## **CONFEDERATION MINERALS LTD.**

**43-101 COMPLIANT REPORT** 

**ON THE** 

## **CONFEDERATION LAKE PROPERTY**

RED LAKE MINING DISTRICT ONTARIO

> Devon Corporation Garry K. Smith, P.Geo November 28, 2007

#### **Table of Contents**

	page
Summary	1
Introduction and Terms of Reference	2
Sources of Information and Disclaimer	2
Reliance on Other Experts	3
Property Description and Location	4
English Option	6
Accessibility, Climate and Local Resources	9
History and Previous Work	9
Regional Geological Setting and Mineral Resources	15
Confederation Assemblage	17
Local Geology	18
Property Geology and Mineralization	20
Deposit Types and Geologic Models	21
Mineralization	29
Exploration	32
MMI Soil Geochemistry Orientation Survey	32
Sample Preparation, Assaying and Analytical Procedures	33
Drilling	37
Data Verification	37
Adjacent Properties	38
Mineral Resources and Mineral Reserve Estimates	42
Interpretation and Conclusions	42
Recommendations	43
Proposed Rolling Phase Budget	44
References	45
Certificate of Author	46

#### List of Figures

1	Geology of Ontario with Location	4
2	Claim Map of Property	5
3	Greenstone Belts of Uchi Subprovince	15
4	Major Assemblages with VMS Showings	16
5	Local Geology	19
6	Stacked Bars: Mutivariate Transect	35
7	MMI Soils Zn Anomalies	36
8	Adjacent Properties: Tribute Minerals	38

### List of Tables

6
11
12
18

#### Appendix

1	Assay Certificate, Property Visit	47
2	MMI Grids 1 & 2	48

#### Summary

Confederation Minerals Ltd. (CML) optioned a substantial land position of 26 staked claims, comprising 184 staked units and covering 2,978 hectares, over a 18.5km by 4km length of the Archean Confederation Lake greenstone belt in the Red Lake Mining Division of Ontario.

The company was originally named Medina Ventures, but subsequently changed their name to Sienna Minerals Ltd. (Sienna), and then on April 11, 2007 changed it again to Confederation Minerals Ltd.

CML's property is favourabley situated between the past producing South Bay Mine at the northeastern boundary, and Tribute Mineral's Garnet Lake Discovery at the south-western boundary. The South Bay Mine was operated by Selco from 1971 to 1981 and mined 1.45 million grading 2.3% Cu, 14.7% Zn and 120.0g/t Ag. (Atkinson et al 1990). Tribute Minerals has reported a 43-101 compliant indicated resource (at a cut-off grade of 3% per cent zinc equivalent) of 2,070,288 tonnes grading 5.92% Zn, 0.75% Cu, 0.58 gpt Au and 21.1 gpt (G.S. Carter, P.Eng Sep. 4, 2007) This information has not been verified by the author, and is not necessarily indicative of any mineralization on the CML Property.

Minnova Inc. previously held most of the CML - Confederation Lake Property during the early 1990s. Their exploration objectives were to define the physical volcanology, the limits of hydrothermal alteration, and location of all syn-volcanic structures. The latter was postulated to focus hydrothermal alteration associated with the potential formation of volcanogenic massive sulfide (VMS) deposits on the Property.

During Minnova's exploration program, a total of 250 kms of geological mapping was completed and 1,992 rock samples were collected for litho-geochemical analysis. 25 of these samples were interpreted (by Minnova) as being anomalous. Minnova's work identified major syn-volcanic structures with andalusite and sillimanite hydrothermal alteration minerals. They believed that their results supported the model that a number of potential geological targets at depth capable of hosting massive sulfide deposits existed on the Property. Inmet Mining Corp., 1995-6, focused on VMS style potential that could be associated with the unexplored sodium depletion zone adjacent to a postulated West Graben fault located along the Confederation Lake shoreline. Their encouraging drill program resulted in the recommendation to continue following this model southwards where a significant prospective area is hosted within the CML Confederation Lake Property.

According to Public Work Assessment files, previous workers would appear to have conducted thorough exploration over most of the Property using the best exploration methods of the day. They subsequently concluded that the discovery of new, economic massive sulphide deposits within 100 meters of surface had been substantially eliminated from prospective areas.

An integrated 3D computer modeling-based exploration approach is now recommended using tools not available to previous workers. In addition to the computer modeling of the extensive data collected by previous workers, it is further recommended that target vectoring employ a combination of new deep penetrating multi-element MMI soil geochemistry, and when appropriate new deep EM methods like the Titan24 system, to locate high potential drill targets

at depth and in areas not previously considered to be prospective.

CML has conducted a minor amount MMI soil geochemistry on the property for the purpose of applying sufficient work credits to maintain their claims in good standing. This preliminary exploration work has generated drill-worthy VMS Zn targets, thus advancing the property above the category of "early stage exploration property". This report will serve to compile the history of work on the property and make recommendations for a next phase exploration program including diamond drilling.

#### **Introduction and terms of Reference**

In May, 2006, **Sienna Minerals Inc.** (Sienna) contracted the author, **Garry K. Smith, P.Geo of Devon Corporation**, to prepare a 43-101 compliant report on their early stage exploration property in the Confederation Lake Area of north-western Ontario. Sienna subsequently changed their name on April 11, 2007 to **Confederation Minerals Ltd. (CML).** 

This report is intended to:

- support a TSX, Tier 2, 43-101 listing requirement
- compile the known exploration history on the property
- focus on outlining initial areas of high potential like possible strike extensions of the South Bay Mine and Tribute Arrow discovery,
- make recommendations for a first phase exploration program.

CML's offices are located at Suite 1040 - 999 W. Hastings Street, Vancouver, B.C., V6C 2W2

The property consists of 26 claims containing 184 units in 2 isolated groups covering approximately 2,979 hectares. These groups are held under option from Perry English of Souris, Manitoba and Rubicon Minerals Corporation, a corporation having an office at Suite 1540, 800 West Pender Street, Vancouver, British Columbia, V6C 2V6,

#### Sources of Information and Disclaimer

This report is based primarily on information available in the public domain publications of the Geological Survey of Canada, the Ontario Geological Survey (OGS), and public Assessment Work filed with, and maintained by, the Ontario Ministry of Natural Resources.

These public reports, listed in the History and References sections of this report, were for the most part written prior to the implementation of the standards relating to National Instrument 43-101. None of the historical work refered to in this report can be verified by the author, and therefore cannot be relied upon. However, as most of the historic body or work was prepared by persons

holding post-secondary degrees in geology or related fields, their reports are assumed accurate for general compilation purposes. No recommendations by the author will be based solely on historical records.

The Confederation Lake Property of Confederation Minerals Ltd. was innitially considered to be an early-stage exploration property without definite drill targets, and worthy of exploration for VMS hosted base metals and gold. However, preliminary work by the author, on behalf of the Company, has generated drill-worthy VMS style Zn targets that will be discussed in the recommendations section of the report.

### **Reliance on Other Experts**

The author is not a qualified person for the purpose of commenting on certain corporate legal matters and therefore includes the following disclaimer of responsibility.

With regard to:

Option Agreement between Medina Ventures and Perry English / Rubicon Minerals, dated Feb. 10, 2006

Corporate name change from Medina Ventures to Sienna Minerals, dated Apr. 26, 2006

Acceptance by Perry English / Rubicon Minerals and Sienna Minerals of Amended Option Agreement reflecting name change and the re-staking of a lapsed claim, dated Aug. 31, 2006

Corporate name change from Sienna Minerals to Confederation Minerals Ltd, dated Apr. 11, 2007

Acceptance by Perry English / Rubicon Minerals and Confederation Minerals Ltd. of Amended Option Agreement reflecting name change, dated June 28, 2007

# The author has reviewed, but does not accept responsibility for, the legal correctness of those documents noted above pertaining to the Option Agreements and other subsequent amendments that would serve to demonstrate CML's clear title to the Property.

However, it is the author's opinion that the documents in question would appear to demonstrate clear title provided that the terms of the Option Agreement are met by CML.

The author has in excess of 20 years experience conducting exploration for base and precious metals in the Property area, and has visited the Confederation Lake Property for the purpose of conducting a personal inspection on June 12-13, 2006, and again more recently June 21, 2007. The second visit was conducted to ensure that the personal inspection requirement for this 43-101 report is current.

#### **Property Description and Location**

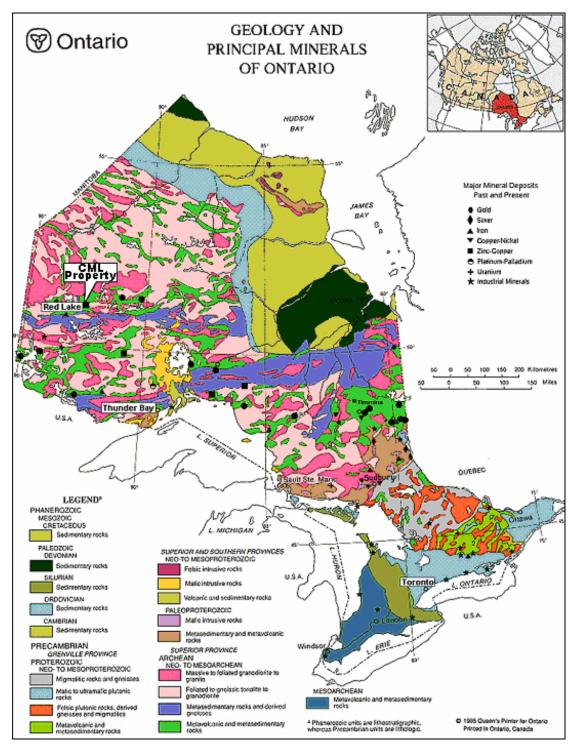


figure 1

CML has optioned a total of 26 staked claims, comprising 184 units covering approximately 2,979 hectares of the southwestern portion of the Confederation Lake greenstone belt in the Red

Lake Mining Division, northwestern Ontario (figure 1). This land position represents a nearly continuous trend measuring 18.5 km by 4 km centered some 50km east-southeast of Red Lake and 10km east of Ear Falls, Ontario. The property extends from the past producing South Bay Mine on Confederation Lake in the east, to the Tribute Minerals Garnet Lake "Arrow" resource in the south-west. (figure 2). The centre of this property is located approximately at UTM 5655000N, 519000E (Zone 15 NAD 83) and is within NTS 52N/02SW.

The claims comprising the Property have not been surveyed and, as such, the property boundaries represented on the Government of Ontario Claim Maps (figure 2) are approximations only.

To the extent known, there are no environmental liabilities to which the property is subject; and to the extent known, any permits that must be acquired to conduct general exploration work proposed for the property, can be obtained without delay.

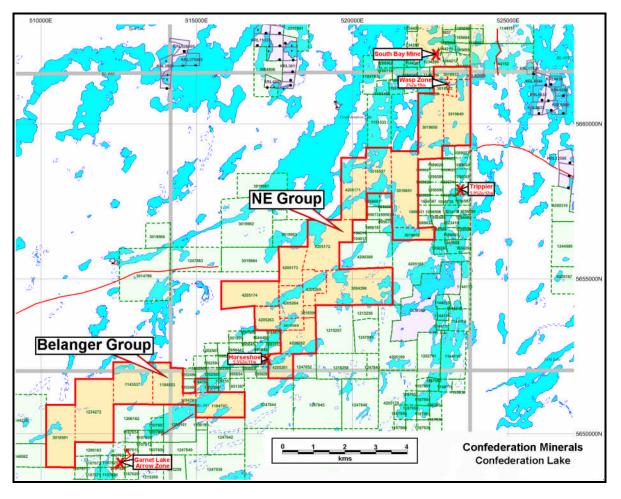


figure 2

The property claims are divided into 2 groups; The Belanger group of 7 claims comprising 52 units (2,080 acres) and the NE Group of 19 claims comprising 132 units (5,280 acres). The groups are not contiguous, therefore separate Reports of Work must be filed for each.

#### **English Option**

On February 10, 2006, Medina Ventures (CML) signed an option agreement with Perry English and Rubicon Minerals Corporation (English) to acquire a 100% interest in the Confederation Lake Property held by English, consisting of 26 claims (184 units) covering 7,360 acres (2,979 hectares) as summarized in Table 1 below. These claims are subject to a 2% NSR payable to English. The option agreement has an effective date of Feb. 10, 2006.

0	Township/	Claim	Recording	Claim Due	Percent	Work	Total	Total	Claim
Group	Area	Number	Date	Date	Option	Required	Applied	Reserve	Bank
		1							
Belanger	LITTLE BEAR	1143537	1995-Jun-29	2009-Jun-29	100%	\$3,600	\$43,200	\$15,075	\$0
Belanger	MITCHELL	1184553	1996-Sep-23	2008-Sep-23	100%	\$3,200	\$32,000	\$6,240	\$0
Belanger	BELANGER	1234272	2001-Oct-05	2008-Oct-05	100%	\$6,000	\$30,000	\$0	\$0
Belanger	BELANGER	4213355	2006-Dec-14	2008-Dec-14	100%	\$4,000	\$0	\$0	\$0
Belanger	BOWERMAN	1184705	1997-Feb-19	2009-Feb-19	100%	\$400	\$4,000	\$2,520	\$0
Belanger	BOWERMAN	1184706	1997-Feb-19	2009-Feb-19	100%	\$400	\$4,000	\$0	\$0
Belanger	BOWERMAN	1184707	1997-Feb-19	2009-Feb-19	100%	\$3,200	\$32,000	\$250	\$0
NE	DENT	3016933	2004- Oct-13	2008-Oct-13	100%	\$1,200	\$2,400	\$0	\$0
NE	MITCHELL	3016932	2004- Oct-14	2008-Oct-14	100%	\$800	\$1,600	\$2,700	\$0
NE	MITCHELL	3018595	2004- Oct-01	2008-Oct-01	100%	\$800	\$1,600	\$0	\$0
NE	MITCHELL	3018596	2004- Oct-01	2008-Oct-01	100%	\$400	\$800	\$0	\$0
NE	MITCHELL	3018597	2004- Oct-01	2008-Oct-01	100%	\$3,200	\$6,400	\$0	\$0
NE	MITCHELL	3019649	2005-Aug-05	2008-Aug-05	100%	\$3,600	\$3,600	\$16,020	\$0
NE	MITCHELL	3019650	2005-Aug-05	2008-Aug-05	100%	\$4,400	\$4,400	\$0	\$0
NE	MITCHELL	3019651	2005-Aug-05	2008-Aug-05	100%	\$5,200	\$5,200	\$0	\$0
NE	MITCHELL	3019652	2005-Aug-05	2008-Aug-05	100%	\$1,200	\$1,200	\$0	\$0
NE	MITCHELL	4200313	2006-Apr-20	2008-Apr-20	100%	\$6,400	\$0	\$0	\$0
NE	MITCHELL	4205171	2005-Mar-14	2008-Mar-14	100%	\$4,000	\$4,000	\$0	\$0
NE	MITCHELL	4205172	2005-Mar-14	2008-Mar-14	100%	\$4,800	\$4,800	\$0	\$0
NE	MITCHELL	4205173	2005-Mar-14	2008-Mar-14	100%	\$2,400	\$2,400	\$0	\$0
NE	MITCHELL	4205174	2005-Mar-14	2008-Mar-14	100%	\$4,000	\$4,000	\$0	\$0
NE	MITCHELL	4205261	2005-Dec-13	2008-Dec-13	100%	\$1,600	\$1,600	\$1,928	\$0
NE	MITCHELL	4205262	2005-Dec-13	2008-Dec-13	100%	\$2,800	\$2,800	\$16,717	\$0
NE	MITCHELL	4205263	2005-Dec-13	2008-Dec-13	100%	\$1,600	\$1,600	\$12,436	\$0
NE	MITCHELL	4205264	2005-Dec-13	2008-Dec-13	100%	\$2,400	\$2,400	\$0	\$0
NE	MITCHELL	4205265	2005-Dec-13	2008-Dec-13	100%	\$2,000	\$2,000	\$0	\$0

#### **English Option – Confederation Lake Property**

table 1

Claim 4213355 replaced claim 3018581 on Dec. 16, 2006.

All claims are in good standing until March 14, 2008.

The author has reviewed an agreement dated the 10th day of February, 2006 between

**PERRY ENGLISH**, of Box 414, Souris, Manitoba, R0K 2C0 and **RUBICON MINERALS CORPORATION**, a corporation having an office at Suite 1540, 800 West Pender Street, Vancouver, British Columbia, V6C 2V6,

(collectively the "Optionor")

#### **OF THE FIRST PART**

AND:

**MEDINA VENTURES INC.,** a British Columbia corporation with its business office located at Suite 1200, 1188 West Georgia Street, Vancouver, British Columbia, V6E 4A2

(the "Optionee")

#### WHEREAS:

A. The Optionor is the owner of certain mineral claims located in the Red Lake Mining District of Ontario known as the Mitchell & Belanger claims (the "Property"), more particularly described in Schedule "A" attached hereto;

B. The Optionor has agreed to grant an exclusive option to the Optionee to acquire an undivided 100% interest in and to the Property subject only to the Royalty, on the terms and conditions hereinafter set forth;

#### **GRANT AND EXERCISE OF OPTION**

(a) The Optionor hereby grants to the Optionee the sole and exclusive right and option to acquire a 100% undivided interest in and to the Property, free and clear of all charges, encumbrances and claims, except for the Royalty.

(b) The Option shall be exercised by the Optionee making the following cash and Share issuances to the Optionor:

- (i) \$12,000 cash and 30,000 Shares upon signing of this Agreement
- (ii) \$15,000 cash and 30,000 Shares on or before the first anniversary of the date hereof;
- (iii) \$20,000 cash and 30,000 Shares on or before the second anniversary of the date hereof;
- (iv) \$25,000 cash and 30,000 Shares on or before the third anniversary of the date hereof; and

(v) \$40,000 cash on or before the fourth anniversary of the date hereof; provided, however, in the event that on any anniversary date the shares of the Optionee are not listed for trading on a stock exchange or quotation system and the Optionee chooses to exercise the Option by making a cash payment and issuing Shares as provided above, in addition to the such cash payment the Optionor may elect to take further cash in lieu of such Shares in an amount equal to the number of Shares that would otherwise be issued on that date multiplied by \$0.30.

(c) If and when the Option has been exercised, a 100% undivided right, title and interest in and to the Property shall vest in the Optionee, free and clear of all charges, encumbrances and claims except for the Royalty.

and,

on or before the first anniversary of the date of the agreement, conduct a work program on the Property at a cost of not less than \$50,000.

### Royalty

In the event that the Optionee exercises the Option and acquires the Property, Upon the Commencement of Commercial Production, as such term is defined in Schedule B of the agreement, the Optionee shall pay to the Optionor a Royalty equal to two percent (2%) of the net smelter returns ("NSR") on minerals other than diamonds produced from the Property, on the terms and conditions as set out in this paragraph and in accordance with Schedule "B". The Optionee may purchase one half of the Royalty, being equal to 1% of net smelter returns, from the Optionor at any time for \$1,000,000.

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To maintain the option in good standing, and to earn a 100% interest, CML must pay annual escalating cash option payments totaling \$112,000 on or before the respective anniversaries of the effective date, incur a minimum of \$50,000 on exploration and maintain the Confederation Lake Property in good standing. CML has the right to purchase 1% of the English 2% NSR for \$1 million at any time after it has exercised the option.

The author has reviewed the Mining Claim Abstracts as of Nov. 28, 2007 for the 26 claims comprising the Confederation Lake Property. These files are maintained by the Ontario Ministry of Northern Development and Mines and are intended to demonstrate that the claims in question have been properly recorded and are, in fact, valid claims. All claims are registered to the Optionor, Perry English, and are in good standing. Mr. English is the registered owner of 100% of all claims comprising the Property.

#### Accessibility, Climate and Local Resources

The Property is accessible from the 76km South Bay road, an all-weather gravel logging road, from the Red Lake Highway at Ear Falls. A 4-wheel drive road traverses the south-west group from the South Bay road to the Tribute Mineral's drill camp. Much of the remaining portion of the property is accessible from the South Bay road and from numerous small lakes.

The physiography of the region is typical of the Canadian Shield with many lakes and streams, a cover of mixed-hardwood and spruce forest over low rolling hills of up to 70m relief. Low areas are often occupied by marshes and swamps. Bedrock ridges are common throughout much of the area and form prominent features that greatly affect local drainage

Overburden on the Property is expected to be less than 20m of glacial till. The drainage pattern trends south-west, which is parallel to the direction of the last glacial scouring to affect the area.

The climate is a mid-continent northern environment with -20°C (average) winters. The winter field season for geophysics and drilling may require lake-ice which is available from late November to March. However, ice roads are usually only possible from late January to mid-March. The summer field season begins in early May unless aircraft are required to land on the lakes. Float-equipped aircraft can operate from late May to well into October. The weather is typically humid in summer with temperatures in the 20C to high 30C range.

Black spruce, jack pine, poplar and aspen generally populate ridges, with sparse spruce, tamarack and sphagnum mosses in the low and marshy areas. Much of the area has been logged in the past, resulting in some areas being covered with young, dense tertiary growth. More mature areas are often covered with deadfall and "blow-down". Line cutting is therefore recommended for most field work.

To the extent relevant, the author believes that the sufficiency of surface rights for mining operations, the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas and potential processing plant sites is adequate. There is a significant hydro-electric power line carrying electricity from a generating station at Ear Falls, through most of the Property to the South Bay Mine, and on to Pickle Lake.

#### **History and Previous Work**

The area has been explored for gold intermittently since the 1928 gold rush at Red Lake. Base metal exploration started in the 1950s with the development of early ground geophysical methods but did not become a main focus until the discovery of the South Bay copper-zinc-silver ("Cu-Zn-Ag") volcanic-hosted massive sulphide ("VMS") deposit by Selco Mining Corp. ("Selco") in 1968. The Selco discovery was aided by a combination of new technologies including airborne geophysics and detail ground EM geophysics plus conventional diamond drilling. The South Bay Mine produced 1.45 million tonnes of ore grading 2.3% Cu, 14.7% Zn

and 120.0g/t Ag between 1971 and 1981 (Atkinson et al 1990) and by all reports was quite profitable

Selco subsequently staked a large additional portion of the "belt" and conducted further airborne and ground geophysical surveys until the late 1980s. New, but shallow and uneconomic, high-grade Cu-Zn occurrences were found and tested by diamond drilling, all apparently within 100 meters of surface.

Exploration activity in the region generally increased with the commercial development of new technologies like the INPUT Mark IV airborne electromagnetic system. Noranda, Hudson's Bay, Minnova, Rio Algom, Inco, Tech and Homestake became active explorers through the 1970s and 1980 as these new technologies became available.

Noranda began a systematic exploration program of the belt in 1987 with 1,850 line kilometers of a Questor INPUT Mark VI AEM survey, and started a regional litho-geochemistry sampling and geological mapping program. Noranda acquired a substantial land package covering a number of target horizons proximal to known mineralization. A large regional database of litho-geochemical samples, plus geophysical and geological data sets were compiled during the course of their work. In 1996, Noranda completed a GEOTEM Deep AEM survey over much of their land holdings in the belt.

Tribute Minerals optioned much of the Noranda ground and publicly reported on their website:

"Since 1996, Noranda's exploration in the belt focused on exploring targets between 200m and 400m vertical depths using deep search geophysical techniques (Deep EM and Bore Hole PEM surveying) and lithogeochemical sampling to identify proximal VMS-type hydrothermal alteration. On some properties, particularly in the central to northeast parts of the belt, exploration now has advanced to depths greater than 400m. Properties in the southeast part of the camp however, still have targets above 400m vertical depths.

A new, deeper penetration geophysical technique has recently been developed and field-tested at deep mines such as Kidd Creek and Goldcorp. This system, known as **Titan-24**, has been developed by Quantec Geoscience Inc., and in 2002 Tribute identified deep conductivity targets in the Confederation Lake belt using this technology.

Tribute's approach to exploration in this belt is similar in many ways to those who introduced AEM systems in the 1960s. Much of the belt has tested to the limits of conventional geophysical detection of anomalies, and Tribute believes that the use of a new generation of deep penetration techniques may expand the discovery potential of the belt. In that sense it is following in the tracks of both Selco and Noranda, both of whom sought to extend the detection limits of buried sulphides by utilizing new geophysical technologies."

## History of Work on the Property

YEAR	TWP	Company	Work Filed
1967	Belanger,	A. Goodwin	Geological Survey - Defined 3 cycles of volcanism
1001	Bowerman, Mitchell, Knott		
1968	Mitchell	BP-Selco	Questor Airborne Survey, follow up ground mag survey.
1969	Belanger	Cochenour Expl	Mapping, Ground HLEM and Mag surveys
1969	Mitchell, Bowerman	North Rock Expl	Electromagnetic and Magnetometer Surveys, 1969
1970	Belanger	Conwest Expl	Line-cutting Ground EM and mag. Negative results
1971	Belanger	Muscosho Expl	EM, Mag. Several minor conductors were indicated.
1971	Mitchell	Selco Mining	17 Underground Diamond Drill Holes in Mitchel Twp and one in Dent., 1971
1971	Mitchell	Selco Mining	
1979	Mitchell	Selco Mining	EM, Mag
1979	Mitchell	Selco Mining	Magnetic and Electromagnetic Surveys, 1979
1979	Mitchell	St Joseph Expl	Geological
1979	Mitchell	St Joseph Expl	Airborne Electromagnetic Survey - anomaly found
1980	Bowerman	Selco Mining	DDHs 1980 in Bowerman Twp, and underground DDHs 1971 in Mitchell Twp.
1980	Mitchell	Selco Mining	EM, Mag
1980	Mitchell	St Joseph Expl	Mag
1980	Mitchell	St. Joseph Expl	Ground Geophysics HLEM and mag to delineate the AEM anomaly
1984	Belanger, Bowerman, Mitchell,	Cominco	Airborne Mag , Compilation and Interpretation - Ground Geophysics, Geology
1988	Knott Belanger, Bowerman, Karas L, Fredart L, Gerry L	Noranda Expl	AEM and Mag
1988	Belanger, Bowerman, Mitchell, Knott	Noranda Inc	Airborne Input EM/Mag for base metal conductors and structures for gold
1989	Mitchell	Noranda Expl	Assaying and Analyses , Geological
1989	Mitchell	Noranda Inc	Assaying and Analyses , Geological mapping, HLEM and Gravity Surveys, 1989
1990-91	Belanger, Bowerman, Mitchell, Knott	Minnova Inc	Geology and Lithogeochem, major synvolcanic structures and hydrothermal alteration
1991	Mitchell	Minnova Inc	In-Loop Surface Pulse EM Survey
1991-92	Belanger	J. Williamson	Overburden Stripping, Trenching, Gold expl with some encouraging results.
1992	Mitchell	Metall Mining	1 Diamond Drill hole in Mitchell Twp. 1992
1992	Bowerman, Mitchell		EM (TDEM survey)
1992	Mitchell	Minnova Inc	Diamond Drilling in Mitchell Twp, 1992
1993	Mitchell	Metall Mining	Diamond Drilling in Mitchell Twp, 1992, 1993
1993	Mitchell	Metall Mining	
1994-95		Noranda Inc	Geology, Lithogeochem and Geophysics, 1994-95
1995	Belanger	Noranda Inc	Line-cutting, Geophysics (Mag, HLEM, Deep EM) to locate and evaluate historic AEM associated with near surface base metal sulphides
1995-96	Belanger, Bowerman, Mitchell	Noranda Expl	Downhole Geophysics , EM , Geochem , Geology, Mag , Open Cutting , DDHs
1995-96	Mitchell	Inmet Mining	DDHs, 1995, 1996, Borehole PEM detecting in-hole and off hole anomalies possible massive to semi-massive mineralization within 100m
1996	Belanger	Cndn Zeolite	Ground Mag, VLF and IP. Many anomalies detected for massive sulphide or gold
1996	Belanger	J. Williamson	Prospecting, Stripping, Trenching,
1998	Belanger	Noranda Inc	Diamond Drilling in Belanger Twp., 1998
1998	Belanger, Bowerman, Mitchell	Noranda Inc	EM , Mag , Open Cutting
1999	Belanger	J. Williamson	Stripping, trenching, sampling and prospecting.
1999	Belanger, Bowermar	nNoranda Expl	Geochemical, Geological

#### table 2

2000	Belanger	Nuinsco Res.	Line cutting, Pulse EM for massive sulphides. Negative results
2002	Belanger	Kings Bay Gold	12 DDHs in Belanger Twp., 2002

#### **Government Reports and Maps covering the Property (Chronological Order)** table 3

Author	Report, Map
Dowling, D.B., 1893	GSC; Recon. Geological Survey of Confederation and Fly Lakes area
Burwash, E.M., 1920	OGS; Annual Report, Geological Survey of North Bay Area of Confederation Lake
Greig, J.W., 1928	ODM; Woman and Narrow Lakes Area, District of Kenora (Patricia Portion). Annual Report for 1927, 36 Pt. 3 p.85-110.
Bruce, E.L., 1929	ODM; Gold deposits of Woman, Narrow and Confederation Lakes, District of Kenora (Patricia Portion). Annual Report for 1928, 37 Pt 4 p. 1-51
Thomson, J.E., 1937	OGS, Geological Survey of Uchi Lake-Lost Bay, Map 47c, contributed to Map 48g
Bateman, J.D., 1938-9	OGS, Geology and Gold Deposits of Uchi-Slate Lakes Area, Map 48g
Fenwick, K.G., 1965	OGS; Geological Survey of Belanger Twp.
Goodwin, A.M., 1967	ODM; Volcanic studies in the Birch-Uchi Lakes Area of Ontario. Miscellaneous Paper 6, 96p.
Pryslak, A.P., 1970	ODM; Mitchell Township, District of Kenora (Patricia Portion) Preliminary Map P.593.
Pryslak, A.P., 1971	ODM; Knott Township, District of Kenora (Patricia Portion) Preliminary Map P.635.
Thurston, P.C., 1978	OGS; Geology of the Earngey-Costello Area, District of Kenora (Patricia Portion) Open File Report 5240: 210p.
Thurston, P.C., 1980	OGS; Subaerial volcanism in the Archean Uchi-Confederation volcanic belt. Precambrian Research, 12: 79-80.
Gupta, V.K., & Wadge, D.R., 1980	OGS; Gravity study of the Birch-Uchi and Red Lakes Area, District of Kenora (Patricia Portion) Open File Report 5278, 249p.
Muir, T.L., Graydon, J.W., 1981	ODM; Geological Survey Belanger and Bowerman Twp.
Fyon, A.J. and Lane, L., 1985	OGS; Structural geology and alteration patterns related to gold mineralization in the Confederation Lake area; In: in Summary of Field Work and Other Activities 1985, Miscellaneous Paper 126: 201-209.
Thurston, P.C., 1985	OGS; Physical volcanology and stratigraphy of the Confederation Lake area, District of Kenora (Patricia Portion). Report 236: 117p. Accompanied by Map 2498.
Fyon, A.J. and O'Donnell, L., 198	6 OGS; Regional strain state and alteration patterns related to gold mineralization in the Uchi- Confederation-Woman Lakes area; in Summary of Field Work and other Activities 1986. Miscellaneous Paper 132: 266-275.
Gupta, V.K., & Wadge, D.R. 1986	OGS; Gravity study of the Birch, Uchi, and Red Lakes area, District of Kenora (Patricia Portion) Report 252, 98p. Accompanied by Maps 2492, 2493, 2494 and 2495. Scale 1:250,000.
Gupta, V.K., & Wadge, D.R. 1986	OGS; Bouguer gravity, Red Lake-Birch Lake, District of Kenora, Map 2492, Geophysical/Geochemical Series, Scale 1:250,000. Survey 1976,1977.
Wallace, H., Thurston, P.C., and Corfu, F. 1986	OGS; Developments in stratigraphic correlation: Western Uchi Subprovince; in volcanology and mineral deposits, Miscellaneous Paper 129: 88-102.
Atkinson, B.T., Parker, J.R., Storey, C.C 1990	. Report of Activities 1990, OGS Misc Paper 152, p.31-66.
Stott, G.M., and Corfu, F., 1991	OGS; Uchi Subprovince; In: Geology of Ontario, Special volume 4, Part 1, p.145-236.
Thurston, P.C., 1991	OGS; Geology of Ontario: Introduction. In. Geology of Ontario, Special Volume 4, Part 1, p.3-25.
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998	OGS; Structural analysis at the Woman-Confederation assemblage boundary, western Birch-Uchi Greenstone belt: Progress Report. Miscellaneous Paper 168: 57-58.
Rogers, N., van Staal, C.R., & McNicol V., 1999	I, GSC; Recent advances in the geology and structure of the Confederation Lake region, northwestern Ontario. Current Research 1999-C: 187-195.

Work filed by Inmet in 1995-6 would appear to confirm a prospective environment for VMS style mineralization in the northern portion of the Property, and in the vicinity of anomalous MMI soil geochemistry recently completed by the Company.

Inmet followed-up on their 1995 geological field mapping with a 4-hole drilling program. CFL-17 - 19 targeted the source of the Na<sub>2</sub>O depletion corridors with coincident zinc anomalous trends cross-cutting north-south structures at a vertical depth of 300.0m below the surface. CFL-

20 targeted a DeepEm anomaly, the argillite horizon (Mine Horizon), at a vertical depth of 400.0m.

A summary of Inmet's four drill holes follows:

CFL-17:

CFL-17 was drilled to intersect the source of the surface  $Na_2O$  depletion and coincident Zinc anomalous corridors at 300.0 metres below the surface. The Ql porphyry's lower contact hosts stringer mineralizations of sphalerite returning assays of 0.15% Zn over 4.5m at a vertical depth of 220.0m. This was interpreted to be the targeted surface  $Na_2O$  depletion with coincident Zinc anomaly.

Other fine sulphide stringer mineralization was observed throughout the porphyritic rock units. The first Q2b porphyry encountered returned values of 0.16% Zn over 0.5m and 0.12% Zn over 1.0m. The second Q2b porphyry encountered at the upper contact zinc values of 0.16% Zn but over 1.5m and it's lower contact returned a gold value of 1.2g/t Au over 1.0m from sulphide bearing quartz veinlets. No Argillitic rock unit was reported from this hole.

The Pulse-EM analysis for hole CFL-17 detected a weak off-hole anomaly at a down-hole depth of 500.0 metres. The 15 channel conductor was interpreted to be located 100.0 metres below and to the east of the drill hole. An east-west fault carrying traces of pyrrhotite and pyrite at a down hole depth of 507.70 metres was believed to cause this anomaly. That interval returned only low zinc values.

CFL-18:

Hole CFL-18 drill-tested an extensive north-south  $Na_2O$  depletion trend and with overlapping zinc anomaly along the shore of Confederation Lake and parallel to the Western Graben margin.

The hole intersected two rhyolite units named the upper and the lower rhyolites. Both rhyolites are highly altered by sericite throughout. Chlorite alteration was moderate in the upper rhyolite but more intense in the lower unit. Textures were generally massive with intervals of mineralized, brecciated flows. The flow breccia from the upper rhyolite returned 1.5m of 0.23% Zn and 1.5m of 0.33% Zn. One interval returned assays of 0.24% Cu and 0.26% Zn over 0.83m. These mineralized occurences are concentrated near the intrusive Q2b porphyry ontacts. This upper rhyolite was interpreted to correspond with the source of the targeted surface Na<sub>2</sub>O depletion and zinc anomalies.

The lower rhyolite returned two 1.5m intervals of 0.22% Zn with anomalous gold values of 0.5 g and 0.2 g/t Au. No Argillitic rock units were intersected in this hole.

The Pulse-Em survey detected an "edge"or"off-hole" anomaly response interpreted to be located above and to the west of the drill hole tending towards the Western Graben Margin.

Hole CFL-19 was drilled to test the source of the surface Na<sub>2</sub>O depletion with coincident Zinc anomalous corridors at 300.0m below the surface.

An extensive Ql porphyry hosts sharp contact VMS style alteration with significant mineralization. An intense and pervasive light green sericite is reported from the massive Ql, and cherty-blue high silica alteration is hosted in monomict breccia and in the overlying amygdoidal unit.

The broad sericitic and massive portion of the Ql porphyry is barren of any significant mineralizations above the breccia. Sulphide stringers are hosted by flow breccia and an overlying suphide bearing amygdule horizon. The latter hosts pyrite and traces of sphalerite returning a combined value of 0.17% Zn over 30.0 m. A stringer horizon of sphalerite, pyrite, chalcopyrite and quartz returned values of 0.15% Cu, 1.2%, Zn, 2.59g/t Au, 22.0g/t Ag over 1.0m.

A massive and sericitic section with mineralized stringers of pyrite, sphalerite and traces of chalcopyrite returned a combined value of 1.21 % Zn over 13.5m. Further down hole near the Ql porphyry's lower contact, in the chloritic, spherulitic and massive portion, assay values of 0.20 % Cu and 0.56% Cu over 1.0m returned a combine value of 0.26% Cu over 3.5m. This Ql porphyritic unit was considered to be the source of the broad surface Na<sub>2</sub>O depletion with zinc anomalies.

### CFL-20:

This hole intersected Andesitic talus breccia, massive Q5 porphyry (South Bay Porphyry with quartz eyes), a black, fine grained mineralized Argillitic horizon, and an aphyric Rhyolite.

The Q5 porphyry is massive and is typical of the South Bay Porphyry. It is highly siliceous giving the rock a bluish-green tint which is locally bleached. This porphyry exhibits intrusive contacts.

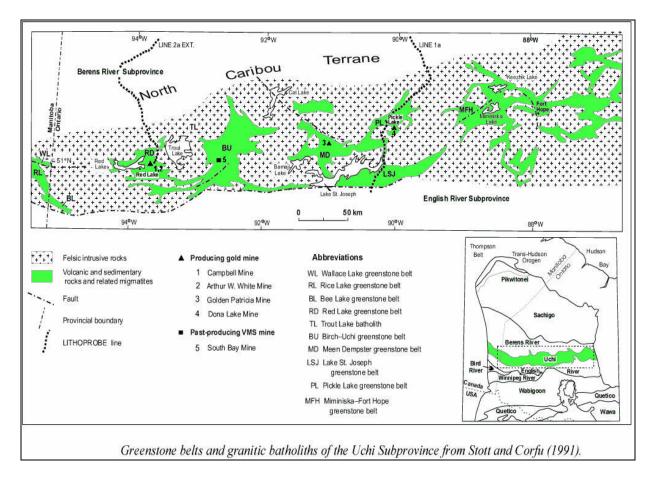
A fine grained, thinly laminated and black argillitic unit was encountered between the Q5 Porphyry's western contact and the underlying Rhyolite. The argillite is mineralized with numerous fine stringers of pyrrhotite, sphalerite, pyrite and chalcopyrite. Assay of 0.1% Cu and 1.7 % Zn over 5.0m including 2.65 % Zn over 1.5m were reported from this zone.

This argillitic rock unit is highly magnetic and was considered to be the depth extension of the targeted Deep-Em anomaly. CFL-20 was believed to successfully intersect the target horizon at a depth of 515.0m below the surface.

The Pulse-Em survey revealed a partially detected "in-hole" anomaly. The strong (20 channel) response was interpreted to be below and to the south of the drill hole, although this anomaly can be projected vertically to the intersected argillite horizon.

#### **Regional Geology Setting and Mineral Resources**

The Northwestern Superior Province (figure 3) includes the Uchi Subprovince, which is made up of a number of assemblages. These assemblages are in turn made up of local belts. The three belts of the Birch-Uchi portion of the Uchi Subprovince were historically considered to be 3 successive volcanic cycles (Thurston 1985). Recent structural, geochemical, and geochronological research suggests that the assemblages may have been juxtaposed tectonically (Williams *et al.* 1991).



#### figure 3

The Birch-Uchi (BU) greenstone belts located within the Uchi-Subprovince (figure 3, Stott and Corfu, 1991) consist of metavolcanic and metasedimentary rocks locally intruded by Archean granitoids (Nunes and Thurston 1980; Thurston and Fryer 1983, Fyon & Lane 1986, Good 1988, Beakhouse 1989, Williams *et al.* 1991, Devaney 1997). The BU covers an arcuate, sinuous trend of 84 km by 32 km (Goodwin 1991, Gupta & Wadge 1986). Thurston & Fryer (1983) postulated a total stratigraphic thickness of 8km - 11km, but this may be refined as further research is completed on the complex regional fold patterns. Metasedimentary English River rocks border the belt to the south, whereas granitic rocks surround the belt to the east, west, and north (Ayres *et al.* 1971, Thurston and Breaks 1978, Thurston and Fryer 1983).

Three volcano-sedimentary assemblages have been recognized in the Woman-Confederation Lake area (Goodwin 1967, Pryslak & co-workers 1969, 1971, Thurston 1985). The assemblages are, from oldest to youngest, Balmer, Woman, and Confederation suggesting that younging is to the east. (figure 4).

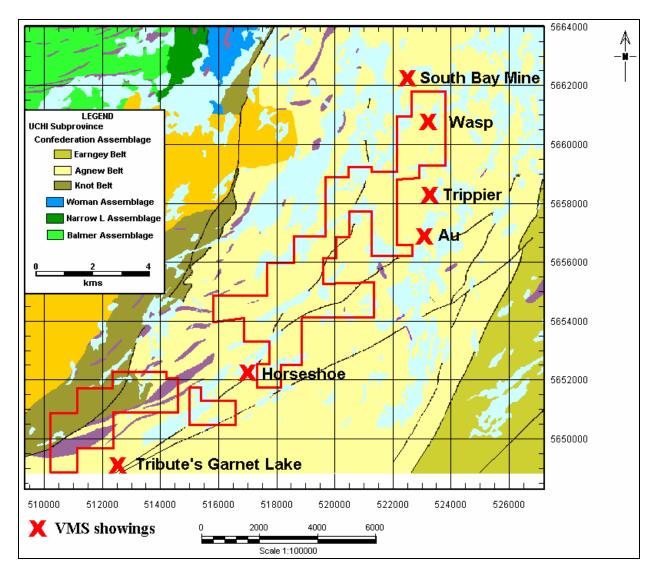


figure 4

An Assemblage represents distinct cycles of volcanism comprising basal tholeiitic pillowed basalts and andesitic flows, overlain by intermediate pyroclastics and volcanic flows, and topped with rhyolitic pyroclastics with minor flows (Thurston 1985, Fyon & O'Donnell I986). All assemblages have been regionally metamorphosed to the greenschist facies with some lower amphibolite facies chlorite and tremolite-actinolite. (Thurston and Breaks 1978).

#### **Confederation Assemblage**

The Confederation assemblage underlies the Property and hosts the only significant VMS mine and mineral deposits in the area. (South Bay Mine, Tribute's Garnet Lake )

The basal-most sequence is mainly tholeiitic basalt and overlies the upper felsic Woman Lake belt to the west. The pillowed and massive basal unit is prominently variolitic/spherulitic with intermixed polymictic conglomerates and siltstones (Thurston 1980, Crews *et al.* 1998).

Pillowed basalts and hyaloclastites with minor andesite flows overlie the massive variolitic flows followed by intermediate tuff, lapilli tuff and quartz-feldspar-phyric flows and minor rhyolitic flows and tuffs. The top of the Confederation assemblage is marked by fault-bounded graben comprised of felsic and intermediate volcanics plus their felsic igneous intrusion equivalent, quartz-feldspar porphyry (QFP). The QFP intrusives often form conspicuous domes (Thurston 1985).

Overlying the graben marker are mafic and felsic flows and pyroclastic rocks derived from collapsed dome material. Thurston postulates that, based on symmetrically distributed ages and opposing stratigraphic top directions, the Confederation assemblage occupies the core of a N-S synclinorium.

The eastern half of the Confederation assemblage is composed of multiple, mafic to felsic, cycles rather than the one large single cycle to the west. (Stott & Corfu 1991). Stott & Corfu (1991) propose that the Confederation assemblage has been thrust northward relative to the underlying (older) Woman assemblage.

Stott & Corfu (1991) believe, from stratigraphic patterns and U-Pb age dating, that the eastern half of the Birch-Uchi greenstone belt and the unit south of the Red Lake greenstone belt to the west, may be composed of tectonically repeated members of a single cycle. Dating obtained by Noble *et al.* (1989) confirm that the eastern half of the assemblage may be composed of rapidly deposited volcanic cycles that could be stacked due to faulting and later folding.

The following references are provided for historical purposes only, and the reader is cautioned that there is no direct indication that any similar mneralization, or deposits, occur on the CML property at this time. Further, the information in the table below is from the public domain and the methods and data used in the generation of this information has not been verified by the author, and as such cannot be considered to be reliable.

#### Zn-Cu Mines and Occurrences in the Region

#### table 4

Zn-Cu DEPOSITS AND PROSPECT	S TONNAGE	GRADE
South Bay Mine (Inmet)	1.45M tonnes mined	14.7% Zn, 2.3% Cu, 120g/t Ag.
Fredart Lake - Copperlode Main Zone (Westminer)	425,000 tons(386,200 tonnes)	) 1.56% Cu, 33.6g/t Ag.
Garnet Lake Arrow Zone (Tribute)	1.27M tonnes	8.12% Zn, 0.81% Cu, 22.9 gpt Ag, 0.64 gpt Au
Garnet Lake Arrow Zone (Tribute)	0.57M tonnes inferred	4.34%Zn
Copperlode E-Zone (Noranda)	160,000 tons	8.28% Zn, 1.02% Cu, 13.4g/t Ag.
Copperlode Hornet Zone	145,000 tonnes ddh	4.07% Zn, 1.13% Cu /5.03m
Dixie #3 (Noranda)	91,000 tons(82,600 tonnes)	10.0% Zn, 1.0% Cu
Dixie #17 (Noranda)		DDH 7.34% Zn, 1.4% Cu /9.5m.
Dixie #18 (Noranda)	110,000 tons(99,820 tonnes)	12.5% Zn, 0.5% Cu
Dixie #19 (Noranda)		DDH 6.33% Zn, 1.5% Cu /3.55m.
Ben Lake Stringer Zone		DDH 0.53 % Zn, 0.14% Cu /45.6m

#### Local Geology

The property is located in the Confederation Lake area, and is underlain by a mixed submarine metavolcanic metasedimentary sequence of the Agnew Belt of the Confederation Assemblage. This Archean-aged belt trends south-westward from Confederation Lake in the east to Gullrock Lake in the west. The area of interest includes an 18km by 4km section of the belt extending from the Tribute's Garnet Lake "Arrow deposit" in the south-west to the past producing South Bay Mine site on Confederation Lake in the north-east.

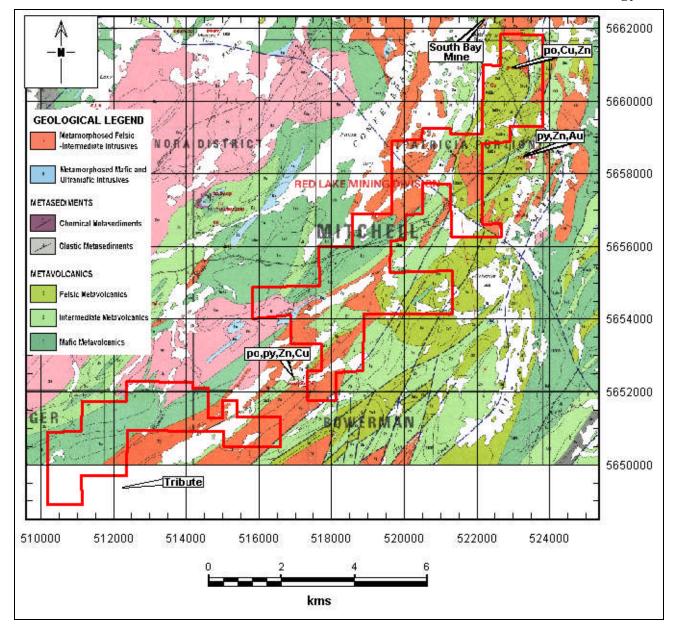
Thurston (1985) stated that the greenstone belt (old nomenclature) consists of three separate mafic to felsic volcanic cycles, Cycle I (lower sequence), Cycle II (middle sequence) and Cycle III (upper sequence), each representing a different stage of caldera development. Rosenthal (1993) reported that the basalts of the first two cycles are tholeiitic in nature, whereas the base of the third cycle is composed of high-alumina basalts and andesites. This third cycle is capped by a complex succession of quartz and feldspar-phyric flows, tuffs and hypabyssal intrusives which support the model of a late pyroclastic caldera collapse event. Cycle III is the only sequence with proven economic base metal mineralization, represented by the South Bay Mine. Cycle III also hosts a number of sub-economic Cu-Zn base metal deposits and prospects.

Stott and Corfu (1991) reinterpreted the cycles as litho-tectonic assemblages (new nomenclature) that can be correlated with other similarly dated parts of the Uchi Subprovince. The assemblages span 240 million years (Rogers et al, 1999), and have been affected by at least two phases of deformation.

A major deformation probably folded the Confederation Lake assemblage into a tight syncline.

However, younging criteria available to field workers are not easily determined, thus making regional time correlations difficult at the property scale.

CML's property is believed to be located within the Cycle III (Agnew Belt) of the Confederation Lake assemblage. This sequence hosts a number of significant economic and sub-economic Cu-Zn base metal deposits and prospects (figure 4, 5). Most of these are VMS-type deposits with Cu-Zn massive sulphide mineralization localized along stratigraphic "time breaks" with intensely altered footwall and unaltered hanging wall stratigraphy. In many cases, these are the only features that can help to determine the "way-up" of the sequence.



Local Geology

figure 5

#### **Ultramafic and Mafic Metavolcanics**

Mafic and ultramafic metavolcanic rocks are dark grey-green in colour and are often marked by dark amphibole phenocrysts and chlorite blebs. They occur at the stratigraphic base of each of the assemblages according to Stott & Corfu (1991).

The ultramafics are comprised of carbonate, talc, magnetite and chlorite, whereas the mafic metavolcanics are comprised of amphibole, plagioclase, carbonate, quartz, chlorite, sericite, epidote, biotite and varying amounts of sulphides. The mafics may also contain varioles which are typically light-grey with a blue-grey core and consist largely of quartz and albite. (Gelinas *et al.* 1976).

#### Metagabbro

Metagabbroic rocks are found throughout the area. They display an igneous texture comprised of random amphibole, clinozoisite, plagioclase, clinopyroxene, carbonate, chlorite, quartz, and minor sulphide minerals. Outcrops appear greenish-black and have a "spotty" massive texture consisting of mafic and felsic minerals. The opaques may consist of varying amounts of ilmenite, sphene, pyrite, leucoxene, chalcopyrite, sphalerite and pyrrhotite.

#### **Intermediate Metavolcanics**

The intermediate igneous rocks are generally light grey to light olive-green and contain both dark-grey and light-green phenocrysts and lapilli. In outcrop, the lapilli, phenocrysts and amygdules are oriented along the dominant regional foliation fabric. Sericite and minor chlorite define a pervasive mineral schistosity, which overprints both phenocrysts and groundmass.

#### **Felsic Metavolcanics**

The felsic metavolcanics and pyroclastics consist mainly of quartz, plagioclase (feldspars), sericite, epidote, carbonate, muscovite and opaques. In outcrop they may appear blue-grey and layered.

#### Metasediments

No metasediments are believed to be found on surface. Other workers report a 100 meter thick unit of mylonitic stromatolitic marble (Hofmann *et al.* 1985, van Staal 1998, Rogers *et al* 1999) and another outcrop of a metasediments along the Woman Narrows well to the west of the property. The marble unit mainly contains carbonate, quartz, and minor mica. Bedding can produce alternating dark-grey and white to light-grey layers. The lighter layers consist of coarse-grained carbonate and areas of quartz aggregates, while the darker layers are composed of an altered fine-grained granoblastic carbonate.

#### **Property Geology and Mineralization**

In the 2005-2006 Recommendations for Mineral Exploration—Ontario, Andreas Lichtblau, Regional Resident Geologist, Red Lake-Kenora and Carmen Storey, District Geologist, Red Lake reported "*FII-type and FIII-type rhyolites* occur throughout a 100 km band extending east from Red Lake to the past-producing South Bay Mine (1.6 million tons grading 11.06% Zn, 1.8% Cu and 2.12 ounces Ag per ton). World-class deposits, such as the Mattabi and Geco, are

associated with FII-type rhyolite; the Kidd Creek deposit is associated with FIII-type rhyolite. A heightened awareness now exists in the Red Lake District of the potential of discovery of a major base metal sulphide deposit. In particular, the area mentioned, between Red Lake and South Bay Mine, is of prime exploration potential, but the other areas of Confederation assemblage rocks also deserve attention to locate FII- or FIII-type rhyolites for possible VMS-type mineralization."

The Confederation assemblage volcanics consist of interbedded felsic to intermediate volcanic flows and pyroclastics with minor basalt flows and interflow sediments. The significant VMS related mineralization reported by previous workers would appear to be largely hosted by altered felsic to intermediate pyroclastics exhibiting chlorite-biotite-garnet-anthophyllite footwall alteration mineral assemblages. Litho-geochemical sampling of altered volcanics in the area have confirmed the classic VMS signature of pervasive, semi-conformable, hydrothermal alteration with Na-depletion and Mg-enrichment. Locally, on adjacent properties, Noranda has previously reported several crosscutting, base-metal enriched hydrothermal alteration cells, which may represent "alteration pipes".

The most predominant iron sulphide reported by previous workers in the area is pyrrhotite rather than pyrite. Pyrite might be expected to be the more typical in similar Archean belts elsewhere in the region.

The past producing South Bay Zn-Cu VMS mine is hosted in high-silica rhyolites of Cycle III volcanism in the host volcanic complex (Thurston, 1980; Thurston and Fryer, 1983). The orebody occurs as irregularly shaped, stacked, massive sulfide lenses on top of an endogenous quartz-feldspar porphyry dome. (Stott and Corfu, 1991). The faulted rhyolite block that hosts the deposit has been described by some workers as a possible colapsed caldera-like structure (Thurston et al., 1978). Trace element and REE geochemistry of these high-silica rhyolites is comparable with the geochemistry of other Archean felsic volcanic rocks hosting VMS deposits in the Superior province and plot in the "within-plate" volcanic zone. (Thurston and Chivers, 1990; Stott and Corfu, 1991).

Older volcanic rocks in the area (e.g.,  $2840 \pm 10$  Ma Narrow Lake felsic volcanic rocks) plot in the field of active continental margin and have high Th/Ta ratios typical of arc-related settings. This is consistent with earlier interpretations that parts of the Uchi subprovince developed on the margin of a protocontinent (Thurston and Chivers, 1990; Stott and Corfu, 1991).

#### **Deposit Types and Geological Model**

There are two main mineral targets known on the property; gold and VMS-style base metals. Ontario Geological Survey personnel have generated mineral potential models oriented towards the geological environment found in Ontario. These mineral deposit models are mainly intended for use in mineral potential evaluations to classify the mineral deposits within a given area and assist in identifying which deposit types have the potential to occur in a given area. The following is based on these Ontario specific models.

#### Gold in Quartz veins

This type may also be known as Mother Lode veins, greenstone gold, Archean lode gold, mesothermal gold-quartz veins, shear-hosted lode gold, low-sulphide gold-quartz veins, or just lode gold.

Archean-aged examples are: Hollinger, Dome, McIntyre and Pamour, Timmins camp; Lake Shore, Kirkland Lake camp; Campbell, Madsen, Red Lake camp; Kerr-Addison, Larder Lake camp (Ontario, Canada); Lamaque and Sigma, Val d'Or camp (Quebec, Canada); Granny Smith, Kalgoorlie and Golden Mile (Western Australia); Kolar (Karnataka, India) and Blanket-Vubachikwe (Zimbabwe, Africa).

Gold-bearing quartz veins and veinlets, with minor sulphides, are typically localized along major regional faults and related splays are hosted in granite-greenstone belts - mafic, ultramafic (komaitiitic) and felsic volcanics, intermediate and felsic intrusive rocks, and greywacke and shale. Wallrock alteration includes elevated silica, pyrite or arsenopyrite, and sericite or muscovite within a broader carbonate alteration halo. The veins usually have sharp contacts with wallrocks and exhibit a variety of textures, including massive, ribboned or banded, and stockworks with anastamosing gashes and dilations.

The Deposits form tabular fissure veins in more competent host lithologies, or veinlets and stringer stockworks in less competent lithologies. A system of en-echelon veins with lower grade bulk-tonnage styles often develop marginal to the veins.

Ore mineralogy can include native gold, pyrite, arsenopyrite, galena, sphalerite, chalcopyrite, pyrrhotite, telluride, scheelite, bismuth, cosalite, tetrahedrite, stibnite, molybdenite, gersdorffite, bismuthimite, or tetradymite. Gangue mineralogy can include quartz, carbonates (ferroan-dolomite, ankerite ferroan-magnesite, calcite, siderite), albite, mariposite (fuchsite), sericite, muscovite, chlorite, tourmaline, or graphite.

Alteration mineralogy is typically silicification, pyritization and potassium metasomatism within a metre adjacent to veins. Broader zones of carbonate alteration, with or without ferroan dolomite veinlets, extend up to tens of metres from the veins.

The exploration geochemical suite includes elevated values of Au, Ag, As, Sb, K, Li, Bi, W, Te and  $B \pm (Cd, Cu, Pb, Zn \text{ and } Hg)$  in rock and soil, Au in stream sediments.

A magnetic geophysical response might show faults as indicated by linear magnetic features. Associated target areas of alteration, however, would likely be indicated by negative magnetic anomalies due to destruction of magnetite from carbonate alteration.

These deposits are a major source of the world's gold production and account for approximately one quarter of Canada's output. They are the most prolific gold source after the ores of the Witwatersrand basin.

#### **Gold in Iron Formation**

Also known as mesothermal veins, examples are: Lupin and Cullaton Lake B-Zone (Northwest Territories, Canada), Detour Lake, Madsen Red Lake, Pickle Crow, Musselwhite, Dona Lake, (Ontario, Canada), Homestake (South Dakota, USA), Mt. Morgans (Western Australia); Morro Vehlo and Raposos, Mineas Gerais (Brazil); Vubachikwe and Bar 20 (Zimbabwe); Mallappakoda, Kolar District (India).

Gold occurs in crosscutting quartz veins and veinlets, or as fine disseminations associated with pyrite, pyrrhotite and arsenopyrite, hosted in iron-formations and adjacent rocks within volcanic or sedimentary sequences. The iron-formations may vary between carbonate-oxide iron-formation and arsenical sulphide-silicate iron-formation.

These units are believed to form in ancient volcanic arcs and in adjacent submarine troughs. The sequences range from clastic, turbidite-sedimentary environments to distal mafic (and komatiitic) environments with associated felsic tuffaceous and intrusive porphyries.

Deposits are mainly located within various facies of Algoma-type iron-formation and cherts, but the veins may extend into adjacent units. These variolitic, tholeiitic and komatiitic volcanic and clastic- rocks are metamorphic from lowest greenschist to upper amphibolite facies. Rarely are silicate-facies iron-formations found to be gold-bearing.

Gold is found in and near crosscutting structures, such as quartz veins, or stratiform zones within chemical sedimentary rocks. Host strata have generally been folded and deformed to varying degrees, consequently the deposits may have developed in axial plane cleavage area or be thickened and remobilized in fold hinges. Gold mineralization is finely disseminated in sulphide minerals in the stratiform deposits and occurs as native free gold or in sulphides in crosscutting quartz veins.

Ore suites might include native gold (VG), pyrite, arsenopyrite, magnetite, pyrrhotite, chalcopyrite, sphalerite, galena, stibnite, and rarely gold tellurides, while gangue might include vein quartz, chert, carbonates (calcite, dolomite or ankerite), graphite, grunerite, stilpnomelane, tourmaline and feldspar (albite).

The deposits of lower metamorphic rank might display carbonatization (generally ankeritic or ferroan dolomite) with sulphidization (pyritization, arsenopyritization and pyrrhotitization) common in wallrocks adjacent to crosscutting quartz veins. Most deposits occur adjacent to prominent regional structural and stratigraphic "breaks" with mineralization often related to local structures. Contacts between ultramafic (commonly komatiitic) rocks and tholeiitic basalts or sedimentary rocks are important target zones. Facies changes within geologically favourable units are also important focus mechanisms for ore deposition.

A popular model for iron formation-hosted gold suggests that mineralization forms by metamorphic focusing due to large scale deformation, or deep magmatic hydrothermal fluids entering a chemically and structurally (brittle- ductile transition zone) favourable environment, late in the orogenic cycle.

A second model is based on a syngenetic origin within active submarine exhalative systems, and

an association with chemical sedimentary units. Replacement features are explained as being normal diagenetic features and contact areas between sulphide-rich ore and carbonate wallrock facies boundaries.

These deposits have a geochemical signature where Si, Fe, S, As, B, Mg, Ca, Au and Ag generally show a strong enrichment, while Cu, Zn, Cd, Pb and Mn generally show a moderate enrichment.

Airborne and ground electromagnetic and magnetic surveys, and induced polarization surveys, can be useful to detect the high sulphide and magnetite content of many deposits.

Iron-formation hosted gold deposits, such as Lupin, rank as world class and remain attractive exploration targets. The Homestake mine has produced approximately 300Tons of gold since starting production in 1876.

#### **Gold Exploration Model**

Iron formation hosted gold mineralization is known in both the Red Lake and Birch-Uchi greenstone belts. The McFinley Mine in Red Lake and the Newman-Heyson property, with up to 0.53 ounces gold over 2.9m, are located within chert-magnetite iron formations. In addition, numerous gold-bearing, sulphidized chert-magnetite iron formations occur in the north-eastern part of the Birch-Uchi belt.

Areas of high iron-carbonate alteration and veining, with intense potassic metasomatism are prime areas for gold emplacement.

Recent publications (Dubé et al., 2001) have stated the importance of carbonate veining, potassic metasomatism and polyphase deformation in the genesis of highly auriferous, silicic replacement orebodies at the High Grade Zone of the Red Lake Mine. This model is also being applied to areas within the Birch-Uchi and Confederation greenstone belts. (example Gold Canyon's Springpole Lake deposit)

### Massive Sulphide Deposit Types (A2-5)

Base-metal massive sulphide deposits are hosted by various volcanic and/or sedimentary rock types. These have been divided into volcanic-associated (VMS), Cyprus-type, Besshi-type and sedimentary exhalite (Sedex) deposit types, based upon differences in the host rock types, depositional environments, tectonic settings and some deposit characteristics. They also share many aspects in common and may represent a spectrum of deposit types from VMS to Cyprus-type to Besshi-type to Sedex, from volcanic-dominated to sedimentary-dominated host environments.

#### Volcanic-Associated Massive Sulphide A2 (VMS) (Cu-Zn; Zn-Pb-Cu)

Description: Copper-, zinc- and lead-bearing, stratabound to stratiform lenses of massive sulphide in submarine volcanic rocks of typically intermediate to felsic composition. Noranda-type: Cu-Zn; Mattabi-type: Zn-Cu-(Ag); Kuroko-type: Zn-Pb-Cu.

#### **Geological Environment**

District Scale: Submarine volcanic assemblages of tholeiitic and/or calc-alkalic affinities. Various associations including bimodal mafic-felsic and intermediate-felsic volcanic successions, and komatiite-tholeiite assemblages with felsic volcanic centres. Intermediate to felsic volcanic rocks are the principal hosts. Subvolcanic intrusions of mafic to felsic composition are common and may be essential features. Common occurrence of volcaniclastic and epiclastic sedimentary units in the sequence and thin exhalite horizons.

Deposit Scale: Variable; common rock types may include intermediate to felsic flows; fine to coarse, intermediate to felsic pyroclastic rocks; subvolcanic, equigranular and porphyritic intrusions; subordinate mafic flows and flow breccias; volcanic-derived clastic sedimentary rocks and debris flows; exhalites; and geologic features such as felsic domes.

Archean VMS deposits have been subdivided into two general types:

(1) Noranda-type: Volcanic section includes both mafic-intermediate and felsic rocks, although the mafic to intermediate rocks are more abundant; rock types are dominated by mafic to intermediate pillow lavas, hyaloclastites, massive amygdaloidal flows and flow breccia; felsic rocks occur as lava flows or domes and as hyaloclastites; local bedded volcaniclastic units; exhalites; generally a lack or only a minor amount of primary pyroclastic rocks and subaerial rocks.

(2) Mattabi-type: Volcanic section is dominated by felsic volcanic rocks; abundant fragmental rocks; dominant felsic tuff, massive and bedded pyroclastic flows, hyaloclastite, debris flows, and dome and flow breccia; also mafic to intermediate tuff and flow breccia; pillow lava and breccia may or may not be present; lava domes and welded tuff are commonly present; high amygdule content in flows; presence of both submarine and subaerial volcanic rocks is common.

A common local setting may consist of a quartz-feldspar porphyry dome surrounded and overlain by rhyolitic pyroclastic rocks and/or flows. The pyroclastic rocks may contain essential clasts of only rhyolite or they may be of variable composition, possibly displaying zoning from a rhyolitic base to dacite to andesite at the top of individual units.

Mineralization consists of sulphide lenses located stratigraphically above the dome, but below or stratigraphically equivalent to an overlying, finely-bedded tuff to exhalite horizon. Exhalite units may include chert, carbonate, sulphide and oxide facies iron formation, graphitic argillite, barite and a Mn-enriched horizon. Chert exhalites are usually associated with felsic volcanism. Barite is generally only present in Phanerozoic deposits. Mn-enriched exhalites are usually associated with mafic volcanic-dominated footwall environments.

#### **Host Rock Textures**

Dome units display massive to ghost-like fragments overlain by a breccia carapace of similar material. Felsic flows have massive to autobreccia textures, commonly with interflow units of tuff, breccia or felsic hyaloclastite. Flow breccia displays textures indicative of in-situ steam fracturing. Pyroclastic rock units consist mainly of coarse fragments indicative of a vent to proximal facies environment; poorly graded and bedded; some may represent debris flows shed from syn-volcanic fault scarps. Fragments commonly display altered rims, usually indicative of a hot emplacement. Fragment shapes are generally angular to subangular with rare amoeboid shapes. Exhalite horizons commonly display laminations or fine bedding.

Exhalitive deposition on or beneath the sea floor from high temperature hydrothermal fluids related to the cooling of an evolved magma pile and subvolcanic porphyritic intrusions. Heated seawater is the principal source of the hydrothermal fluids. Fluid flow is controlled by fault/fracture systems. A common general association with submarine calderas. Greenstone belt geological environment in the Superior Province.

#### **Tectonic Setting**

Modern analogues for bimodal mafic-felsic and intermediate-felsic volcanic successions may include rifted island arc and back arc environments, e.g. Sturgeon Lake; and off-axis oceanic rift, back arc or rifted arc settings for komatiite-tholeiite assemblages with felsic volcanic centres, e.g. Kidd Creek.

May be associated with synvolcanic normal faults which may be difficult to identify. The faults may be indicated by abrupt thickness and facies changes in the volcanic units.

#### **Associated Deposit Types**

The VMS deposit type may represent one of a spectrum of massive sulphide deposit types with Cyprus-type, Besshi-type and sedimentary exhalitive-type deposits.

#### **Deposit Description**

Stratabound and typically stratiform massive zone of pyrite - sphalerite - chalcopyrite - pyrrhotite +/- galena +/- bomite +/- barite +/- magnetite +/- sulphosalts +/- cassiterite. An underlying, discordant, subvertical, stringer-stockwork zone composed mainly of chalcopyrite, pyrite, pyrhotite +/- magnetite. Concentric zonation of minerals upwards from the stringer zone from Cu-rich to Zn+Pb-rich.

Stratabound sulphides are generally fine-grained if not highly metamorphosed; massive, rubbly, brecciated, layered or laminated, slumped or re-deposited. The underlying discordant zone occurs as stockwork, stringers, disseminations or sulphide-silicate breccia.

Footwall alteration occurs in two forms:

(1) subvertical, discordant, pipe-like alteration mineralogy beneath the deposits may include silica, chlorite, sericite, siderite, chloritoid and clay. Occurs on a local scale; on the order of tens to hundreds of metres. Alteration zonation; Noranda-type: silica (centre) to Mg-chlorite to sericite; Kuroko-type: silica to sericite to chlorite. Mattabi-type:siderite+/-ankerite, Fe-chlorite, +/- andalusite, quartz and sericite; a subtle zonation is present as a compositional change in the carbonate mineralogy.

(2) widespread, semiconcordant alteration which may occur on the scale of kilometres beneath and lateral to the deposits;

Mattabi-type: 2 varieties

- (a) sericite-quartz-calcite or dolomite; or
- (b) iron-rich chlorite, iron-bearing carbonate and chloritoid.

Noranda-type:

(a) silicification and spilitization (epidote + quartz +/- albite, tremolite-actinolite and Mg-chlorite).

In high grade metamorphic rocks many of the minerals in (1) and (2) will be replaced by cordierite, anthophyllite, biotite, sericite, talc, kyanite, garnet, staurolite, andalusite, sillimanite, and gahnite.

#### **Geological Ore Controls**\**Guides**

Mineralization commonly occurs near, or at the top of, volcanic or volcano-sedimentary sequences; usually near the centre of intermediate to felsic volcanism, sometimes in systems marked by resurgent volcanism - calderas; favourable stratigraphic horizons; clustering of deposits; synvolcanic fault/fracture zones; proximal (up to kms away) to subvolcanic intrusions; pyritic, siliceous exhalites may mark the mineralized units; sulphide clasts and matrix in the volcanic breccias ("mill rock") proximal to some deposits; and the transport of deposits may occur laterally for distances of hundreds of metres to a few km.

#### **Geochemical Signature**

Weathering may produce pyritic, or pyrrhotitic gossans with anomalous base metals and Au and Ag values.

Regional Scale: rhyolites having high abundances of rare earth elements (REE) and high field strength (HFS) elements, yielding relatively flat, chondrite-normalized REE profiles with pronounced negative Eu anomalies (FIII rhyolites); related icelandites (andesites with > 16.5% A1<sub>2</sub>O<sub>3</sub> and high P<sub>2</sub>O<sub>5</sub>). VMS deposits can also be associated with FII rhyolites which display some enrichment in light REEs and a weak or no negative Eu anomaly. In some cases the FII and FIII units are intercalated.

Local Scale: metres to several hundreds of metres - generally an enrichment in MgO, FeO,  $CO_2$  and Zn; depletion in Na<sub>2</sub>O; and variable K<sub>2</sub>O.

Noranda-type pipe-like alteration: +Mg, +Fe, +K, -Na, -Si, -Mn, and -Ca; Si-rich core. Mattabi-type pipe-like alteration: +Fe, +C02, +K, +Al, +Mn, -Ca, -Na, -Si and -Mg. Noranda-type semiconcordant alteration: +Na, +Ca, +Si, -Fe, -Mg, and -Mn. Mattabi-type semiconcordant alteration: +Fe, +CO<sub>2</sub>, +K, +Mn, -Na, -Ca, -Mg, and -Si.

#### **Geophysical Signature**

Massive sulphides should produce an airborne and ground electromagnetic (EM) anomaly; although some do not (e.g. Winston Lake), especially the sphalerite-rich deposits. Magnetite and pyrrhotite in some deposits would produce an airborne and ground magnetic (mag) anomaly.

Ground gravity and induced polarization (IP) surveys may respectively, locate massive and disseminated sulphides. They may also be useful in locating sphalerite-pyrite bodies. Offsets in magnetic patterns, linear EM anomalies, and linear resistivity lows may mark synvolcanic faults.

#### Examples

Horne Mine, Quebec; Kidd Creek Mine, Ontario; Geco Mine, Ontario; Bathurst 12 Mine, New Brunswick; Mattabi Mine, Ontario; Montauban Mine and New Calumet deposit, Grenville Province, Quebec; and Buchans Mine, Newfoundland.

#### **Exploration Vectoring**

#### A. Regional Vectoring (scale of kilometres)

#### 1. Geological Criteria

Greenstone belts; volcanic terranes; Calc-alkalic and/or tholeiitic volcanic assemblages; Submarine bimodal mafic-felsic or intermediate-felsic volcanic sequences; or komatiite-tholeiite volcanic sequences with isolated felsic centres; Intermediate to felsic volcanic +/- sedimentary host sequence; Regional association with intermediate to felsic volcanic calderas; localized volcanic centres; especially marked by coarse pyroclastic breccia, domes and flows; Noranda-type: flow-dominated environment; Mattabi-type: pyroclastic-dominated environment; Regional "synvolcanic" faults, intersections, and lineaments; Favourable stratigraphic horizon; clustering of deposits; generally at the break between two sequences; Subvolcanic intrusions; mafic to felsic; especially quartz-feldspar porphyry; Regional semiconcordant alteration mineralogy (refer above).

#### 2. Geochemical Criteria

Lithogeochemical anomalies associated with the semiconcordant alteration (refer above); FIII rhyolites and related icelandites;

FII rhyolites (refer above).

#### 3. Geophysical Criteria

Airborne electromagnetic +/- magnetic anomaly; preferably coincident and isolated for sulphide deposits (may not always occur);

Airborne EM and mag to detect associated synvolcanic faults (Geophysical Signature).

#### B. Local Vectoring (scale of tens to hundreds of metres, additional to above)

#### **1.Geological Criteria**

Intermediate to felsic volcanic host sequence;

- Volcanic centres - characterized by intermediate to felsic coarse pyroclastics and/or flows; domes; and subvolcanic intrusions;

- Associated rocks may include mafic to intermediate flows and pyroclastics, and volcanicderived, clastic sedimentary rocks and debris flows;

Exhalite(s) - marks a break in the stratigraphic sequence; period of quiescence (refer above);

Subvertical alteration pipe - alteration mineralogy (refer above); zonations;

"Mill rock" - coarse pyroclastic breccia with some sulphide clasts and sulphide in the matrix.

#### 2.Geochemical Criteria

Lithogeochemical anomalies associated with the alteration pipe; may include enrichment in MgO, FeO,  $CO_2$  and Zn; depletion in Na<sub>2</sub>O; and variable K<sub>2</sub>O (refer above); Geochemical (Cu, Zn, Pb, Au, Ag) anomaly in the exhalites; Cu +/- Zn +/- Pb rock, soil and stream sediment anomalies.

#### **3.Geophysical Criteria**

Ground and/or borehole geophysical anomalies - EM, mag, IP, and gravity; preferably coincident; to detect the sulphide deposits (refer above to Geophysical Signature); Ground mag, EM and resistivity surveys to detect synvolcanic faults (refer above).

#### **Mineralization**

The author had the opportunity to conduct a property visit June 13, 2006 with Jerrold Williamson, a local prospector from Ear Falls. The majority of the time was spent on the Belanger Group portion of the Property, which is located immediately north of, and adjacent to, the Tribute Minerals Garnet Lake, Arrow Deposit. This is the only area where any significant work has been done on the property since Minnova et al.

Access to the Belanger Property is easily achieved by driving from Ear Falls along the Ear Falls – South Bay all-weather gravel logging road to the trail used by Tribute to access their main Garnet Lake drill camp. This latter trail requires a high clearance vehicle, preferably with 4-wheel drive.

Although the Property has been mainly explored for base metals in the past, prospector Jerrold Williamson has most recently concentrated his efforts on discovering new gold occurrences. The few outcrops of gossanous "pods" sampled by the author returned up to 1% Cu, while the narrow gold-bearing quartz vein outcrop returned up to 0.4 opt Au.

The Belanger Group appears to be underlain by a north-easterly trending sequence of felsic flows and tuffs which have been intruded by mafic and felsic intrusive rocks. A prominent zone of shearing hosts individually named gossanous "pods" A-E. These were visited and sampled on a preliminary basis only.

- "C" Zone: sample 332901, cpy + py in a shear contact between a feldspar porphyritic Mafic Volcanics and Rhyolite, UTM 513142E, 5651332N
- "D" Zone: sample 332902, heavy oxide gossan with cpy + po + py, 0.5% Cu/30' reported previously, UTM 513355E, 5651476N
- "D" Zone: sample 332903, along strike from above, similar, UTM 513367E, 5651480N
- "E" Zone: sample 332904, gold-bearing (reported) Quartz Vein cutting Intermediate to Felsic Volcanics, UTM 513569E, 5651610N Intersecting shears produced quartz rolls/rods at the "E" Zone striking 230°/-70° with plunge attitudes of 10°/-50°

In addition, the author visited a base metal showing in trenches close to the South Bay road and further to the north-east on the Property. Mr. Williamson reported that he believed Noranda had blasted these pits 15-20 years ago while exploring for zinc.

VMS showing: sample 332905, massive gossan with 10% po + minor sph + cpy, UTM 519898E, 5656270N

Lab results:

sample	Au PPB	Ag PPM	Cu PPM	Zn PPM	Comment
332901	533	26	11,138	279	1.1% Cu
332902	266	3	6,412	50	0.6% Cu
332903	363	7	10,026	93	1.0% Cu
332904	13,677	2	481	62	0.4 opt Au
332905	5	2	1,206	219	0.1% Cu

None of the results reported appear to represent a grade, strike or width potential to warrant additional work at this time.

#### Sample Preparation, Assaying and Analytical Procedures

Only 5 rock samples were collected by the author during the property visit. These samples are of the "grab" type and are generally representative of the particular vein or gossan visited.

The samples were collected, held secure, and delivered to a bonded Carrier by the author for direct transport to Accurassay Labs in Thunder Bay. At no time did an employee, officer, director, or associate of the Company, nor member of the general public, handle the samples.

The rock samples were received by Accurassay Labs in Thunder Bay and entered into their Local Information System (LIMS). The samples are dried, if necessary, and then jaw crushed to -8 mesh, riffle split, a 250 to 400 gram cut is taken and pulverized to 90% -150 mesh, and then matted to ensure homogeneity. Silica sand is used to clean out the pulverizing dishes between each sample to prevent cross contamination.

The homogeneous sample is then fired in the fire assay lab. The sample is mixed with a lead based flux and fused for an appropriate length of time. The fusing process results is a lead button, which is then placed in a cupelling furnace where all of the lead is absorbed by the cupel and a silver bead, which contains any gold, platinum and palladium, is left in the cupel. The cupel is removed from the furnace and allowed to cool. Once the cupel has cooled sufficiently, the silver bead is placed in an appropriately labeled small test tube and digested using a 1:3 ration of nitric acid to hydrochloric acid. The samples are bulked up with 1.0 mls of distilled deionized water and 1.0 mls of 1% digested lanthanum solution. The total volume is 3.0 mls. The samples cool and are vortexed. The contents are allowed to settle. Once the samples have settled they are analyzed for gold, and platinum and palladium if requested, using atomic absorption spectroscopy. The atomic absorption spectroscopy unit is calibrated for each element using the appropriate ISO 9002 certified standards in an air-acetylene flame. The results for the atomic absorption are checked by the technician and then forwarded to data entry by means of electronic transfer and a certificate is produced.

Base metal samples are prepped in the same way as precious metals but are digested using a multi acid digest (HNO3, HF, HCl). The samples are bulked up with 2.0 mls of hydrochloric acid and brought to a final volume of 10.0 mls with distilled deionized water. The samples are vortexed and allowed to settle. Once the samples have settled they are analyzed for copper, nickel and cobalt using atomic absorption spectroscopy.

The Laboratory Manager checks the data and validates it if it is error free. The results are then forwarded to the client by email with a hardcopy by mail. This method may be altered according to the client's demands. All changes in the method will be discussed with the client and approved by the laboratory manager.

### **Quality Control**

Accurassay Laboratories employs an internal quality control system that tracks certified reference materials and in-house quality assurance standards. Accurassay Laboratories uses a combination of reference materials, including reference materials purchased from CANMET, standards created in-house by the laboratory, and certified calibration standards. Should any of the standards not fall within an acceptable range, reassays will be performed with a new certified reference material. The number of reassays depends on how far the certified reference material falls outside it's acceptable range.

Additionally, Accurassay Laboratories verifies the accuracy of any measuring or dispensing device (i.e scales, dispensers, pipettes, etc.) on a daily basis and makes corrections as required.

The author is of the opinion that there was an adequacy of sample preparation, security and analytical procedures for these few samples.

### **Exploration**

The author was commissioned to carry out an orientation MMI soil surveys to address the immediate Assessment requirements for some claims on the Property. The results of the preliminary survey confirmed the presence of a VMS style Zn-Cd-Cu anomaly south of, and generally on strike with, the postulated South Bay Mine trend. Although these results are considered preliminary in nature, the anomalies are of sufficient magnitude to warrant drilling.

CML's management are highly experienced explorationists and have indicated that they intend to contract such additional exploration oriented surveys and investigations as are appropriate once they have considered the recommendations of this technical report and any other guidance they may receive.

#### MMI Soil Geochemistry Orientation Surveys

The author conducted an on-site preliminary geochemistry field investigation on August 6, 2006. Devon Corporation's MMI crews subsequently conducted the first Orientation Grid during the period August 10-22, 2006. This grid investigated possible eastward extensions to the Tribute – Garnet Lake VMS discovery in the vicinity of Horseshoe Lake. Operating from a base-camp at Canada North Lodge, geochemistry sample sites were located along newly line-cut and picketed lines at 25 meter sample spacings along 200 meter separated lines.

The MMI crews returned again during May 16-31, 2007 to conduct a second Orientation Grid to investigate possible southward extensions to the South Bay VMS Mine trend. Operating from a Motel in Ear Falls, geochemistry sample sites were again located along newly line-cut and picketed lines at 25 meter sample spacings along 200 meter separated lines.

The author has in excess of 20 years experience conducting exploration for base and precious metals in the area and has received direct training in MMI sampling and interpretation procedures. In addition, the author assisted in the development of a module specific to the interpretation and presentation of MMI results in Visidata's "Interdex" geological software, which was used for this report. As such, the author is also a Qualified Person (QP) for the purpose of conducting MMI soil geochemical surveys as defined by NI 43-101.

#### Sample Preparation, Assaying and Analytical Procedures

Of the 834 sites investigated on both grids, 739 MMI geochem soil samples were collected. 58 sites were rock and 37 were swamp/bog and therefore not suitable for MMI sampling. Observations of soil quality, colour and moisture content were recorded by the crews at each sample site. MMI soil samples were taken at 25 meter intervals along 200 meter spaced cut and picketted lines perpendicular to the interpreted package of favourable sratigraphy striking through the Confederation Lake Property.

**Soil Analysis:** The application of MMI geochemical methods to exploration is significantly different to that used in historic, conventional soil surveys. The process removes small amounts of metal ions from the exterior of soil particles whilst leaving the substrate unaffected. The very

loosely-attached ions are therefore sourced from in-situ target mineralization and not from other background transported (exotic) or lithological sources of metals. Metal concentration levels are significantly lower than 'total digestions' methods, but the signal-to-noise ratios are significantly enhanced, resulting in a sharper anomaly contrast to background.

Before taking the soil sample material, equipment is brushed to eliminate residue from previous samples and preferably flushed with the soil from the new sample site. During sample collection and handling, no jewellery (watches, rings, bracelets, and chains) should be worn, as this can be a major source of contamination.

Taking an MMI soil sample requires the surface soil layer to be scraped away, eliminating loose organic matter, debris, and any possible contamination. In cases where there is an extensive organic horizon (O or Ao) at the surface, the sample is generally taken 5 to 20cm below the lower interface. An orientation survey designed to test the optimum depth below the organic layer is recommended in most areas. In this survey, it was determined that the ideal depth of sample was usually between 10-15cm below the lower interface. It must be stressed that each site is geochemically unique with regards to the ideal sample depth, and no particular depth is iniversal.

A 250-400 gram sample was collected and stored in a plastic bag (a 90 x 150-mm plastic ZIPLOC). Once sealed in the Ziploc plastic bags, samples were placed in polyweave sample dispatch bags (maximum 40 per bag). Stored in this manner, samples can be transported during summer without problems and be stored for long periods. For QC/QA purposes, all samples from the survey were submitted to the lab as a single batch.

The samples are believed to be representative of the mediums analysed and the quality is believed to be suitable for inclusion in this report.

#### Sample Collection, Security and Analysis

Soil samples, each weighing between 250 and 400 grams, were collected at 25 meter spaced stations on picketed and cut lines approximately 200 meters apart. The grid is further located by GPS NAD83, Zone 15 and presented against the local Mining Lands Claim Base Map. The material collected for MMI analysis comprised dry to damp, sandy to pebbly soil representing a primary derivative of till or glacial outwash clays. Samples were generally collected from a depth of between 10 and 15 cm beneath the humus layer. In areas where shallow overburden (<10 cm) was observed, samples were collected from the maximum depth obtainable. In some instances samples were collected from a depth of only 2-5 cm due to shallow overburden.

Samples were taken using a stiff vinyl trowel after the initial sample pit was dug with a clean shovel devoid of paint or rust. Samples were bagged on site, without preparation, except for the occasional removal of rock fragments greater than 2 mm in diameter, and shipped to SGS Laboratories, Toronto, Ont.

The new MMI-M suite was used for the purpose of this orientation survey. MMI-M is a single multi-element leach that now provides an option to measure the concentration of a broad selection of mobile elements in soils.

While some element detection limits are slightly higher than those quoted for the original "expert element suites", this new leach, like its predecessors, still detaches and holds mobile ions in the extractant solution prior to analysis.

This M suite will analyse for Cu, Pb, Zn, Cd, Au, Ag, Ni, Co, Pd, U (Commodity Group) Cr, Nb, Rb, Y, + Rare Earth elements (Diamond Group) Ti, Zr, Ca, Mg, Sr, Al, Sc, Th, Li, Fe (Lithological Group) As, Sb, Bi, Tl, W, Sn, Mo, Te, Se, Sb (Pathfinder Group) Of particular interest is the potential to map VMS alteration multi element associations.

Analytical finish is by inductively coupled plasma-mass spectrometry (ICP-MS). Internal analytical lab duplicates were also utilized by SGS to monitor reproducibility.

All samples were taken and "bagged" according to "Best Practice" security procedures. Sample shipping bags were sealed and delivered to Gardewine bonded transport company, for shipment to the SGS Lab in Toronto. The author believes that the security measures taken to ensure the validity and integrity of samples taken are to the highest industry standards.

SGS Labs in Toronto are directly licensed by the owners of the proprietary MMI analytical method to offer analysis and are certified by the appropriate standards association for their procedures.

SGS prepared their own quality control measures and employed check assay soil duplicates and other check analytical and testing procedures according to their respective ISO standards. The results of the check soil duplicates were imbedded in the analysis reports provided by SGS. No corrective actions were deemed by SGS, or the author, to be necessary.

The author is, therefore, of the opinion that the sampling, sample preparation, security and analytical procedures are of the highest quality and adequacy.

#### **Data Treatment and Presentation**

Analytical data from the MMI surveys were examined statistically. Data less than the lower detection limit (LDL) were replaced with a value ½ of the LDL for statistical calculations and graphical representation. Anomalous data populations were determined using the Interdex software program probability plot analysis. Response ratios for anomalous populations were then calculated from background threshold of noise, generally determined by using the 25th percentile.

Response ratios will also serve to compare MMI data collected from different grids, areas and environments from year to year. Cumulative frequencies, data ranges, standard deviations and response ratios were also checked manually.

#### Method and Interpretation of Anomalous Values

Multivariate statistical and graphical techniques were used to interpret the MMI data from the Property. Response ratios were examined for anomalous "highs" or groups of elevated responses for single and/or coincident elements. This orientation survey will set some base line responses for VMS-style alteration and mineralization on the Property. Typically, the target Zn zone should have coincident Cu, Ag and Cd. (See **Appendix 2** for significantly anomalous transect lines)

**Figure 6** below shows the application of MMI response ratios to a survey line with presentation using a transect of normalized stacked bars. Line 3 (L3) is the first line across the interpreted favourable South Bay Mine trend at the northern Property boundary. A sharp, 175 meter wide, high-magnitude Zn anomaly with coincident high Cd, Cu and Ag can be interpreted from this data. A second high-magnitued Zn with Cd anomaly to the east of the main anomaly may represent either a second 25 meter wide zone, or a ghost anomaly caused by a low angle structure intesecting the main anomaly at depth.

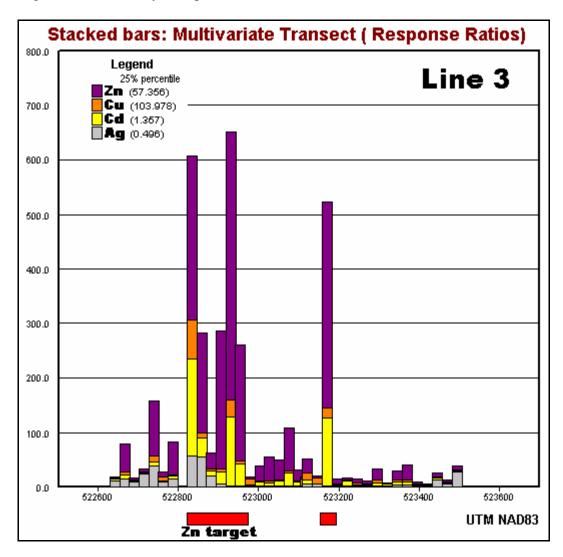
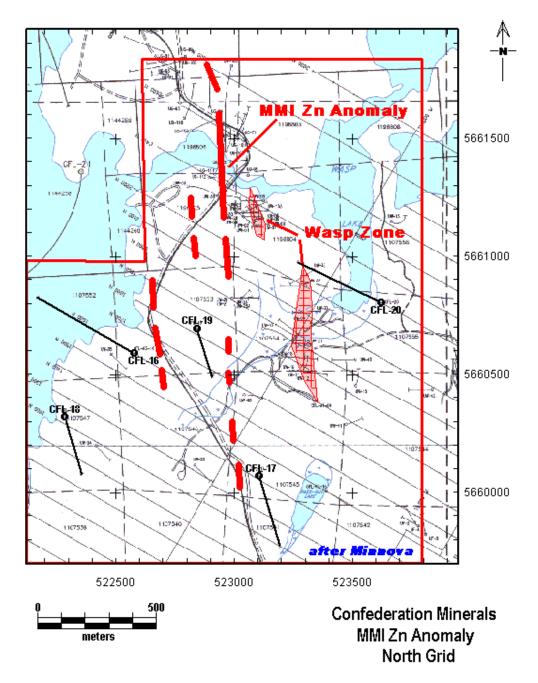


figure 6

The overburden is generally believed to be relatively shallow, less than 10 meters, throughout the survey area. As such, little lateral dispersion of the MMI response is expected. Further ground truthing and modeling is recommended for the first grid to better explain the numerous off-trend, low amplitude anomalies generated by the primary target elements Zn, Cu, Ag, Cd and Au.

However, the second grid (Line 3 above) investigating the potential for southward extensions to the South Bay VMS Mine trend generated a 1.8 km long, very high amplitude Zn-Cu-Ag-Cd anomaly over widths approaching 150 meters. This anomaly, interpreted from several transects similar to **figure 6** above, is presented on plan **figure 7** below.



Previous workers believed that the Wasp Zone, **figure 7**, was possibly a southern extension to the South Bay Mine trend. Historical records report drill intersections in the Wasp Zone up to 2% Zn over 19 meters. These results cannot be verified, and as such cannot be relied upon. The MMI Line 5 (**Appendix 2**) was intended to cross this zone, but heavy spring flooding rendered the area unsuitable for sampling.

The interpretation of the MMI data, **figure 7**, would suggest that 200 meters west of the Wasp Zone is a strong north-south Zn anomaly striking from the northern property boundary for approximately 1.8 kms to the south. Although drilling by Inmet in 1995-6 did not directly test the newly interpreted MMI Zn anomalies, CFL-19 was located such that it might intersect a weak portion of the postulated westward dipping anomaly. Inmet reported that CFL-19 intersected VMS-style alteration with Cu-Zn mineralization: "Sulphide stringers are hosted by flow breccia and an overlying sulphide bearing amygdule horizon. The latter hosts pyrite and traces of sphalerite returning a combined value of 0.17% Zn over 30.0 m. A stringer horizon of sphalerite, pyrite, chalcopyrite and quartz returned values of 0.15% Cu, 1.2% Zn, 2.59g/t Au, 22.0g/t Ag over 1.0m."

#### **Drilling**

No drilling has been carried out on behalf of the issuer at this time.

#### **Data Verification**

The public Assessment data reviewed for this report is of a historical nature, and as such quality control measures and data verification procedures do not generally apply.

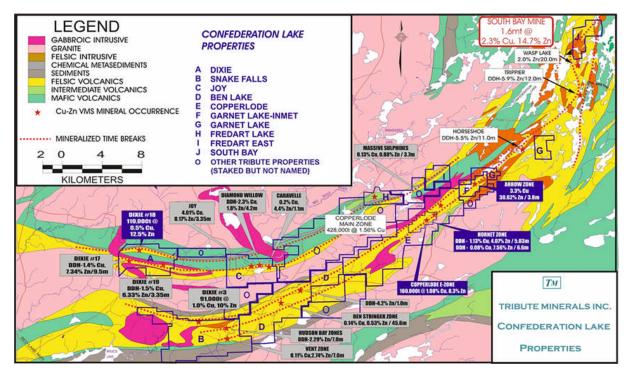
The information compiled in this report has been collected from public Assessment archives and reviewed by the author and his agents. Registered Professional Geoscientists or Qualified Persons did not certify a substantial amount of the work performed by previous workers as defined by NI 43-101 standards. However, in most cases, the historic work was performed and supervised by highly respected industry professionals. None of the findings of this report, nor any recommendations contained herein, rely solely upon the findings of previous workers.

Newly collected analytical data by the author was subject to rigorous quality control measures by the respective labs, and in the case of the MMI soil samples, internal duplicates as well.

#### Adjacent Properties

The following information is relevant to adjacent properties only and has been publicly disclosed by the appropriate property owners or operators. Although **the author has not been able to verify the information, and the information is not necessarily indicative of the mineralization on the CML property**, it is believed that this information could be supportive of the geological model and exploration methodology proposed to CML in this report.

# This section of the report refers to historical mineralization on the adjacent property and not mineralization on the Property being reported on.



Tribute Minerals has recently reported the following through their public domain web-site:



#### Fredart Lake

The Fredart Lake property is underlain by southeast-younging amphibolitized mafic flows, andesitic to dacitic flows and pyroclastics, and an upper sequence of chemical metasediments comprising marbles, iron formation and chert of the Cycle III assemblage. The metasediments appear to be overlain to the south by a later cycle of mafic to felsic metavolcanics. Mineralized horizons occur within highly altered intermediate metavolcanics interbedded with chemical metasediments including iron formation and marble.

As noted elsewhere in the Confederation Lake belt, all of the mineralization has been identified with highly altered footwall sequences with temporal and stratigraphic breaks. Mineralized metavolcanics typically exhibit chlorite-biotite-garnet-anthophyllite footwall alteration. Lithogeochemical alteration including Mg-enrichment, Na-depletion, and base metal enrichment have been defined in the footwall of VMS systems throughout the belt.

Work by Rexdale Mines, Copper-Lode Mines and Phelps Dodge in the 1960s defined several mineralized zones on the Fredart Lake property. Between 1964 and 1970, these operators drilled a total of 88 diamond drill holes totaling 42,230 feet (12,875m) in length (Archibald, 1970). The most significant result of this work was the definition of the Copperlode Main Zone.

#### Copperlode, D-Zone, E-Zone and Hornet Zone

The Copperlode property is underlain by dominantly submarine, arc-related, felsic pyroclastic volcanic rocks of the Confederation sequence (van Stall, 1998) of the Birch-Confederation Lake greenstone belt. The rocks define a NE trending volcanic sequence approximately 850-1000m wide, thickening to the northeast. The sequence has been intruded to the north by a medium grained gabbro to leuco-gabbro and to the south by a re-crystallized medium grained granite. There are three mineralized zones of interest to Tribute on the Copperlode property, the D-Zone, E-Zone and Hornet Zone. Each is discussed below.

The Copperlode Main Zone contains a resource estimated at 425,612 tons (368,200 tonnes) grading 1.56% Cu and 33.6 g/t Ag. This resource was estimated by C.W. Archibald (Archibald, 1970) from 46 drill holes over a strike length of 1,400 feet (425m) to a depth of 400 feet (120m). Archibald's estimates used three different cutoff grades, but the resource figure given above was estimated using a 1.0% Cu cutoff. In the opinion of Tribute's consultants, at the grades given the Copperlode Main Zone is not of economic interest.

Although most of the mineralization discovered to date in the Confederation Lake belt can be classified as VMS-type, Rosenthal (1993) notes that the Copperlode Main Zone (previously known as the Snakeweed deposit) appears to be of a different type. In his opinion, this zone is an unusual porphyry copper-molybdenum deposit developed within the same succession as the more typical VMS deposits of the belt. Whatever its nature, it is the largest single base metal resource defined in the belt other than the South Bay Mine.

The D-Zone is located approximately 350m SE of the B-Zone on L900W at 400S, and has been delineated by diamond drilling for a strike length of 165m, to a depth of 100m. Mineralization is localized within a siliceous rhyolite fragmental, proximal to a quartz feldspar porphyritic rhyolite.

The E-Zone is the most significant sulphide zone defined to date on the property, and has been traced by diamond drilling for a strike length of 300m to a vertical depth of 100m and appears to be plunging to the east. Tonnage estimates by Noranda range up to 300,000 tons (272,200 tonnes) grading 0.60% Cu, 4.36% Zn and 13.7g/t Ag, which includes 160,000 tons (145,200 tonnes) grading 1.02% Cu, 8.28% Zn and 24.0g/t Ag. Mineralization consists of massive to stringer sulphide hosted by a siliceous rhyolite fragmental adjacent to a quartz-feldspar porphyritic ("QFP") rhyolite / sub-volcanic intrusive.

The Hornet Zone is a blind sulphide zone discovered at moderate depths by drilling. The zone is located approximately 250m south of and parallel to the E-Zone, extending from L1000W to

L400W at a vertical depth of 330 to 625m. Mineralization consists of massive to stringer sulphide composed of Po-Sp-Cp, hosted in an intensely altered (chlorite-biotite-garnet-andalusite-staurolite) felsic volcanic unit.

The volcanic rocks possess a well-developed pervasive foliation and locally preserved bedding with vertical to steeply north dips. Observed mineral assemblages define metamorphic grades to lower amphibolite facies. The rocks are strongly re-crystallized, possessing granular, sugary textures, which tend to destroy primary relict volcanic textures, and as a result detailed stratigraphic interpretation of the felsic volcanic sequence is impossible based on outcrop examination alone.

The felsic volcanic stratigraphy is dominated by a coarser pyroclastic blue quartz-eye ("BQE") crystal tuff to lapilli tuff unit which is interbedded to the NE with a thickening wedge of massive to finely laminated siliceous (cherty) ash tuff. Locally, the felsic volcanics have been intruded by sub-volcanic quartz-feldspar porphyries, thin (<50m) amphibolitized diabase dykes (possibly mafic flows) and minor gabbroic dykes and sills.

Well-developed alteration mineral assemblages are observed exclusively in the quartz-eye tuff I lapilli tuff pyroclastic unit which also hosts the known mineralization. Alteration mineral assemblages are visually striking in outcrop and consist of fine, pervasive biotite-muscovite, developing to coarser chlorite-biotite-garnet-andalusite±anthophyllite±staurolite mineral assemblages with increasing alteration.

The mineralization and associated alteration are typical of Archean Cu-Zn VMS deposits similar to the Mattabi-type VMS deposits occurring in the Sturgeon Lake Mining Camp, and the observed alteration assemblages on the Copperlode property were interpreted by Noranda to represent a metamorphic overprint of earlier syn-volcanic hydrothermal alteration related to a VMS hydrothermal system. At least two major hydrothermal "cells", occurring as semiconformable alteration zones, were defined extending along strike for a distance of in excess of 10km over widths ranging from 100 to >400m. The two alteration cells were referred to by Noranda as the North and South cells, of which only the South cell has been found to be directly associated with significant massive sulphide mineralization to date.

Apparent footwall alteration geometry suggests variable stratigraphic topping directions. As at Dixie, however, the lack of good stratigraphic marker horizons does not allow for a conclusive interpretation. Field mapping by Noranda and previous operators has also failed to identify primary volcanic features indicative of a well-defined topping direction.

#### Garnet Lake

The property hosts a significant new base metal discovery made by Noranda, the Arrow Zone. This zone occurs between 300 to 550m vertical depths at the contact of a QFP syn-volcanic intrusive and a cherty ash tuff. Mineralization is associated with a laterally extensive DeepEM conductivity trend with coincident locally elevated magnetics, has been traced for approximately 1.4 km of strike length and plunges shallowly to the west. Mineralization is cut off at depth by the QFP, but remains open to the west. The zone occurs along a prospective stratigraphic contact

characterized by a DeepEM conductivity totaling 4km in length.

Felsic volcanic flows and pyroclastics of Cycle III of the Confederation assemblage of the Confederation Lake - Uchi Lake Greenstone belt underlie the Garnet Lake property. A variably altered felsic pyroclastic sequence comprising BQE tuff and ash tuff occupies the northwestern part of the property, and is separated from a coarser pyroclastic sequence (lapilli tuff and agglomerate) to the southeast by a syn-volcanic QFP intrusion. DeepEM and magnetic high anomalies flank both sides of the QFP and are strike extensive, continuing southwest onto the Copperlode property and northeast onto Inmet's South Bay Mine property.

BP Selco had encountered a moderate grade intercept in a drill hole on the property (0.14% Cu and 3.3% Zn over 4.0m) in their work on the ground. Noranda followed that up with a Bore Hole PEM survey which indicated a good target, and they drilled that in 1977, making a significant base metal discovery. The best intercept was 2.2% Cu, 19.1% Zn, 35.1g/t Ag and 1.6g/t Au over 6.3m. This zone occurs at a vertical depth of between 300 and 550m, below the original mineralization outlined by BP Selco.

Tribute reports that, based upon the continuity of a DeepEM conductor, the Arrow Zone is located within a metamorphosed volcanogenic massive sulphide horizon with a strike potential of approximately 4km. The deposit is hosted within magnetite-rich interflow chloritic sediments enveloped in chlorite-anthophyllite-garnet-andalusite-staurolite altered felsic volcanic tuffs. The massive sulphide horizon immediately overlies a sericitized quartz-feldspar-porphyry believed to be a domal footwall. Stratigraphic "up" has been interpreted by previous workers to be to the northwest.

The target massive sulphide is comprised of medium to coarse grained, massive, semi-massive and stringer sphalerite with lesser chalcopyrite, gold, silver, indium and gallium in a gangue of pyrrhotite with lesser pyrite.

#### South Bay Mine Area

The South Bay property optioned by Tribute from Noranda is underlain by felsic volcanic pyroclastics, flows and related sub-volcanic intrusives correlative to the mine series volcanic stratigraphy described at the South Bay Mine located immediately west of the property. The volcanic sequence is part of the Cycle III Confederation assemblage which hosts the past-producing South Bay VMS Deposit, and consists of interbedded mafic volcanic flows and intermediate to felsic pyroclastics and flows with lesser interflow sediments.

The South Bay deposit itself was discovered by drill testing of a single line AEM anomaly. The mineralization was not exposed at surface, but did subcrop under about 6m of overburden (Wan et al., 1978). The discovery hole graded 6.26% Cu, 14.69% Zn and 161 .0g/t Ag over 5.73m of core. Follow-up surface drilling allowed the definition of reserves sufficient to place the property into production in July 1971, and to the end of its life the mine produced 1.45 million tonnes grading 2.3% Cu, 14.5% Zn and 120.0g/t Ag (Atkinson et al. 1990) (Mineral Deposit File: South Bay; Gallo et al., 1979).

As previously noted, a large proportion of the ore mined at South Bay was not found by surface

drilling. According to the Mineral Deposit Files in the MNDM Office in Red Lake, the mine was placed into production with a reserve of 900,000 tons (816,700 tonnes) to a depth of approximately 600 feet (185m). However, a spiral decline deepened from the 600 foot (185m) level discovered the #11 lens at a depth of around 700 feet (215m) in 1973 (P. MacCulloch, pers. comm. 2003) and subsequent underground drilling outlined the largest single lens (#12) at depths in excess of 900 feet (275m) in 1975 (see also Auston, 1977).

According to Gallo, et. al. (1979), South Bay consisted of eight separate but closely spaced lenses of massive sulphide mineralization, of which the largest contained 595,300 tonnes of ore. These ore bodies were hosted by felsic pyroclastic rocks, near the top of the acid phase of the Cycle III sequence. Dacite breccia and tuff (possibly chloritised rhyolite) are overlain by rhyolite flows and pyroclastics. A large body of QFP was interpreted to be an endogenous rhyolite dome.

The volcanic sequence at the mine faces north, and lies a little east of the trace of the axis of a synclinorium. Structural attitudes are sub-vertical. Strong chlorite-dominant alteration envelops and underlies the mineralization and plunges southeast, although the mineralization itself plunges northeast.

Noranda carried out an AEM survey over their South Bay property. The results of this survey indicate the presence of a 400m long, NE trending conductor 800m along strike of the former South Bay deposit. This feature is interpreted to represent the northeast extension of the mine stratigraphy east of the QFP intrusive that cuts off the deposit on its eastern boundary, west of the property. Historical diamond drilling limited to above the -100m level confirms the presence of mine series felsic volcanic pyroclastics hosting disseminated to narrow semi-massive sulphide mineralization with anomalous Zn values.

Noranda followed up this anomaly with a three hole drilling program in 1994-5, and found only anomalous Zn values and no major litho-geochemical indications of the strong hydrothermal alteration typically associated with these VMS deposits (Barr, 1996). They recommended that a re-evaluation of the information available on the South Bay Mine be undertaken before any further work was proposed.

#### Mineral Resource and Mineral Reserve Estimates

No 43-101 compliant mineral resource is currently known on the Property

#### **Interpretation and Conclusions**

The author conducted a modest exploration program for CML in order to generate sufficient Assessment Work Credits to maintain the Property in good standing. MMI multi-element soil geochemistry was used to produce an orientation survey in order to set some base line responses for VMS-style alteration and mineralization on the Property. Typically, a high priority target Zn ore should present as a coincident Zn-Cd-Cu-Ag anomaly.

Multivariate statistical and graphical techniques were used to interpret the MMI data from the Property. Response ratios were examined for anomalous "highs" or groups of elevated responses for single and/or coincident elements.

The second grid, at the north-eastern end of the Property and south of the South Bay VMS Mine, generated a high-magnitude Zn anomaly over considerable width and over a 1.8 km strike length. The anomaly displays the classic VMS style Zn-Cd-Cu-Ag associations, and as such warrants drilling.

The first grid, at the south-western end of the property and postulated to be on-strike with Tribute's discovery, also generated Zn trends, but not of sufficient magnitude to warrant drilling at this time.

The object of the MMI orientation survey was to determine its suitability as a general exploration tool on this property. The author is of the opinion that the new MMI soil analysis did, indeed, meet the exploration objectives by demonstrating that that it is capable of detecting significant Zn anomalies that may have gone undetected by methods used by previous workers.

The density of soil sampling data was sufficient for the purpose of the orientation surveys. 200 meter spaced lines are adequate for property scale exploration, but 100 meter in-fill lines may be recommended for follow-up in all areas of anomalous results.

#### **Recommendations**

The Confederation Lake Property has newly defined, drill-worthy, MMI soil geochemistry targets and is therefore considered an exploration level property with excellent potential for the discovery of significant VMS base metal mineralization. The property remains under explored by modern geochemical and geophysical methods.

The significant 1.8km long Zn-Cd-Cu-Ag MMI soil anomaly on strike with, and adjacent to, the South Bay VMS Mine warrants diamond drilling.

The author is of the opinion that the next phase of work on the CML Confederation Lake Project should focus on confirming the nature of new MMI soil geochemistry anomaly by diamond drilling. It is also recommended that the large volumes of historic data be integrated into an exploration oriented 3D computer modeling system. Follow-up detailed MMI soil geochemistry could be conducted on 100 meter separated "fill-in" grid lines to better define the target associated with the 1.8 km South Bay Mine extension anomaly. Depending on the results of diamond drilling and fill-in MMI sampling, deep penetrating geophysics may be warranted prior to further diamond drilled

Subsequent phases of work should employ target vectoring based on the regional historic data plus additional new target specific data generated from deep penetrating, multi-element MMI soil geochemistry and, where appropriate, deep EM methods like the Titan24 system to locate high potential drill targets.

# Proposed Rolling Phase Budget

# Phase 1: \$350,000

\$50,000	review and compile all historic data enter relevant data into 3D GIS-based computer system define VMS-style vectoring and targeting parameters								
\$300,000	diamond drilling of new Zn- 7-10 diamond drill holes, 2, 2,000m @ 90 =	Cd-Cu and/or gold MMI targets 000 meters (all inclusive) 180,000							
	mobe/demobe =	50,000							
	200 assays @ 25	5,000							
	Downhole surveys	3,000							
	Geologist 30@600	18,000							
	Geotech 30@400	12,000							
	Truck 30@75	3,000							
	Room/Board	6,000							
	Snowmachine	2,000							
	Contingency	21,000							

#### Phase 2: \$500,000

\$200,000	additional MMI survey coverage Deep EM Titan 24 style geophysics in prospective are identification of high-priority follow-up drill targets MMI soil sampling 50,000 1 km strike length Titan 24: 150,000						
\$300,000	4 diamond drill holes, 2,000 meters (all inclusive) Details as above						

# <u>References</u>

Atkinson, B.T., Parker, J.R., Storey, C.C. Report of Activities 1990, OGS Misc Paper 152, p.31-66. 1990

Bruce, E.L, 1929	Gold deposits of Woman, Narrow and Confederation Lakes, District of Kenora (Patricia Portion). ODM, Annual Report for 1928, 37 Pt_4 p_ 1-51.
Fyon, A.J. and Lane, L., 1985	Structural geology and alteration patterns related to gold mineralization in the Confederation Lake area; In: in Summary of Field Work and Other Activities 1985, OGS. Miscellaneous Paper 126: 201-209.
Fyon, A.J. and O'Donnell, L., 198	6 Regional strain state and alteration patterns related to gold mineralization in the Uchi- Confederation-Woman lakes area; in Summary of Field Work and other Activities 1986. OGS, Miscellaneous Paper 132: 266-275.
Goodwin, A.M., 1967	Volcanic studies in the Birch-Uchi Lakes Area of Ontario. ODM, Miscellaneous Paper 6, 96p.
Greig, J.W., 1928	Woman and Narrow Lakes Area, District of Kenora (Patricia Portion). ODM, Annual Report for 1927, 36 Pt. 3 p.85-110.
Gupta, V.K., & Wadge, D.R., 1980	Gravity study of the Birch-Uchi and Red Lakes Area, District of Kenora (Patricia Portion). OGS, Open File Report 5278, 249p.
Gupta, V.K., & Wadge, D.R. 1986	Gravity study of the Birch, Uchi, and Red Lakes area, District of Kenora (Patricia Portion), Ontario Geological Survey report 252, 98p. Accompanied by Maps 2492, 2493, 2494 and 2495. Scale 1:250,000.
Gupta, V.K., & Wadge, D.R. 1986	Bouguer gravity, Red Lake-Birch Lake, District of Kenora, Ont. Geol. Surv., Map 2492, Geophysical/Geochemical Series, Scale 1:250,000. Survey 1976,1977.
Pryslak, A.P., 1970	Mitchell Township, District of Kenora (Patricia Portion); ODM, Preliminary• Map P.593.
Pryslak, A.P., 1971	Knott Township, District of Kenora (Patricia Portion); ODM, Preliminary Map P.635.
V., 1999	<ol> <li>Recent advances in the geology and structure of the Confederation Lake region, northwestern Ontario. GSC, Current Research 1999-C: 187-195.</li> </ol>
V., 1999 Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998	<ol> <li>Recent advances in the geology and structure of the Confederation Lake region, northwestern Ontario. GSC, Current Research 1999-C: 187-195.</li> <li>Structural analysis at the Woman-Confederation assemblage boundary, western Birch- Uchi Greenstone belt: Progress Report.OGS, Miscellaneous Paper 168: 57-58.</li> </ol>
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H.,	northwestern Ontario. GSC, Current Research 1999-C: 187-195. Structural analysis at the Woman-Confederation assemblage boundary, western Birch-
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998	northwestern Ontario. GSC, Current Research 1999-C: 187-195. Structural analysis at the Woman-Confederation assemblage boundary, western Birch- Uchi Greenstone belt: Progress Report.OGS, Miscellaneous Paper 168: 57-58.
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998 Stott, G.M., and Corfu, F., 1991	northwestern Ontario. GSC, Current Research 1999-C: 187-195. Structural analysis at the Woman-Confederation assemblage boundary, western Birch- Uchi Greenstone belt: Progress Report.OGS, Miscellaneous Paper 168: 57-58. Uchi Subprovince; In: Geology of Ontario, OGS, Special volume 4, Part 1, p.145-236. Geology of the Earngey-Costello Area, District of Kenora (Patricia Portion). OGS, Open
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998 Stott, G.M., and Corfu, F., 1991 Thurston, P.C., 1978	northwestern Ontario. GSC, Current Research 1999-C: 187-195. Structural analysis at the Woman-Confederation assemblage boundary, western Birch- Uchi Greenstone belt: Progress Report.OGS, Miscellaneous Paper 168: 57-58. Uchi Subprovince; In: Geology of Ontario, OGS, Special volume 4, Part 1, p. 145-236. Geology of the Earngey-Costello Area, District of Kenora (Patricia Portion). OGS, Open File Report 5240: 210p. Subaerial volcanism in the Archean Uchi-Confederation volcanic belt. Precambrian
Schwerdtner, W.M., Crews, M.J., Gaudette, J., Hanley, J.J., Moslehi, H., 1998 Stott, G.M., and Corfu, F., 1991 Thurston, P.C., 1978 Thurston, P.C., 1980	northwestern Ontario. GSC, Current Research 1999-C: 187-195. Structural analysis at the Woman-Confederation assemblage boundary, western Birch- Uchi Greenstone belt: Progress Report.OGS, Miscellaneous Paper 168: 57-58. Uchi Subprovince; In: Geology of Ontario, OGS, Special volume 4, Part 1, p.145-236. Geology of the Earngey-Costello Area, District of Kenora (Patricia Portion). OGS, Open File Report 5240: 210p. Subaerial volcanism in the Archean Uchi-Confederation volcanic belt. Precambrian Research, 12: 79-80. Physical volcanology and stratigrap hy of the Confederation Lake area, District of Kenora

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#### **CERTIFICATE of AUTHOR**

I, Garry K. Smith, P.Geo do hereby certify that:

- I am a registered Professional Geoscientist in the Province of Ontario and President of Devon Corporation: Devon Corporation 3267 Stonecrest Rd., RR2 Woodlawn, Ontario Canada K0A 3M0
- 2. I graduated with an Honours B.Sc. degree in Earth Sciences from the University of Waterloo in 1977.
- 3. I am a registered member of the Association of Professional Geoscientists of Ontario.
- 4. I have worked continuously as a geologist since graduation from university in 1977.
- 5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 6. I am responsible for the preparation of all sections of the technical report titled "Confederation Minerals Ltd. 43-101 Compliant Report On The Confederation Lake Property, Red Lake Mining Division, Ontario" and dated Nov. 28, 2007 (the "Technical Report") relating to the Belanger and NE Groups of the Property. I visited the Confederation Lake Property on June 13 and August 6, 2006 and June 21, 2007.
- 7. I have not had prior involvement with the property that is the subject of this Technical Report.
- 8. That, as of Nov. 28, 2007 the date of the certificate, to the best of my personal knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 9. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 10.I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 11.I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 28th Day of November 2007.

Signed "Garry K Smith"

Garry K. Smith, P.Geo



# **Appendix 1:**

6

# Assay Certificate, Property Visit

Accurassay DOratories Mineral Assay Division of Assay Laboratory Services Inc

1046 GORHAM STREET THUNDER BAY, ONTARIO P7B 5X5 PHONE: (807) 626-1630 FAX: (807) 622-7571 EMAIL: assay@accurassay.com WEB: www.accurassay.com

## **Certificate of Analysis**

Wednesday, July 12, 2006

Devon Corporation 3267 Stonecrest Road, RR #2 Woodlawn, ON, CA K0A3M0 Ph#: (613) 832-4212 Fax#: Email xgksmith@aol.com, xkarinsmith@aol.com

Date Received : 27-Jun-06 Date Completed : 12-Jul-06 Job # 200640997 Reference : Garry K Smith Sample #: 5 Rock

Accurassay # 62329 62330 62331 62332 62333 62334 Chec	Client Id 332901 332902 332903 332904 332905 ek 332905	Au ppb 533 266 363 13677 5 <5	Pt ppb	Pd ppb	Rh ppb	Ag ppm 26 3 7 2 2 2 2	Co ppm	Cu ppm 11138 6412 10026 481 1206 1206	Ni ppm	Pb ppm	Zn ppm 279 50 93 62 219 206	
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PROCEDURE CORES: AL4AU3, AL4Ag, AL4Cu, AL4Zn The results included on this report relate only to the items tested

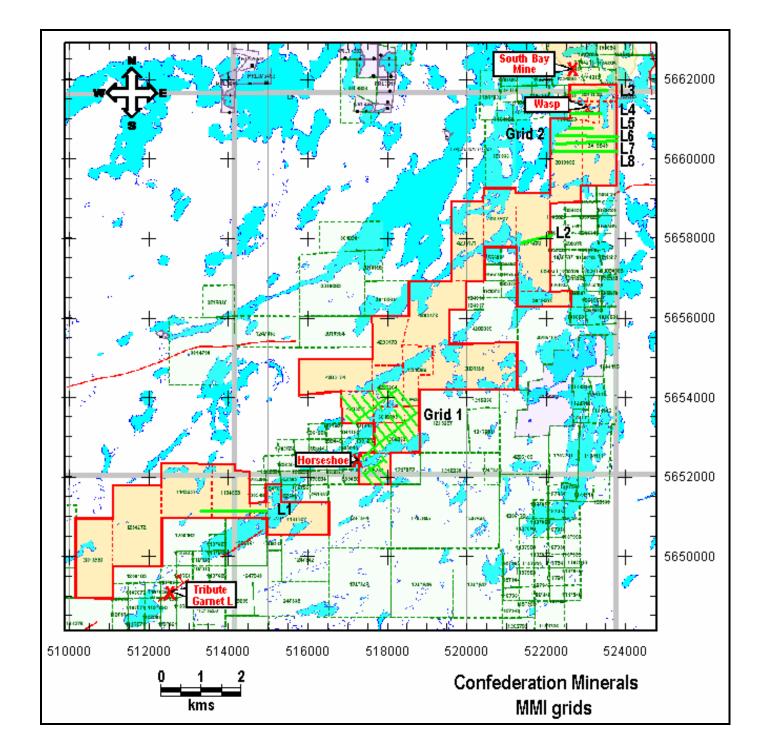
Certified By ianiuk H.Bsc., Laboratory Manager Derei

The Certificate of Analysis should not be reproduced except in full, without the written approval of the laboratory

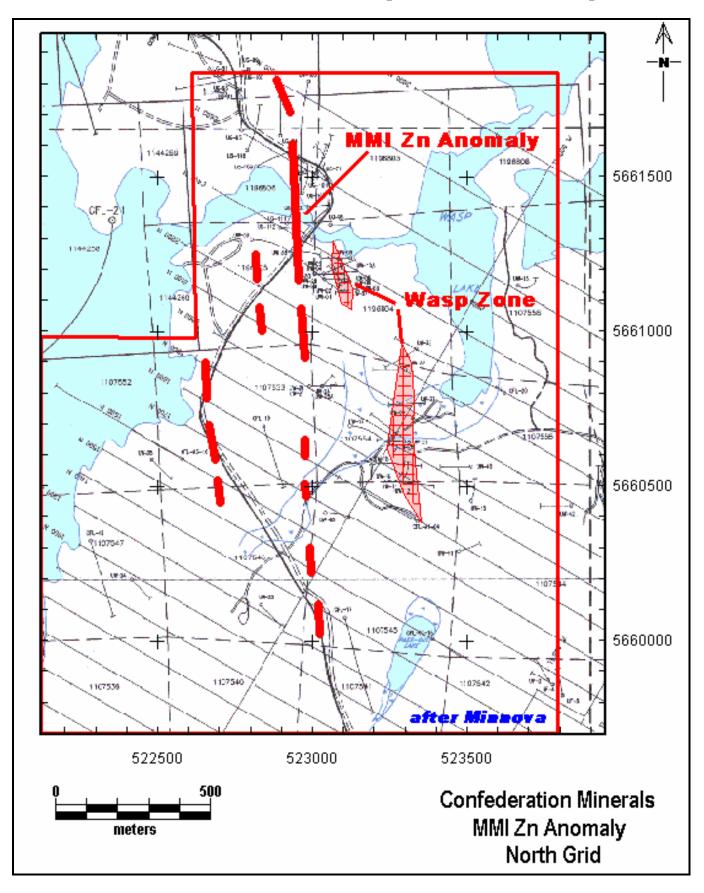
Page 1 of 1

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# Appendix 2



# MMI Grids 1 & 2



#### **Ineterpretation of MMI Zn Response**

