4	3.22	2270	< 10	< 10	< 0.5	< 2	3.46	2.0	27	149	328	11.05	< 10	< 1	< 0.01	< 10
BKL99x-044	205 226	< 0.005	< 5	< 0.2	4.41	16	< 10	10	< 0.5	< 2	2.82	< 0.5	45	158	142	7.92	10	< 1	< 0.01	< 10
BKL99x-045	205 226	0.020	20	< 0.2	0.32	52	< 10	10	< 0.5	< 2	1.95	< 0.5	4	196	11	1.97	< 10	< 1	< 0.01	< 10
BKL99x-046	205 226	< 0.005	< 5	< 0.2	5.21	24	< 10	30	< 0.5	< 2	4.13	< 0.5	43	173	148	8.19	10	< 1	0.02	< 10
BKL99x-047	205 226	< 0.005	< 5	< 0.2	1.02	< 2	< 10	50	< 0.5	< 2	1.77	< 0.5	10	204	39	2.01	< 10	< 1	0.01	< 10
BKL99x-048	205 226	< 0.005	< 5	< 0.2	0.78	< 2	< 10	40	< 0.5	< 2	2.31	< 0.5	5	105	18	1.32	< 10	< 1	0.13	10
BKL99x-049	205 226	< 0.005	< 5	< 0.2	0.10	< 2	< 10	10	< 0.5	< 2	0.72	< 0.5	1	219	6	0.69	< 10	1	0.04	< 10
BKL99x-050	205 226	< 0.005	< 5	< 0.2	0.10	< 2	< 10	10	< 0.5	< 2	1.91	< 0.5	3	137	7	1.22	< 10	< 1	0.01	10
BKL99x-051	205 226	< 0.005	< 5	< 0.2	0.28	< 2	< 10	40	< 0.5	< 2	1.09	< 0.5	1	156	4	0.81	< 10	< 1	0.16	30

CERTIFICATION:



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers

5175 Timberlea Blvd., Mississauga  
Ontario, Canada L4W 2S3  
PHONE: 905-624-2806 FAX: 905-624-6163

Client: CAMECO CORPORATION

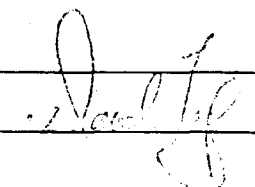
1349 KELLY LAKE RD., UNIT #6  
SUDBURY, ON  
P3E 5P5

Project: BLACK LAKE  
Comments: ATTN: PETER CHUBB CC: MIKE KOZIOL

Page Number :1-B  
Total Pages :1  
Certificate Date:05-AUG-1999  
Invoice No. :19923866  
P.O. Number :0277  
Account :KPI

## CERTIFICATE OF ANALYSIS A9923866

SAMPLE	PREP CODE	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
ON-449-01	205 226	1.14	260	< 1	0.01	23	10	< 2	< 0.01	< 2	4	< 1	0.02	< 10	< 10	60	< 10	24
BKL99x-020	205 226	2.90	1840	3	0.02	22	170	2	0.01	2	10	228	< 0.01	< 10	< 10	10	< 10	50
BKL99x-021	205 226	0.60	260	< 1	0.02	21	120	6	0.37	2	< 1	5	0.04	< 10	< 10	12	< 10	42
BKL99x-022	205 226	0.83	530	< 1	0.10	21	520	16	0.84	6	4	4	0.08	< 10	< 10	29	< 10	372
BKL99x-023	205 226	2.06	610	< 1	0.10	14	330	< 2	0.01	< 2	2	23	0.16	< 10	< 10	37	< 10	90
BKL99x-024	205 226	0.62	230	< 1	0.04	18	390	< 2	1.10	2	3	24	0.12	< 10	< 10	27	< 10	28
BKL99x-025	205 226	1.11	350	< 1	0.05	24	10	< 2	0.14	2	4	3	0.07	< 10	< 10	51	< 10	66
BKL99x-026	205 226	0.88	285	< 1	0.07	36	350	< 2	0.14	< 2	5	4	0.07	< 10	< 10	48	< 10	26
BKL99x-027	205 226	0.09	40	1	0.02	6	< 10	< 2	< 0.01	4	< 1	1	< 0.01	< 10	< 10	5	< 10	2
BKL99x-028	205 226	0.53	540	< 1	0.02	17	630	< 2	0.37	6	1	7	0.01	< 10	< 10	12	< 10	384
BKL99x-029	205 226	0.14	135	< 1	0.02	7	70	< 2	< 0.01	2	< 1	1	0.01	< 10	< 10	7	< 10	6
BKL99x-030	205 226	2.51	1915	< 1	0.01	38	1050	10	0.74	2	9	149	< 0.01	< 10	< 10	90	< 10	140
BKL99x-031	205 226	2.13	775	< 1	0.02	34	1380	4	0.28	8	6	98	< 0.01	< 10	< 10	79	< 10	160
BKL99x-032	205 226	0.25	290	< 1	0.06	8	340	2	0.01	2	< 1	21	< 0.01	< 10	< 10	6	< 10	80
BKL99x-033	205 226	0.25	290	1	0.06	7	330	2	0.01	4	< 1	21	< 0.01	< 10	< 10	6	< 10	80
BKL99x-034	205 226	0.54	180	1	0.06	8	210	2	0.01	< 2	1	19	0.10	< 10	< 10	12	< 10	28
BKL99x-035	205 226	1.56	740	< 1	0.04	79	340	2	0.27	< 2	13	41	0.18	< 10	< 10	141	< 10	78
BKL99x-036	205 226	0.67	325	< 1	0.01	15	70	< 2	< 0.01	< 2	3	3	0.09	< 10	< 10	51	< 10	26
BKL99x-037	205 226	2.78	1455	< 1	0.07	104	220	< 2	0.07	4	18	33	< 0.01	< 10	< 10	101	< 10	80
BKL99x-038	205 226	2.57	1485	< 1	0.02	38	280	< 2	0.26	< 2	31	51	< 0.01	< 10	< 10	239	< 10	108
BKL99x-039	205 226	1.49	385	< 1	0.02	38	100	< 2	0.01	< 2	6	6	0.02	< 10	< 10	65	< 10	32
BKL99x-040	205 226	0.92	765	1	0.01	25	150	< 2	0.01	< 2	8	6	0.01	< 10	< 10	54	< 10	28
BKL99x-041	205 226	1.16	515	< 1	0.01	23	140	< 2	< 0.01	2	3	16	0.03	< 10	< 10	58	< 10	44
BKL99x-042	205 226	1.76	1650	< 1	0.10	79	200	< 2	0.06	8	13	25	0.06	< 10	< 10	123	< 10	70
BKL99x-043	205 226	2.73	1085	< 1	0.01	58	310	6	2.52	10	17	19	< 0.01	< 10	< 10	119	< 10	302
BKL99x-044	205 226	2.52	1205	< 1	0.02	73	300	< 2	0.08	2	7	36	0.40	< 10	< 10	197	< 10	106
BKL99x-045	205 226	0.59	540	< 1	0.01	7	20	< 2	0.04	< 2	3	13	< 0.01	< 10	< 10	21	< 10	14
BKL99x-046	205 226	2.46	1275	< 1	0.04	85	250	< 2	0.16	8	24	32	< 0.01	< 10	< 10	172	< 10	124
BKL99x-047	205 226	1.11	645	< 1	0.01	24	90	< 2	0.01	< 2	5	18	< 0.01	< 10	< 10	20	< 10	22
BKL99x-048	205 226	0.39	445	1	0.04	4	250	< 2	0.01	< 2	1	108	< 0.01	< 10	< 10	5	< 10	32
BKL99x-049	205 226	0.11	235	1	0.02	4	240	< 2	< 0.01	6	< 1	16	< 0.01	< 10	< 10	1	< 10	8
BKL99x-050	205 226	0.32	585	< 1	0.07	5	< 10	< 2	< 0.01	< 2	1	45	< 0.01	< 10	< 10	1	< 10	12
BKL99x-051	205 226	0.25	360	1	0.04	4	30	< 2	< 0.01	2	< 1	28	< 0.01	< 10	< 10	1	< 10	6

CERTIFICATION: 



Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use) W9930 00091 Assessment Files Research Imaging

FINAL REVISED



52J04NE2004 2.19931 SHARRON LAKE 900

Authority of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the Act, the Mining Recorder is required to review the assessment work and correspond with the mining land holder.

PROVINCIAL RECORDING OFFICE - SUDBURY RECEIVED NOV 09 1999 A.M. 11:15 P.M.

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240. - Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name: Cameco Corporation, Address: Unit #6, 1349 Kelly Lake Road, Sudbury, Ontario, P3E 5P5. Client Number: 114820, Telephone Number: 705-523-4555, Fax Number: 705-523-4571.

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

- Geotechnical: prospecting, surveys, assays and work under section 18 (regs) [checked]
Physical: drilling, stripping, trenching and associated assays [unchecked]
Rehabilitation [unchecked]

Work Type: Geological and geochemical Survey. Dates Work Performed: From 07/07/1999 To 07/26/1999. Township/Area: Sharron Lake, Zarn Lake. Mining Division: Patricia. Resident Geologist District: Simsbury.

- Please remember to: - obtain a work permit from the Ministry of Natural Resources as required; - provide proper notice to surface rights holders before starting work; - complete and attach a Statement of Costs, form 0212; - provide a map showing contiguous mining lands that are linked for assigning work; - include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Peter Chubb, Address: Unit #6, 1349 Kelly Lake Road, Sudbury, Ontario. Telephone Number: 705-523-4555, Fax Number: 705-523-4571.

4. Certification by Recorded Holder or Agent

I, Peter Chubb, do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [Signature], Date: 25/08/99. Agent's Address: Unit #6, 1349 Kelly Lake Road, Sudbury, Ontario. Telephone Number: 705-523-4555, Fax Number: 705-523-4571.

Personal information collected on this form is obtained under the authority of subsection 8(1) of the Assessment Work Regulation 6/98. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work <small>Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.</small>	Cost Per Unit of work	Total Cost
Geological Mapping	2 men	\$192/man/day	7311
Geological Sampling	Gold + Trace element + Prep	\$28.57/sample	1457
<b>Associated Costs (e.g. supplies, mobilization and demobilization).</b>			
	Sample bags, flapping etc..		169
	Generator rental		405
	Real Time GPS Rental		907
	Satellite Phone Rental		650
	Boat Rental		481
	Transportation Costs Courier		40
	Chartered flight		1200
<b>Food and Lodging Costs</b>			
	Johnnys foodmat		595
	Lodging + Gas		3185
<b>Total Value of Assessment Work</b>			<b>16405</b>

**RECEIVED**  
 NOV 09 1999  
 GEOSCIENCE ASSESSMENT OFFICE

**Calculations of Filing Discounts:**

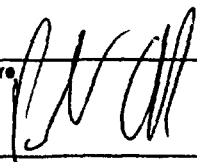
1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK                      x 0.50 =                      Total \$ value of worked claimed.

**Note:**  
 - Work older than 5 years is not eligible for credit.  
 - A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

**Certification verifying costs:**

I, Peter Chubb (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Geologist III I am authorized (recorded holder, agent, or state company position with signing authority) to make this certification.

Signature 	Date 09/11/1999
--	--------------------



Geoscience Assessment Office  
933 Ramsey Lake Road  
6th Floor  
Sudbury, Ontario  
P3E 6B5

Telephone: (888) 415-9845  
Fax: (877) 670-1555

January 13, 2000

Peter Chubb  
CAMECO CORPORATION  
Unit 6  
1349 Kelly Lake Road  
Sudbury, Ontario  
P3E 5P5

Visit our website at:  
[www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm](http://www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm)

Dear Sir or Madam:

**Submission Number:** 2.19931

**Status**

**Subject: Transaction Number(s):** W9930.00091 Approval

---

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. **WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.**

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in **DUPLICATE** to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact **STEVE BENETEAU** by e-mail at [steve.beneteau@ndm.gov.on.ca](mailto:steve.beneteau@ndm.gov.on.ca) or by telephone at (705) 670-5855.

Yours sincerely,



ORIGINAL SIGNED BY  
Blair Kite  
Supervisor, Geoscience Assessment Office  
Mining Lands Section



# Work Report Assessment Results

---

**Submission Number:** 2.19931

**Date Correspondence Sent:** January 13, 2000

**Assessor:** STEVE BENETEAU

---

<b>Transaction Number</b>	<b>First Claim Number</b>	<b>Township(s) / Area(s)</b>	<b>Status</b>	<b>Approval Date</b>
W9930.00091	1166802	SHARRON LAKE, ZARN LAKE	Approval	January 11, 2000

**Section:**

12 Geological GEOL

**Correspondence to:**

Resident Geologist  
Sioux Lookout, ON

**Recorded Holder(s) and/or Agent(s):**

Peter Chubb  
CAMECO CORPORATION  
Sudbury, Ontario

Assessment Files Library  
Sudbury, ON

---



May 15/90 C  
 May 11/90 C  
 Jan 5/90  
 Jan 2/91 C  
 Mar 13/91 C  
 May 14/91 C  
 May 22/91 C  
 June 4/91 C  
 June 22/91 R

935409  
 942414  
 942420  
 942421  
 942422  
 942423  
 942424  
 942425  
 942426  
 942427  
 942428  
 942429  
 942430

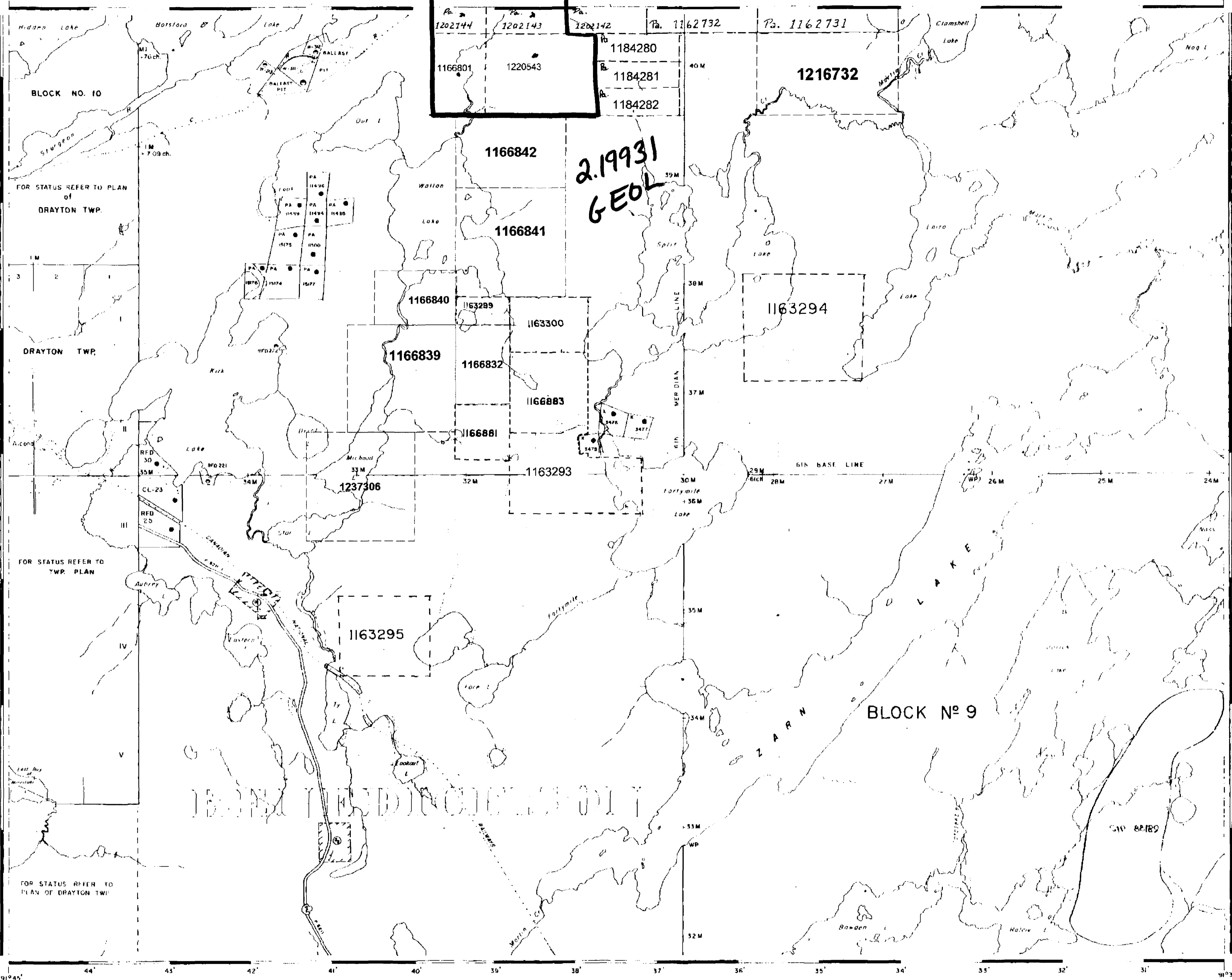
91 MAR 21

DRAYTON TWP G-3379



52704822004 2.19931 SHARRON LAKE 210

SHARRON LAKE G 2207



2.19931  
 GEOL

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIPS, BASE LINES, ETC.
- LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT SURFACE & MINING RIGHTS	●
SURFACE RIGHTS ONLY	○
MINING RIGHTS ONLY	◐
LEASE, SURFACE & MINING RIGHTS	◑
SURFACE RIGHTS ONLY	◒
MINING RIGHTS ONLY	◓
LICENCE OF OCCUPATION	○
ORDER-IN-COUNCIL RESERVATION	○
CANCELLED	○
SAND & GRAVEL	○
LAND USE PERMITS FOR COMMERCIAL TOURISM, OUTPOST CAMPS	○

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 8, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1971, CHAP. 330, SEC. 85, SUBSEC. 1.

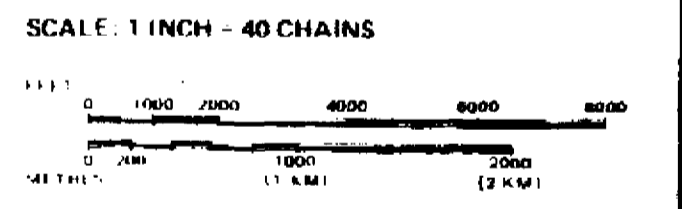
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

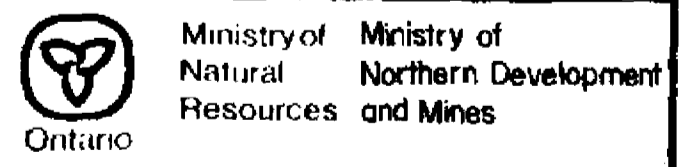
Description	Order No.	Date	Disposition	File
M.R.O. - MINING RIGHTS ONLY				
S.R.O. - SURFACE RIGHTS ONLY				
M.+S. - MINING AND SURFACE RIGHTS				

SAND and GRAVEL

GRAVEL	FILE 183474
MTC GRAVEL RESERVE	FILE 183474



AREA  
**ZARN LAKE**  
 MNR ADMINISTRATIVE DISTRICT  
 SIOUX LOOKOUT  
 MINING DIVISION  
 PATRICIA  
 LAND TITLES / REGISTRY DIVISION  
**KENORA**



Date: JANUARY 1987  
 Number: **G-2277**

FOREST ACTIVITY INFORMATION  
 THIS TOWNSHIP AREA FALLS WITHIN THE  
 ABT/BLOCK # 1 FOREST MGT. UNIT  
 AND ALL FOREST ACTIVITY INFORMATION  
 MUST BE REPORTED TO THE FOREST MGT. UNIT  
 CONTACT AT:  
 P.O. BOX 300  
 SIOUX LOOKOUT, ONTARIO P0V 2T0  
 (807) 231-1110

DOMINION LAKE G 2003

SMOCK LAKE G 2210

50193



Legend

Additional modifiers to be added to legend for volcanic rocks (1,2,3,4, some of which may be used with massive thropages)

m=massive  
p=plowed  
q=quartz  
r=reticular  
s=stuffed  
t=truff  
u=ultra tuff  
v=volcanic  
w=wide phytic  
x=hydrophitic  
y=subvolcanic  
z=flow breccia  
aa=trachoclastic  
q=fine grained

- 1 Mafic Volcanics (flows, pillowed)
- 2 Intermediate Volcanics (flows)
- 3 Felsic Volcanics (tuffs, lapilli tuffs, tuff breccia)
- 4 Basaltic Komatitic Volcanoclastics
- 5 Felsic Volcanoclastics
- 6 Clastic & Chemical Sediments
- 7 Mafic Intrusive
- 8 Mafic-Felsic Intrusive Transition Zone
- 9 Felsic Intrusive (mineralized & altered)
- 10 Felsic Intrusive (massive & unaltered)

for the sediments (R) modifiers are as follows

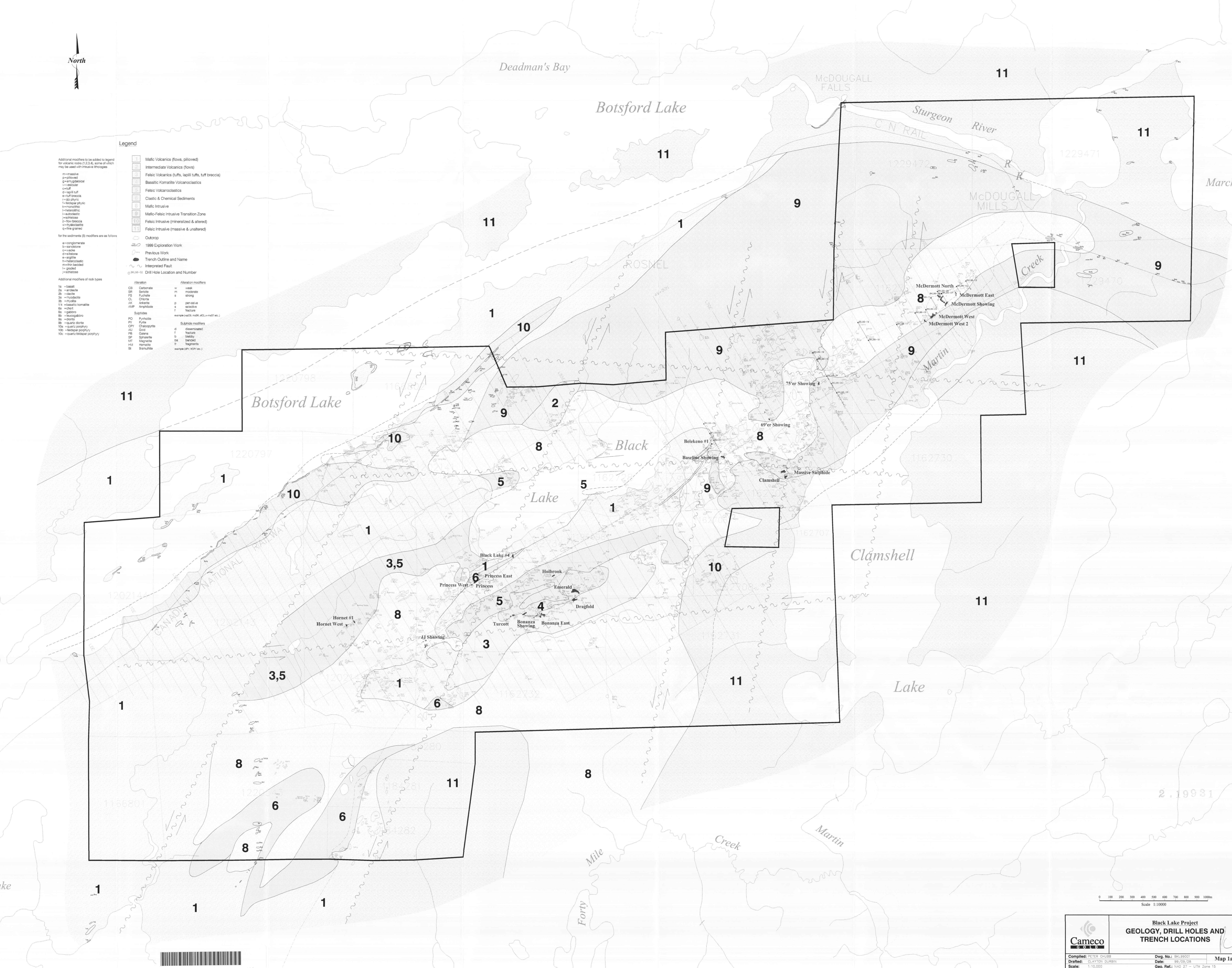
a=conglomerate  
b=sandstone  
c=shale  
e=argillite  
f=metaclastic  
m=thin bedded  
n=gravel  
o=scoriae

- 1999 Exploration Work
- Previous Work
- Trench Outline and Name
- Interpreted Fault
- Drill Hole Location and Number

Additional modifiers of rock types

1a = quartz  
2a = andesite  
2b = dacite  
2c = rhyolite  
2d = andesitic tephrite  
2e = andesite  
2f = andesite  
2g = quartz diorite  
2h = quartz porphyry  
2i = andesite porphyry  
2j = quartz feldspar porphyry

- |                |   |
|----------------|---|
| Alteration     | Alteration modifiers                    |
| CB Carbonate   | w weak                                  |
| SH Sericite    | m moderate                              |
| FS Fuchsite    | s strong                                |
| CL Chlorite    | p pervasive                             |
| AK Actinolite  | s selective                             |
| AMP Amphibole  | f fracture                              |
| Pyrite         | various (e.g. Cu, Ni, Co, Ni, Mo, etc.) |
| PY Pyrite      | Sulphide modifiers                      |
| CH Chalcoprite | d disseminated                          |
| AU Gold        | f fracture                              |
| CA Calcite     | b blebby                                |
| SP Sphalerite  | ba banding                              |
| MT Magnetite   | l fragments                             |
| HM Hematite    | various (e.g. Fe, Cu, etc.)             |
| BI Barite      |   |







Deadman's Bay

Botsford Lake

McDOUGALL FALLS

Sturgeon River

C N RAIL

McDOUGALL MILLS

Marchi

Legend

Additional modifiers to be added to legend for volcanic rocks (1,2,3,4) some of which may be used with intrusive lithologies:

- m=massive
- g=porphyritic
- q=quartzoidal
- v=vesicular
- c=clastic
- d=light buff
- e=streak basalt
- f=fractured phyc
- h=hornblende
- k=hornblende
- l=hornblende
- n=hornblende
- o=hornblende
- p=hornblende
- r=hornblende
- s=hornblende
- t=hornblende
- u=hornblende
- v=hornblende
- w=hornblende
- x=hornblende
- y=hornblende
- z=hornblende
- aa=hornblende
- ab=hornblende
- ac=hornblende
- ad=hornblende
- ae=hornblende
- af=hornblende
- ag=hornblende
- ah=hornblende
- ai=hornblende
- aj=hornblende
- ak=hornblende
- al=hornblende
- am=hornblende
- an=hornblende
- ao=hornblende
- ap=hornblende
- aq=hornblende
- ar=hornblende
- as=hornblende
- at=hornblende
- au=hornblende
- av=hornblende
- aw=hornblende
- ax=hornblende
- ay=hornblende
- az=hornblende

for the sediments (S) modifiers are as follows:

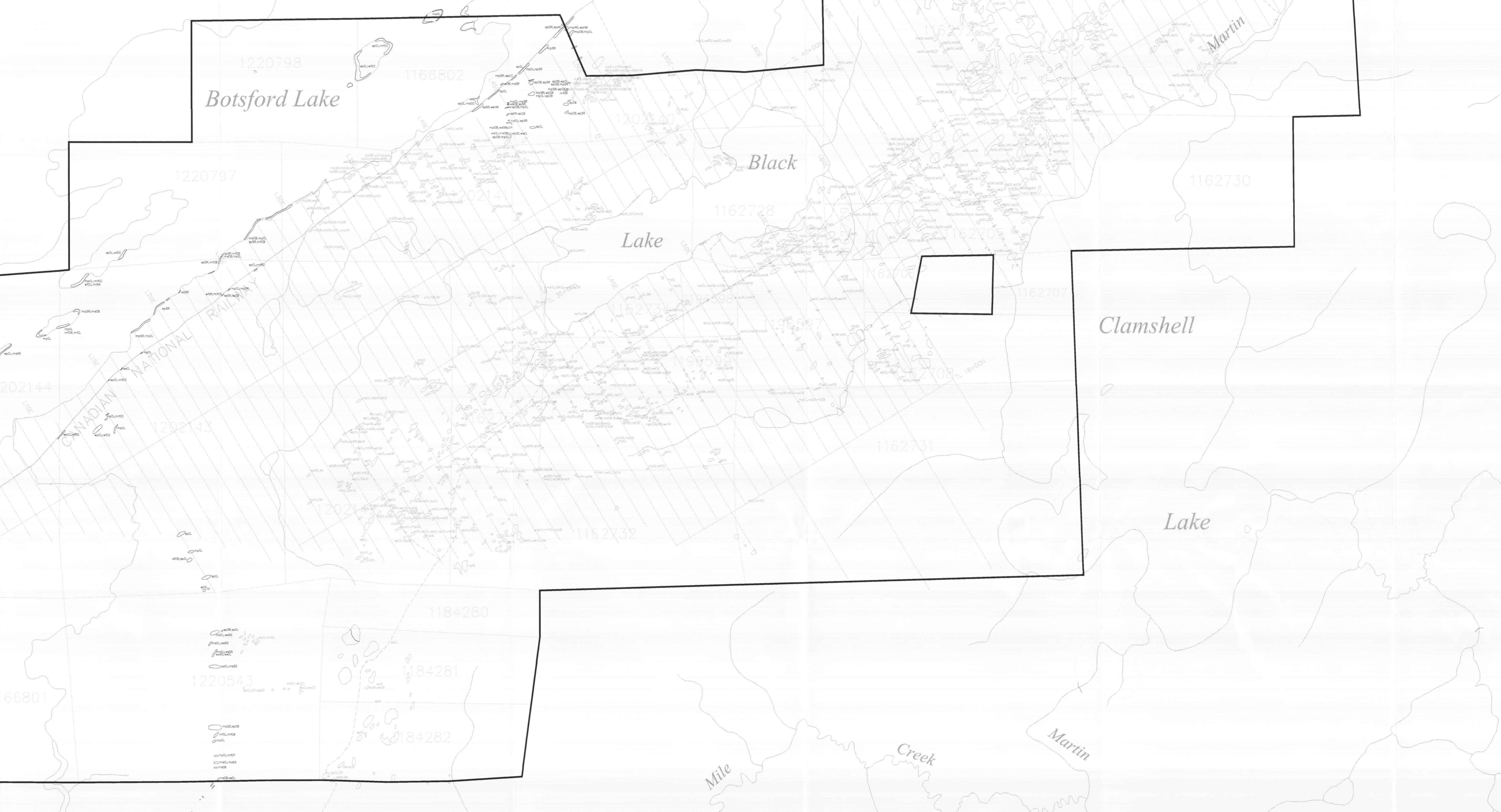
- a=conglomerate
- b=sandstone
- c=shale
- d=chert
- e=argillite
- f=metadiabase
- g=thin bedded
- h=graded
- i=schistose

Additional modifiers of rock types

- 1a=basalt
- 1b=andesite
- 1c=diorite
- 1d=dyke
- 1e=granite
- 1f=granite
- 1g=granite
- 1h=granite
- 1i=granite
- 1j=granite
- 1k=granite
- 1l=granite
- 1m=granite
- 1n=granite
- 1o=granite
- 1p=granite
- 1q=granite
- 1r=granite
- 1s=granite
- 1t=granite
- 1u=granite
- 1v=granite
- 1w=granite
- 1x=granite
- 1y=granite
- 1z=granite

- Alteration
- CB Carbonate
  - DR Sericite
  - FC Fuchsite
  - OL Olivine
  - AK Ankerite
  - AM Aragonite
  - AB Azurite
  - CC Calcite
  - SAU Sulfate
  - S Silica
  - GA Garnet
  - PT Pyrite
- Alteration modifiers
- w weak
  - m moderate
  - s strong
  - p pervasive
  - s selective
  - f fracture
  - d disseminated
  - b bedded
  - bs bedded
  - r ragged
- Sulfides
- PO Pyrite
  - PY Pyrite
  - CH Chalcocite
  - AU Gold
  - SI Silver
  - SP Spinel
  - MG Magnetite
  - HM Hematite
  - B Bismuthite

- 1999 Exploration Work
- Previous Work



Scale 1:10000

**Black Lake Project**  
**ALTERATION MAP**

Compiled: PETER CHUBB  
 Drafted: CLAYTON DURBIN  
 Scale: 1:10000  
 NTS Ref: 52 / 4

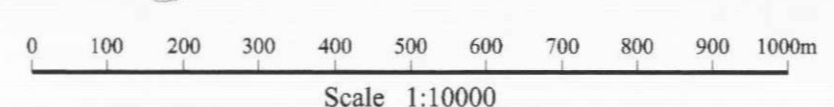
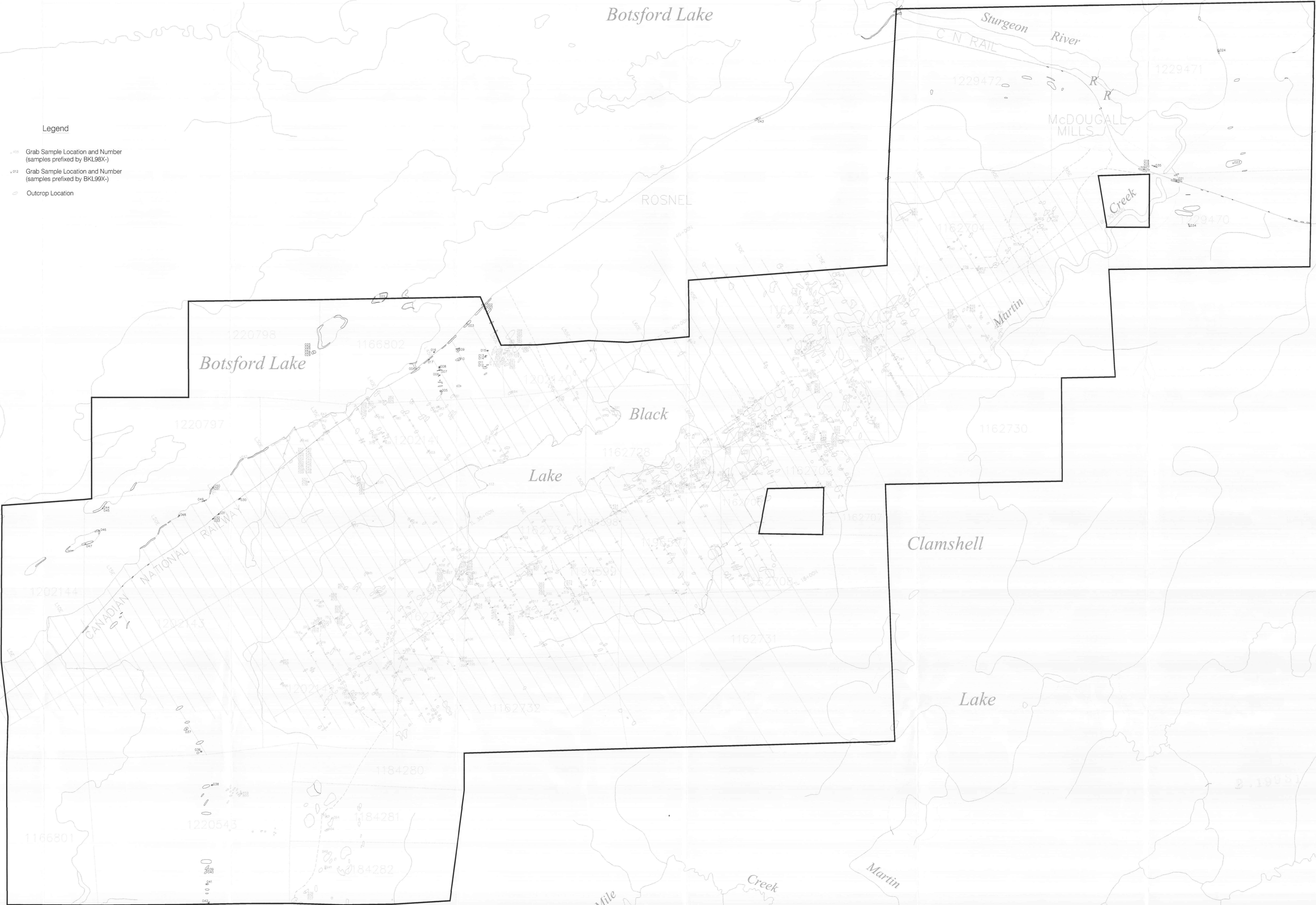
Dwg. No.: BKLR2003  
 Date: 09/09/28  
 Geo. Ref.: 1445 27 - UTM Zone 15  
 Source:

Map 1c



Legend

- Grab Sample Location and Number (samples prefixed by BKL98X)
- Grab Sample Location and Number (samples prefixed by BKL99X)
- Outcrop Location



		Black Lake Project	
		SAMPLE LOCATION MAP	
Compiled: PETER CHUBB Drafted: CLAYTON DURBIN Scale: 1:10,000 NTS Ref.: 52-1/4	Dwg. No.: BKL99004 Date: 09/09/28 Geo. Ref.: UAD 27 - UTM Zone 15 Source:	Map Id	